

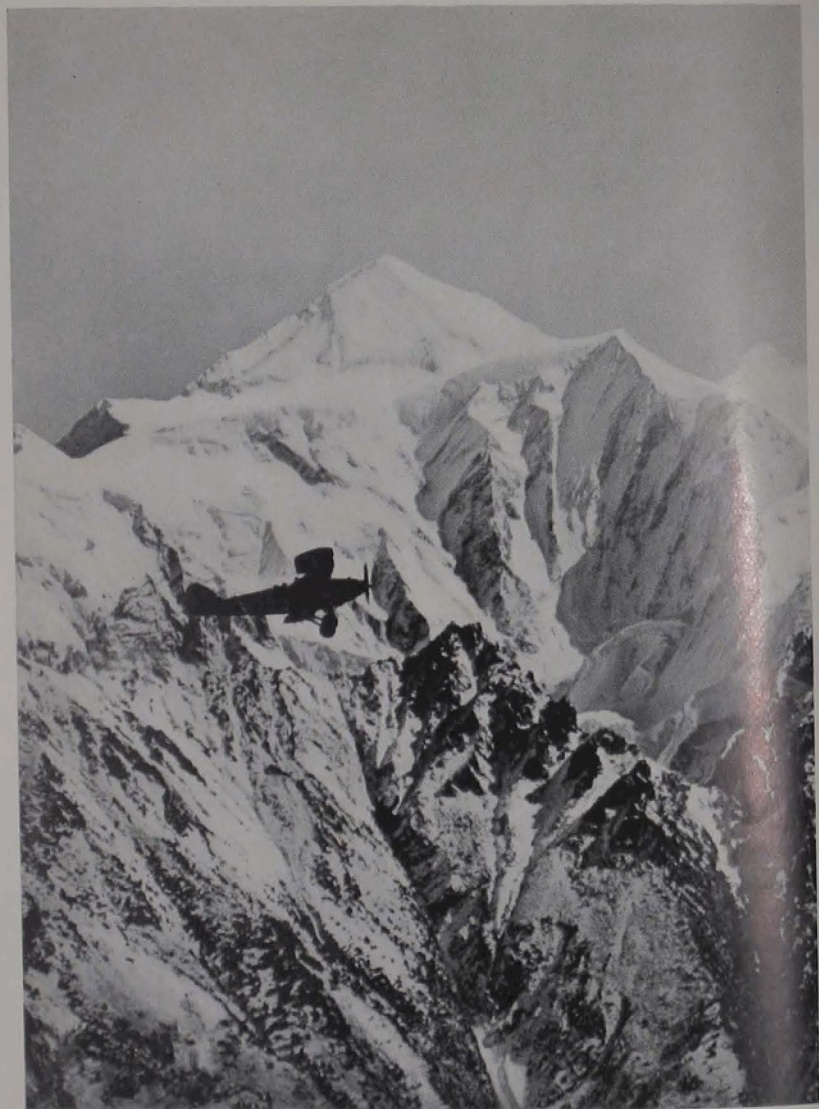
THE
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JOURNAL
RECORDS OF THE HIMALAYAN CLUB

Edited by KENNETH MASON

CONTENTS

	PAGE
I. CHITRAL MEMORIES. <i>By</i> LIEUT.-COLONEL B. E. M. GURDON	I
II. NANDA DEVI. <i>By</i> HUGH RUTTLEDGE	28
III. A SCIENTIFIC EXPLORATION OF THE EASTERN KARAKORAM AND ZANSKAR-HIMALAYA. <i>By</i> HELLMUT DE TERRA	33
IV. A NATURALIST'S JOURNEY TO THE SOURCES OF THE IRRAWADDY. <i>By</i> F. KINGDON WARD	46
V. THE PASSANRAM AND TALUNG VALLEYS, SIKKIM. <i>By</i> DR. EUGEN ALLWEIN	58
VI. THE ATTACK ON NANGA PARBAT, 1932. <i>By</i> WILLY MERKL	65
VII. KULU. <i>By</i> A. P. F. HAMILTON	75
VIII. THROUGH KULU-SARAJ. <i>By</i> R. MACLAGAN GORRIE	85
IX. A PROPHET OF OLD. <i>By</i> CAPTAIN G. C. CLARK	90
X. AN ATTEMPT ON CHOMIOMO. <i>By</i> G. A. R. SPENCE	94
XI. THE CHONG KUMDAN GLACIER, 1932. <i>By</i> LIEUT.-COLONEL KENNETH MASON	98
XII. EXPEDITIONS	103
XIII. IN MEMORIAM. CHARLES FELIX STOEHR. DONALD MCKAY BURN. H.H. MAHARAJA SIR BHIM SHAMSHER JUNG	110
XIV. NOTES	113
XV. REVIEWS	131
XVI. CORRESPONDENCE. <i>A Frontier Tour. Sub-Himalayan Dietetics</i>	148
XVII. PROCEEDINGS AND NOTICES	153
XVIII. LIBRARY NOTICES	168

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*R.A.F. Hart 'plane over the southern flank of
Rakaposhi, 25,550 feet*

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H I M A L A Y A N
J O U R N A L

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*'To encourage and assist Himalayan
travel and exploration, and to extend
knowledge of the Himalaya and adjoining
mountain ranges through science,
art, literature, and sport.'*

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LIST OF PLATES

R.A.F. Hart 'plane over the southern flank of Rakaposhi, 25,550 feet	<i>Frontispiece</i>
Nanda Devi from ridge near Traill's pass	<i>facing p.</i> 28
The Tso Moriri; snow massifs of Spiti on left	" 33
The snowy range east of the Upper Shyok (Muztagh-Karakoram) as seen from Ku-Lungpa	" 33
Gravel beaches in bay of Chartse (Panggong)	" 38
Mitpal Tso, a typical Kar lake in the Ladakh range	" 40
Changpa nomads near P'hobrang	" 40
Sketch-map of the Panggong and Tso Moriri regions	" 44
Looking north up the Nam Tamai towards the Tibetan frontier range	" 48
Daru rope-bridge over the Nam Tamai just below the Seinghku river confluence	" 50
Looking up the Adung river from Base Camp at 6,000 feet, in February	" 54
Passanram glacier and valley from Simvu saddle	" 60
Passanram glacier, Simvu saddle, and Siniolchu from about 11,000 feet on the Passanram-Talung divide	" 60
Nanga Parbat from 'Märchen Wiese' camp	" 65
West Chongra peak from Camp 2	" 66
Rakiot peak and route as far as Camp 7	" 66
Rakaposhi from Camp 4	" 68
Nanga Parbat eastern peaks from Camp 4	" 68
Chongra peak from Camp 6	" 70
Nanga Parbat, 26,620 feet, from Rakiot peak	" 72
The Bashleo pass	" 86
Bahu ridge from Blajdhar, Saraj	" 86
Eastern approaches to Chomiomo	" 96
The dead city of Tsaparang	" 104
Channel connecting Manasarowar and Rakas Tal. Ghiu monastery in background	" 104
Northern face of Panjtarni, the scene of the accident on 12 August 1932	" 108
Over Jalkot in the Indus valley ($35^{\circ} 17' 30''$ N. $73^{\circ} 19' 00''$ E.). Indus Kohistan in background	" 114
Over the Indus valley by Shatial ($35^{\circ} 33' 00''$ N. $73^{\circ} 33' 00''$ E.)	" 114
Nanga Parbat from the north-west	" 116
Looking south towards Nanga Parbat over the Indus valley at Rakiot. Rakiot glacier in the background	" 118
Trisul, 23,360 feet, in the morning. Infra-red photograph from a distance of 72 miles	" 120
Badrinath (or Chaukhamba), 22,880 feet. Infra-red photograph from a distance of 69 miles	" 120
Kedarnath, 22,770 feet. Infra-red photograph from a distance of 69 miles	" 124
A family party of Bharal (<i>Ovis Nahura</i>)	" 126

CHITRAL MEMORIES

EVENTS LEADING UP TO THE SIEGE

LIEUT.-COLONEL B. E. M. GURDON

THIRTY-SEVEN years ago I was one of a small band of British officers who, in company with detachments of the 14th Sikhs and of the Ragonath regiment of Kashmir Imperial Service Infantry, were besieged in Chitral fort on the North-West Frontier of India. I am now the last survivor of that band of six.

I had been only three years in Political service, when, about the beginning of September 1892, I was appointed Assistant to Colonel Algernon Durand, the British Agent in Gilgit, and ordered to join that officer in Kashmir. I reported myself to Colonel Durand at Srinagar and accompanied him and Captain A. E. Sandbach, the newly appointed C.R.E. to the Agency, on their journey to Gilgit. The scenery on the Gilgit road is too well known to require any description from me and I will content myself by saying that I just revelled in its grandeur.

I spent the greater part of the next two years in Hunza-Nagir, where I relieved Captain F. E. (now Lieut.-Colonel Sir Francis) Younghusband as Assistant British Agent in political charge of the district. It was a delightful life among, perhaps, the most manly, and generally attractive, people on the Kashmir frontier. It was also a good preparation for the duties I was before long to undertake in Chitral, as much of my work necessitated close intercourse with Humayun Beg, the Hunza Chief's very able Wazir, who, during the reign of Safdar Ali, the chief who fled when Colonel Durand's force captured Nilt in December 1891, lived for several years as an exile in Chitral. The Wazir was able to give me much useful information about the leading men in Chitral. I did not then know that I was destined to succeed Captain Younghusband in Chitral, but it was my duty to learn as much as I could about the Gilgit Agency and neighbouring districts, and I realized how fortunate I was to discover such a well-informed, reliable, and wise mentor. Humayun was certainly the strongest character on the Kashmir frontier. Another piece of good fortune was the skill of my clerk, Munshi Sher Mohamed, a *maulvi aalim* of the Lahore University, in coaching me in Arabic roots and Persian.

On the 30th August 1892, a few weeks before I arrived in Hunza, Mehtar Aman-ul-Mulk, the *Lut* (great) *Mehtar*, as he was generally called, died, and I remember how forcibly Humayun Beg stressed

the importance of this event. He pointed out that the *Adamzadas*, or aristocracy, were discontented, as Aman-ul-Mulk had controlled them with a firm hand for many years, and he thought that only those who were connected by ties of foster-relationship with his numerous sons would oppose the claim of his exiled brother, Sher Afzal. The majority were weary of the exactions of the Lut Mehtar's sons, and disliked their apparent eagerness to rely on the support of British officers, which they feared would result in interference with local customs, and, especially, with the retention by the leading men of their slaves. Subsequent events certainly testified to the accuracy of the Wazir's forecast.

Another cause for mistrust of our intentions, mentioned to me by others, was the introduction of land-settlement operations in that portion of the Gilgit agency directly under the control of the Kashmir governor. There was, of course, no intention of introducing such operations to the self-governing parts of the Agency, but there is no doubt that the more discontented of the Adamzadas tried to persuade their compatriots that this would happen.

Chitral fort, on the right bank of the river of the same name, lies among the mountains about 150 miles north of Peshawar. The mighty Hindukush range forms the northern boundary of the State and divides it from Afghan Turkistan. On the west is the Bashgal valley of Kafirstan (now included in Afghanistan), and on the east the petty States of Hunza and Nagir, and Punial in the Gilgit Agency.¹ Another lofty range divides the State on the south from the independent tribal districts of Dir and Swat, Darel and Tangir. Both the capital, a collection of hamlets, and the State, are called Chitral; and the fort is almost equidistant from the Dorah pass on the north-west, connecting the Lut Kuh valley of Chitral with Zebak in Afghan Turkistan, and from the Lowari pass on the south, leading to Dir, Chakdara, and Malakand. The distance, as the crow flies, in both cases is about fifty miles.

The total area of Chitral (exclusive of Yasin) is about 4,500 square miles, the greatest length being about 200 miles from the Baroghil pass on the north to the Afghan frontier on the south. The population of the State is very sparse; in 1895 it probably did not exceed 55,000. By far the greater part of the country consists of mountains, among them being many snow-clad peaks, the best known of which is Tirich Mir (25,426 feet). Cultivation is mainly limited to small fan-shaped oases of alluvial soil deposited by mountain torrents just before their junction with the rivers. The limited

¹ I speak of the years immediately preceding the events here recorded. In 1895 the Yasin valley also formed part of Chitral territory. The Chitral river is known lower down as the Kunar.

amount of cultivable land is an important geographical point to remember when we attempt to trace the causes of the hostile attitude of the majority of the Adamzada class to British interference in Chitral politics in 1895.

It can be readily realized that in a country where cultivable land is limited in extent and in which there are no other means of livelihood there must always be a considerable number of discontented individuals. This, in my opinion, was the main reason for the support by the majority of the Adamzadas of the cause of the exiled Sher Afzal. Aman-ul-Mulk was such a strong ruler that no serious attempt to challenge his authority was made during his long reign. He naturally took steps to distribute the best houses and lands among his most trusted supporters and especially among the foster-relatives of himself and his two elder legitimate sons, Nizam-ul-Mulk and Afzal-ul-Mulk. When Aman-ul-Mulk died those who had failed to win his favour supported Sher Afzal's claim to the throne in the hope that they might profit by a redistribution of the lands held by their more fortunate compatriots. When they saw that the Government of India was apparently determined to support the claims of Aman-ul-Mulk's sons in opposition to his brother Sher Afzal, their discontent and hostility to our interference in the affairs of their country were very naturally aggravated. If the British garrison were even now to be withdrawn from Chitral this scarcity of cultivable land would, I think, lead inevitably to renewed disturbances.

From a military point of view it was a very difficult country in 1895. The main lines of communications were mere hill tracks, which, seldom easy, were often difficult and sometimes dangerous. For instance, the track between Chitral and Mastuj, a distance of sixty-three miles, following the river, passed in several places through narrow gorges bounded on one, sometimes on both banks of an unfordable and swiftly running river by almost perpendicular cliffs. Any detachment of troops using this route could, as Lieutenants Edwardes and Fowler, and Captain Ross and Lieutenant Jones found to their cost in the spring of 1895, be easily stopped by the removal of a few planks from the cliffs across which the track passed; and they would then prove an easy target to tribesmen hurling rocks from above and to riflemen hidden among the boulders on the opposite bank of the river. With the exception perhaps of the country between Hunza and the Pamirs it is probably the most difficult country on the whole of the Indian frontier.

Owing to their general illiteracy and the absence of any written records, it is difficult to form an opinion of the origin of the inhabitants of Chitral. It is, however, safe to say that they are made up of

many different races. It is also safe to say that the majority differ considerably in appearance, manners, and customs from both the *Siah Posh* Kafirs and the Pathans of Dir, Jandol, and Asmar, their neighbours on the west and south. It is probable that the middle and lower classes inhabiting the valley below Chitral are descended from the *Kalash* or slave Kafirs, the last remnant of the aboriginal race that has retained its original pagan faith. The inhabitants of the upper valleys, known as *Kho*, appear to be a mixed race, among them being families descended from the peoples both of Gilgit and Turkistan. The upper or ruling class, known as *Adamzadas*, are of a distinctly higher type and race than the mass of the people, and according to tradition the most important clans are descended from one Baba Ayub, who hailed from Khorasan and was related to the great emperor Taimur.

Various opinions as to the character of the Chitralis have been recorded. Colonel Lockhart (afterwards General Sir William Lockhart, Commander-in-Chief in India), head of the Chitral mission of 1885-6, wrote:

They are goodnatured and kindly among themselves and no soldier could wish for better partisans in hill warfare. . . . They seem to be impervious to cold or fatigue, and, after going 40 miles at high speed over the mountains, a man will be ready to dance or to sit down and sing by the camp fire throughout the night. Life is held of no account. They do not pretend to be even outwardly religious as a rule.

Sir George Robertson,¹ writing in 1895, was not so complimentary. He laid stress on their capacity for treachery and cold-blooded cruelty, their untruthfulness, and their power of keeping a collective secret. At the same time he admitted that they were charmingly picturesque and admirable companions. Finally, he thought that their most convenient trait, as far as we were concerned, was a complete absence of religious fanaticism.² My own view, expressed in 1903, was that, in view of their success in maintaining the integrity of their country in the past against invasion by Pathan and other tribesmen, there was a good fighting strain in the country. I also recorded that, though religion was not taken very seriously by the majority, nearly all would hesitate to perjure themselves after being

¹ Speaking generally I have described Sir George Robertson as Mr. Robertson in this narrative as he did not become a K.C.S.I. until after the siege of Chitral in April or May 1895. He held the rank of Surgeon-Major in the I.M.S., but had given up medical work after he entered the Political Department of the Government of India.

² Certainly in the upper valleys, where the people are Maulai Muhammadans (i.e. followers of H.H. the Aga Khan), they are very casual about religious observances. The Sunnis of lower Chitral are more particular.

sworn on the Koran. I also noted that all classes were very superstitious.

The importance of Chitral lay in its position at the extremity of the country over which the Government of India exerted its influence; and the policy of the Government since 1876 had been directed towards securing control of the external relations of the State in a direction friendly to our interests, an effective guardianship over its northern passes, and reliable news of events occurring beyond those passes.

In 1876 Aman-ul-Mulk, the Mehtar of Chitral, had tendered his allegiance to the Maharaja of Kashmir, and a few months later represented with more urgency to the Maharaja his need for support, as the neighbouring Pathan Chiefs of Dir, Bajour, and Swat were, he said, submitting to the great Amir of Kabul, Abdur Rahman. In reply to this second letter the Maharaja was authorized to instruct the Chitral Chief to refuse compliance with the Amir's demands; and at the same time, under instructions from the Viceroy, a letter was addressed by our Commissioner at Peshawar to the Amir of Kabul warning him to relinquish his efforts to assume sovereignty over Chitral and the neighbouring chiefs, and reminding him that the British Government had never recognized his claims to allegiance from those chiefs. In pursuance of the agreement with the Maharaja of Kashmir, Major John Biddulph was deputed to Gilgit in 1877, and he visited the rulers of Yasin and Chitral and obtained from the latter a further written agreement acknowledging the suzerainty of Kashmir. The Amir, however, persisted in interfering, and this was one of the chief causes of the unrest on this section of the frontier in the latter part of the year 1894.

As I have mentioned, Mehtar Aman-ul-Mulk died on the 30th August 1892. He was succeeded by his second son, Afzal-ul-Mulk, who happened at the time to be present in Chitral fort. The elder son, Nizam-ul-Mulk, who was in Yasin, fled to Gilgit. About this time the presence of Ghulam Haidar, the Afghan *Sipah Salar*, or Commander-in-Chief, in the Kunar valley, within a short distance of Chitral, was reported as having a very disturbing effect on the surrounding country and to have greatly increased the difficulties of our position.

On the 30th September 1892 Jemadar Rab Nawaz Khan, of the 15th Bengal Lancers, who had been our news-writer at Chitral since 1887, reported the seizure of Narsat fort by Umra Khan, the Khan of Jandol, and his refusal to vacate it when ordered to do so by both the Afghan *Sipah Salar* and Afzal-ul-Mulk. Nizam-ul-Mulk then made overtures to Umra Khan.

On the 6th November 1892, Aman-ul-Mulk's exiled brother,

Sher Afzal, who had for many years lived as a refugee in Badakshan and was in receipt of a handsome allowance from the Amir of Kabul, surprised the fort of Chitral and killed Afzal-ul-Mulk. This adventure had undoubtedly been approved by the Amir, who thus sought to obtain through this prince what the Government had disallowed, the suzerainty over Chitral.

Nizam-ul-Mulk, who was in Gilgit, then informed the British Agent that he proposed to move against Sher Afzal. On his departure Colonel Durand dispatched 2 Kashmir mountain battery guns, 250 rifles of a Kashmir regiment, and 100 Hunza levies armed with Snider carbines to Gupis, at the mouth of the Yasin valley.

Nizam-ul-Mulk, on crossing the Shandur pass, occupied Mastuj in the Yarkhun valley without opposition, and then moved on to Drasan. He was accompanied by a detachment of Hunza levies commanded by Humayun Beg, the Wazir whom I have mentioned above, and who was rightly respected for his sagacity and strength of character. A skirmish near Drasan, which, mainly owing to the skill of the Hunza Wazir, ended in favour of Nizam-ul-Mulk, gave rise to a rumour that Government troops¹ were included among Nizam-ul-Mulk's following; and this, coupled with the defection of a large number of leading men, was so discouraging to Sher Afzal that, after ruling for barely a month, he fled from Chitral and took refuge with the Afghan Sipah Salar at Asmar in the Kunar valley.

Shortly prior to Sher Afzal's flight, Umra Khan of Jandol, at the instigation of Ghulam Dastgir, a son of Mehtar Aman-ul-Mulk by a slave girl, made an unsuccessful attack on Drosh, now the headquarters of our garrison in Chitral. Umra Khan was then warned by the Government of India that interference by him would not be approved.

Nizam-ul-Mulk, who had with difficulty been persuaded to occupy Chitral, now begged that a British officer might be sent to him, and in compliance with this request a mission under Surgeon-Major G. S. Robertson was dispatched to Chitral in January 1893. Writing from Chitral the following April, Mr. Robertson reported that Nizam-ul-Mulk's position was very insecure. He said that the new Mehtar was unpopular with the Adamzadas, who hoped that Sher Afzal would once more return; and it was evident that the leading men did not believe that the Amir would keep him under surveillance at Kabul in accordance with his promise to the Government of India. Another complication was the attitude of Umra Khan of Jandol, who not only still declined to evacuate the Narsat fort, but threatened to attack Drosh again, nominally in the in-

¹ The Hunza levies had been taught by British officers to fire volleys, and the Chitralis had had no previous experience of this method of fire control.

terests of Aman-ul-Mulk's younger son, Amir-ul-Mulk,¹ to whose sister he was married, but in reality with a view to seizing that part of the Chitral valley for himself.

In September 1893 the Secretary of State sanctioned the retention of a Political Officer in Chitral; and in accordance with Colonel Durand's proposals Captain F. E. Younghusband was directed to take up his residence at Mastuj fort near the junction of the Yarkhun and Laspur rivers, sixty-three miles above Chitral. An escort of a hundred rifles of the 15th Sikhs was left with Captain Young-husband.²

Later the same month the Government of India informed the Secretary of State that the Amir had undertaken to detain Sher Afzal in the Ghazni district.³ This promise on the part of the Amir was communicated to Nizam-ul-Mulk, who was also informed that the Khan of Jandol had been warned not to commit aggressions against Chitral, and that Muhammad Wali, the son of the late Mehtar Mir Wali, the murderer of Hayward, would not be allowed to disturb his authority in Yasin.⁴ At the same time it may be noted that the Government of India ignored the Chitrali claim to Narsat. Umra Khan was still in possession of Narsat fort, and the Government decided that it was inconvenient at that time to discuss his

¹ Amir-ul-Mulk was own brother to Shuja-ul-Mulk, the present Mehtar of Chitral.

² In 1894 this detachment was relieved by a detachment of the 14th Sikhs of similar strength.

³ In his dispatch to the Government of India, dated 1st September 1893, Lord Kimberley, Secretary of State for India, wrote: 'In regard to Chitral, it has been the consistent policy of the Government of India to exclude from that country not merely the control, but even the influence, so far as possible, of the Amir of Afghanistan . . . I cannot agree that it would be a wise policy to give to the Amir suzerainty over Chitral, and it would be unjustifiable to deprive Kashmir of her acknowledged right of suzerainty in order to hand it over to the Amir of Afghanistan.'

Paragraph 3 of the agreement between the Amir Abdur Rahman Khan of Afghanistan and Sir H. M. Durand, representing the Government of India, which was signed at Kabul on the 12th November 1893, may also be noted. It runs as follows: 'The British Government thus agrees to H.H. the Amir retaining Asmar and the valley above it as far as Chanak. H.H. agrees on the other hand that he will at no time exercise interference in Swat, Bajour or Chitral, including the Arnawai or Bashgal valley.'

⁴ Lieutenant Hayward was probably the first Englishman to visit Yasin. He was murdered near the Darkot pass in 1870 by Mir Wali, the then ruler. Mir Wali paid for this crime with his life, he being killed by a servant of Pahlwan Bahadur. Sir George Robertson, writing in 1895, said: 'Mir Wali, the Mehtar of Yasin, who suffered for the crime, was probably instigated to it, not as he falsely declared, because Hayward had tried to force villagers to do his transport work, but because Aman-ul-Mulk of Chitral and perhaps the Kashmir authorities also dreaded the idea of English travellers visiting this borderland. Hayward's rifle was given to the Chitral Mehtar and many years afterwards was presented to me by Nizam-ul-Mulk.' I have heard on good authority that Hayward was not very diplomatic in his dealings with the villagers, but, of course, he was not in any position to use force.

attitude with reference to that fort.¹ It is important here to note that possession of the Narsat district almost certainly entailed submission by the Kafirs of the Bashgal valley to the Chief holding that district. These Kafirs depended for their livelihood almost entirely on their flocks; and in winter, when the Bashgal valley was under snow, they were in the habit of leaving the highlands and resorting with their flocks to the banks of the Chitral river.

In May 1894 Amir-ul-Mulk returned to Chitral, professing to have escaped from the hands of his brother-in-law Umra Khan, and was kindly received by Nizam-ul-Mulk.

I may now return to the narrative of my personal experiences.

Early in December 1894 I was ordered by Mr. Robertson, who had succeeded Colonel Durand as British Agent at Gilgit, to proceed to Chitral to take over the post of Political Officer in succession to Captain Younghusband, who had proceeded on leave. At this time Mr. Udny, the British Commissioner for the demarcation of the Afghan frontier, was encamped with Ghulam Haidar, the Afghan Sipah Salar at Nashagam, about fifty miles below Chitral and close to the junction of the Bashgal river with the Kunar.

Before I left Gilgit Mr. Udny had telegraphed to Mr. Robertson asking that a Political Officer might be sent to meet him in the Kunar valley. Mr. Robertson had rightly objected to this proposal unless a written permit and safeguard were first obtained for the journey through that part of the valley occupied by Umra Khan. Subsequently, the Government of India had also telegraphed that it was desirable for a British Officer to be sent to meet Mr. Udny. Finally, it was decided that I should remain for a time at Chitral, after presenting my credentials to the Mehtar, and keep in correspondence with Mr. Udny with regard to the claim of the Chitral Chief to the disputed territory.²

At Gupis, which is situated at the mouth of the Yasin valley, where the river of that name joins the Ghizr river, and about sixty miles north-west of Gilgit, I received from Mr. Robertson my final instructions. Mr. Robertson had visited Chitral during Mehtar Aman-ul-Mulk's reign when he made his daring journey into Kafirstan, and he had paid a second visit in January 1893, in response to Mehtar Nizam-ul-Mulk's anxiety to receive a British Officer; he was therefore well qualified to instruct me. It was evident that he thought my mission would not be unattended by risk, and the gravity of the political situation was brought home to me when he said that, in

¹ This district, called Nari by the Pathans, is a strip of country on the right bank of the Chitral or Kunar river between the junction with that river of the Bashgal river and Bailam (also called Bargam) some five miles above Asmar.

² See *Himalayan Journal*, vol. ii, p. 126.

the event of disturbances in the Kunar valley, I must at once summon my escort from Mastuj and dispatch urgent messengers with news of events to Gilgit.

Beyond Gupis I found the daily marches intensely interesting. The Ghizr valley was under snow, and I had frequently to dismount and lead my pony over places where frozen rivulets had rendered the track along the steeper slopes more difficult than in summer. The cold was considerable, and I was very thankful to find shelter for myself and my Indian servants in the villages. A representative of Mehtar Nizam-ul-Mulk had met me at Gupis, and by his order one of the best houses in each village at which I halted was cleared for my occupation.

On the third day after leaving Gupis I crossed the Shandur pass (12,400 feet), and I can remember to this day how bitterly cold was the wind. On the Chitral side of the pass I was met by Mohamed Rafi, the *Hakim* or Governor of the Laspur district; he struck me as not being too friendly, and I was not surprised to learn later from our news-writer in Chitral that he was not likely to be a trustworthy supporter of Nizam-ul-Mulk, as he was the foster-father of Mohamed Wali, son of the late Mir Wali, Hayward's murderer.¹ Mohamed Rafi was indeed himself present at the murder and doubtless felt none too comfortable when meeting British officers.

The estimate I then formed of Mohamed Rafi's attitude was fully borne out in the subsequent disturbances in which he took a prominent part against us. He had much influence with the Laspuris and a few weeks later Mr. Robertson offered to confirm him in the position of Hakim of Laspur with an allowance from the Kashmir State. Notwithstanding this he could not resist the temptation of joining Sher Afzal, and he persuaded his foster-son, Mohamed Wali, to do likewise. The foster-tie is very strong in the Hindukush region, and Mohamed Rafi hoped that his foster-son might become ruler of Yasin, Ghizr, and Laspur, and possibly of Mastuj also; he himself, in accordance with custom, would then become, next to the ruler, the most important person in that part of the country.

I have referred at some length to Mohamed Rafi to give some idea of the many conflicting interests with which we had to deal. It will readily be realized that it was very important for me to learn all I could of the character and political inclinations of the leading men of the villages through which I passed on my journey towards the capital.

At Mastuj fort, at the junction of the Yarkhun and Laspur rivers, which I reached on the fourth day after leaving Gupis, I found Lieutenant H. K. Harley and a company of the 14th Sikhs. Mastuj

¹ See note 4, p. 7.

is well described in Robertson's *Chitral, a Story of a Minor Siege*, as 'a dismal fort standing bleakly among saltpetre swamps'. Since Captain Younghusband had proceeded on leave a few months earlier in the year, Harley had been the sole British officer in this sad spot, and he gave me a very warm welcome. He introduced his two smart Sikh officers, Subadar Gurmukh Singh and Jemadar Atar Singh; and I was especially interested to meet the former as he knew the country well, having travelled all over it in 1885 as Havildar of the escort accompanying Colonel Lockhart's mission. This previous knowledge of the country was, as will be shown later, to prove particularly useful. I told Harley all I had learned from Mr. Robertson about the situation in lower Chitral and the precarious position of Mr. Udny's mission in the Kunar valley. I also informed him that I was authorized to summon a considerable number of his men to Chitral should I deem such a reinforcement to be necessary. I also had a talk with Subadar Gurmukh Singh and was interested to notice that he fully appreciated the difficulties, from a military point of view, of the track between Mastuj and Chitral. Harley was inclined to laugh at the possibility of attack by the ill-armed and, as he considered them to be, effeminate Chitralis. The local tribesmen, certainly, were no match for our Sikh infantry in open country, but it was foolish to put down as effeminate men who were admirable mountaineers, able to move about their native mountains with far greater celerity, and with much less effort, than our heavily laden sepoy, encumbered as they would also be by a train of laden coolies.¹ The disaster to Captain Ross's detachment in the Koragh defile a few weeks later furnished ample proof of the folly of underrating the fighting qualities of the Chitrali in such difficult country. There is an admirable picture of the Koragh defile facing page 115 of Robertson's *Chitral*.

On leaving Mastuj I took with me Naik Narain Singh and seven picked sepoy of the 14th Sikhs. They were splendid men and I felt that it was a great privilege to have them with me. I shall have occasion to refer later in this narrative to the devoted service they rendered me.

My march beyond Mastuj was uneventful until I arrived at the village of Mori on the right bank of the Chitral or Mastuj river. Here I was met by our news-writer, Jemadar Rab Nawaz Khan, and his father-in-law, Aksakal Fateh Ali Shah, the Mehtar's principal revenue collector, a fine-looking man of about fifty, whose appearance was, however, rather spoilt by a very prominent goitre. From them I again learnt that Nizam-ul-Mulk's position as Mehtar was far from secure, and that there was a strong anti-English party

¹ The track at that time was not fit for mule transport.

which longed for the return of Sher Afzal. Rab Nawaz Khan also informed me that he thought the Afghan Commander-in-Chief, who was with Mr. Udny's Boundary Commission, had been spreading rumours that the Indian Government intended eventually to annex all the country up to the boundary fixed by the Commission. My arrival in Chitral would, he thought, serve to strengthen the suspicions of the tribesmen of Dir and Jandol who, owing to the teaching of the Baba Sahib of Dir and other bigoted Mullas, had never been friendly towards us. Rab Nawaz Khan was also confident that Sher Afzal continued to intrigue in Chitral and that his supporters attached little importance to the Amir's promise to keep him under restraint; nor were the Afghans likely to abandon lightly their claim to the Narsat district and the Bashgal valley of Kafiristan; and the rumour that the object of my visit was to present a counter-claim by Chitral was hardly calculated to render me more popular with the Afghan Commissioner in Mr. Udny's camp. Another discordant element in the situation, he pointed out, was Umra Khan of Jandol, who was determined to keep Narsat if he could and was not likely to be friendly to a British officer coming from the direction of Chitral without sufficient authority to support his claims.

Before retiring to rest that night I wrote to Mr. Robertson to tell him all I had heard.

On the 17th December 1894 I arrived at Chitral. About seven miles from Chitral the river passes through a narrow gorge and the track at that time crossed the face of a precipitous rock cliff, known as the *Biteri pari*, close to the water's edge, by a gallery, made of rough wooden poles fastened with wire to iron staples driven into the rock and covered with flat stones, earth, and brushwood.¹ The gallery looked very insecure and I was relieved to see that the Chitrali horsemen, who were showing me the way, dismounted. I was not surprised to hear later that not a few ponies had fallen into the river at this spot. I usually rode Badakshan ponies during my tour of service in Gilgit and Chitral and found them hardy and excellent hacks and very clever on difficult ground. Horse-breeding is very popular in Badakshan. I only had one pony killed on a rock cliff, and that accident would not have happened if the man leading the pony had given him his head. I also lost one pony off a rickety cantilever bridge near the Baroghil pass from similar want of judgement on the part of my orderly.

About a mile beyond this gallery where the river leaves the gorge

¹ The description given by Lieut. Fowler, R.E., of this in his diary, written in 1895, was as follows: 'A precipitous rock face. Through this precipice the road had been carried in a marvellous manner, built out on timbers stuck in crevices in the rocks and carried on walls resting on small projections in the almost vertical cliffs.'

I changed into uniform; and a mile or so farther on, where the track emerges into the plain, Nizam-ul-Mulk, accompanied by a great cavalcade of the leading men in the country, met me. The mob which accompanied the Mehtar was wonderfully picturesque. All the men were armed in some way and many carried fire-arms, the more trusted bearing Snider rifles or carbines, and others muzzle-loading Enfield rifles or matchlocks.

The Mehtar's falconers and his *corps de ballet*, comprising both men and boys in bright-coloured raiment, were also present.¹ All the leading men were mounted on useful-looking ponies and several had permitted a retainer to mount behind their saddles. Many of the ponies were decked with silver-mounted trappings which, together with the brilliant-coloured garments of silk, broadcloth, and cloth of gold, worn by their riders, lent brightness to a fascinating spectacle.

From the place of meeting we rode at a walk, a distance of about two miles, to the cantilever bridge spanning the river, to cross which we dismounted. The Mehtar and those who rode closest to him were evidently genuinely pleased at my arrival, and gave me a cordial welcome. I was glad to find that Nizam-ul-Mulk seemed to experience no difficulty in understanding my Persian. He himself talked with animation and all went smoothly until we were opposite the fort a short distance beyond the bridge. Here our conversation was interrupted by the arrival of a stupid-looking youth of from eighteen to twenty years of age. He was clad in plain and not over-clean white garments and white turban badly tied and looked more like a *talib-ul-lim* (student for the priesthood) than anything else. He salaamed profoundly, but the Mehtar made no attempt to introduce him or acknowledge his salutation; and when he dropped behind to find a place in the cavalcade, and I inquired as to his identity, the Mehtar replied that he was only one of his many brothers. I found afterwards that this description was distinctly misleading. I knew that Aman-ul-Mulk had left many sons. Indeed, according to Colonel Durand, 'he had eighty children and at every village you might find a small son or hear of a daughter'. The im-

¹ The Chitrali falconers are famous on this part of the frontier. It is an hereditary occupation and the most prized bird is the Goshawk which will always fetch a good price in Peshawar. The right of catching hawks is much sought after and the spurs descending from the watershed to the right bank of the river below Chitral are generally allotted to the Mehtar's favourites. Small huts about the size of a large writing-table with a trap door in the roof are built into the hill-side, and the falconer takes up his position in these with a partridge as bait. The partridge is placed on the roof with a string fastened to its legs and when the hawk seizes it the quarry with the hawk still attached is gently drawn through the trap door. It is customary for several huts to be erected on each spur or ridge at a distance from one another of a few hundred yards, and the falconer sits high or low on the hill according as the sky is clear or overcast.

important point was that this young man was Amir-ul-Mulk, a legitimate son of Aman-ul-Mulk by a *Khunza*, or Queen; it is only the sons of Khunzas who are recognized by the Adamzadas as possible heirs to the *masnad*.¹ Thus it will be seen that the plain young man was of more importance than Nizam-ul-Mulk wished me to believe. In view of what occurred a few days later I have thought this incident worthy of record; and I may at once mention that I took an early opportunity of expostulating with Nizam-ul-Mulk on the folly of treating his brother and heir presumptive in so off-hand a manner.

Nizam-ul-Mulk escorted me as far as the Chitrali house occupied by Mr. Robertson's mission in 1893 and subsequently by Captain Founghusband. It was a house of two stories, the part meant for occupation by the owner being above, while the ground floor was utilized for storing grain and firewood and for servants' quarters and tables. The front entrance to the owner's living-rooms was by a door at the head of a flight of steps leading from a garden, itself enclosed by rough stone walls and containing *chenar* (plane) and apricot trees and a *chabutra* (platform) of stones and mud, so placed as to ensure to the user the maximum amount of shade. Entry to the ground-floor rooms on the east side was by a fairly spacious courtyard having stables at the end farthest from the house and sheds on either side. On the south side, at a distance of less than 100 yards, was a *masjid*, and between it and the house was the enclosed burial ground of the ruling family.² Behind the garden or orchard on the west were fields rising gradually to the steep spur on the right bank of the ravine known as the Chitral Gol. From this spur the flat roof of the house could be commanded by marksmen armed with Martini-Henry rifles. On the north side of the house was the deeply cut bed of the Chitral Gol.

During the week following my arrival I had daily talks with Nizam-ul-Mulk and found him an interesting companion. He was as fair as any southern European, distinctly good-looking with very pleasing manners. A good deal of our conversation related to the claim of Chitral to the district of Narsat, and I promised, as indeed I was bound to do by the instructions I had received from Mr. Robertson, to submit a report to Mr. Udny on the claims of the Chitral ruler to the disputed district.

Nizam-ul-Mulk was, according to Chitrali ideas, a keen sportsman,

¹ Nizam-ul-Mulk had no sons. Aman-ul-Mulk left four legitimate sons by *Khunzas*: Nizam-ul-Mulk and Afzal-ul-Mulk by a daughter of Ghazan Khan, Khan of Dir; and Amir-ul-Mulk and Shuja-ul-Mulk by a daughter of Abdullah Khan, Khan of Asmar. Shuja-ul-Mulk, the present Mehtar, was then a boy of about twelve years of age.

² I was informed that all buried here with the exception of the late Mehtar Aman-ul-Mulk had died violent deaths.

and when he heard I was anxious to shoot a markhor he begged me to allow him to arrange a drive for markhor in the ravine adjoining the house I occupied. The Chitralis are great experts at such drives, and I had heard a good deal about the large bags usually secured. I was not, however, anxious to take part in a *battue* of this kind; and I made the excuse that I was in want of exercise and would prefer to enjoy the excitement of finding a big head and stalking it. The Mehtar agreed to give effect to my wishes by detailing his half-brother, Mehtarjau Asfandiar, and his favourite foster-brother, Bul Khan, to accompany me; and it was arranged that I should start on the 1st January 1895 on a trip which was intended to last two or three days. The Chitral Gol which was to be the scene of my expedition was the Mehtar's special preserve, and it was arranged that I should start after an early lunch and ride or walk by a steep zigzag path up a spur on the left bank of the ravine and then descend to a hut at the junction of two nullahs in the bed of the ravine and there spend the night. My baggage was to be sent on ahead at an earlier hour.

I sent off my final report relating to the Chitrali claim to the Narsat district to Mr. Udny, said farewell to Nizam-ul-Mulk, and started on what I hoped would prove a very pleasant expedition. I arrived at the hut shortly before sundown. I found my Kashmiri cook had tea ready and also that a runner had arrived with a mail bag which contained letters from Gilgit and England. I had hardly finished reading these letters when Asfandiar and Bul Khan rushed in to say that Wazir Wafadar Khan had arrived with the news that the Mehtar had been murdered.

The crisis, which ever since my arrival in Chitral a few days earlier I had felt to be threatening, had arrived with startling rapidity. I at once interviewed Wafadar Khan, who, though too agitated to give a coherent account of what had happened, made it clear that the murder was the work of the unfortunate ruler's despised half-brother, Amir-ul-Mulk.

Evidently the first thing to do was to get back to Chitral as speedily as possible, and I decided to follow the ravine to about 300 or 400 yards above the house assigned to me for residence. It was not a pleasant journey, as it entailed a good deal of wading by torchlight through icy cold water in order to avoid patches of smooth rock covered with ice. Lieut.-Colonel R. L. Kennion gives a graphic description of this ravine on page 110 of his book, *Sport and Life in the Himalaya*. With his permission I quote here his account of his own experiences in the same ravine:

Early one winter morning I found myself following a Chitrali guide up a gorge where sheer sides of rock in places almost met above us. Every few

hundred yards the torrent impinged against one rock wall or the other necessitating a crossing by means of a pine pole flung across the foaming water. The night's frost had glazed such of these as were touched by the spray with a film of ice which had to be dusted with sand before even my light-footed guide could trust himself on them. But for these, and occasional anxious moments at points where a crossing of the stream had been deemed unnecessary in local opinion, and we had to creep gingerly round difficult rock corners where the water below roared a most uninviting summons—the track was monotonous enough, as one could see but a short way in front owing to the turns of the gorge.

The alternative to the route down the gorge was a tedious climb to the spur by way of which I had arrived earlier in the day. I was wearing grass shoes, the sandals made of rice grass worn by sportsmen in Kashmir, the best kind of foot-gear for rapid movement under such conditions. I do not remember that I made much use of the pine poles mentioned by Colonel Kennion. I had gone a considerable distance when I saw approaching me, from the direction of Chitral, an excited crowd, among whom I was relieved to recognize Jemadar Rab Nawaz Khan. The latter very soon acquainted me with details of the tragedy. Nizam-ul-Mulk had been hawking that morning in the vicinity of Broz, a pleasant village of scattered houses standing in orchards on the left bank of the river about ten miles below Chitral. At a moment when most of the falconers and his most trusted adherents had left him to retrieve the hawks, his *safar* (turban) came unfastened. Remaining mounted Nizam-ul-Mulk bent his head to enable a servant to rearrange his head-dress. It was an ideal opportunity for an enemy. Amir-ul-Mulk, believed by many to be half-witted, was riding close at hand. Seeing that his half-brother was unable to move his head Amir-ul-Mulk signed to his servant, a Kalash Kafir, who had a loaded Snider carbine hidden for use on just such an occasion under his *choga*, the long robe of homespun universally worn throughout the country. The scoundrel immediately shot Nizam-ul-Mulk in the back with fatal effect; and Amir-ul-Mulk, acknowledging that the shot had been fired by his order, galloped off to secure possession of the arms and treasure in the fort at Chitral. I learned later that his enemies had determined to kill Nizam-ul-Mulk that day in the house of a noble named Shahzada Khan of Broz, a warm adherent of Sher Afzal, whose invitation to the midday repast the unfortunate Mehtar had accepted. With Rab Nawaz Khan were Ataliq Nara Jang, the late Mehtar Afzal-ul-Mulk's foster-father, and Mohamed Rafi, the Hakim of Laspur, whom I have already mentioned, and the majority of Nizam-ul-Mulk's most trusted officials. The two first named immediately declared that all the people looked to me

as the representative of Government to show them what to do. They added that Amir-ul-Mulk had entered the fort and proclaimed himself Mehtar and they wished to know whether I would recognize him as such. I at once replied that I had no authority to recognize any one as Mehtar and I could do nothing until I received the orders of my Government. I advised them, however, to accompany me to my quarters where we could talk matters over. The whole crowd came on with me. As was to be expected, the supporters of the murdered Chief appeared to be in a state of great trepidation as to their own fate. They had good cause to fear that their lives were in jeopardy and that their lands would be confiscated for the benefit of the supporters of the new ruler; and, judging from their obvious anxiety not to lose sight of me, they seemed to think I might be able to protect them. Some of these men had visited India with Afzal-ul-Mulk or Nizam-ul-Mulk and realized the extent of our power.

As may be imagined I had much to think of while hurrying along, and I wondered what I should find on arrival at the house. I felt particularly anxious for the safety of the eight Sikhs forming my escort. I felt that they were in greater danger than the rest of my staff owing to the fact that they were not Muhammadans. I kept on turning over in my mind what attitude I should adopt towards Amir-ul-Mulk. Although I realized that in the eyes of the Chitralis it was merely a case of history repeating itself I found it difficult to avoid showing the loathing I felt for the conspirators responsible for the murder of the Chief who had given me such a courteous welcome. I also felt indignant at what seemed to me then the impudence of all concerned in the crime in committing it during my visit to Chitral. However I realized that the lives of a good many people depended on my facing the situation as calmly as I could and in my showing the conspirators that I was confident of the power of the Government of India to deal promptly and effectively with any troubles which might arise consequent on the change of ruler.

During the walk down the ravine Rab Nawaz Khan managed to whisper to me that he had already dispatched a messenger with news of the murder to Harley at Mastuj. He hoped the man would get through before the roads were closed by Amir-ul-Mulk. I learnt afterwards that this messenger did not get farther than the village of Reshun, about half-way to Mastuj, before being arrested and brought back to Chitral. At the time, however, I remember that I was comforted to know that the Jemadar had acted so promptly.

On arrival at the house I was relieved to see my eight Sikhs standing at the foot of the steps which gave access to the room which served as a hall and through which it was necessary to pass in order to enter a room on the left which I used as sitting-room and office.

A crowd of people, most of whom were supporters of the late ruler, were also gathered near the steps, and I could see that there were more people collected near the adjoining masjid to which I was told Nizam-ul-Mulk's body had already been brought. It was very cold, so I ordered Naik Narain Singh to arrange for a fire in the hall and for the men's bedding to be brought up there, and also directed him to place a sentry at the door of the sitting-room with orders to let no one enter without permission from myself or Rab Nawaz Khan. I took Rab Nawaz Khan and his father-in-law, Fateh Ali Shah, and the more important of the others, who had met me in the ravine, into the sitting-room, and gave instructions that any of the late Mehtar's supporters, who wished to come in, should be permitted to sit in the hall, or, if there were not sufficient room there, in the upper courtyard behind, which led to the sleeping apartments.¹ Then, after changing into dry garments—I was feeling uncomfortably cold by this time—I sent a message to the fort that I expected to be supplied with three messengers, to take my letters containing a report of what had occurred to Mr. Udny at Nashagam, to Mr. Robertson at Gilgit, and to Lieutenant Harley at Mastuj. I realized that Amir-ul-Mulk and his supporters might refuse to forward my letters, but I thought I had better test their attitude in this connexion at once. I was writing these letters when I was informed that a deputation from Amir-ul-Mulk wished to see me. Now, I thought, I shall get some idea of Amir-ul-Mulk's attitude. The deputation was admitted and the members were introduced by Rab Nawaz Khan. When I inquired of the deputation whether the messengers I had asked for were present they replied that before answering that question it was their duty to tell me that Amir-ul-Mulk had sent them to say he realized he had acted disrespectfully towards the Government of India in killing his brother, but he hoped I would take into consideration the fact that he had been obliged to kill him in self-defence and that I would remember that he was the eldest survivor of the legitimate sons of the Lut Mehtar and that as such I would recognize him as Mehtar.

I again replied in the presence of all the men collected in my room that I had no authority to recognize any one as Mehtar and that all I could do was to submit a report to the British Agent in Gilgit. Meanwhile I said I had no desire to interfere in the internal administration of Chitral. I made this latter remark in order to explain that, though I had permitted some of the late Mehtar's supporters to take refuge in my quarters, I had no intention of identifying myself with any particular party in the State. I continued

¹ i.e. the rooms which, if a Moslem had been in occupation of the house, would have been reserved for the women.

that my only concern was to carry out the orders given me by the British Agent at Gilgit. One of these orders was to summon the rest of my escort to join me from Mastuj. I had accordingly written to Lieutenant Harley, ordering him to send off a detachment of fifty men at once. I said I expected the headmen of villages to assist this detachment to obtain transport and shelter by night, and I asked that Aqsakal Fateh Ali Shah should be authorized to instruct the headmen of districts to send in supplies, which I could purchase for consumption by my escort, and for which I was prepared to pay liberally. I added that the British Agent had stressed the importance of sending news quickly to Gilgit and I consequently expected my letters to be forwarded with all possible celerity. In conclusion, after expatiating on the infinite power of the *Sarkar* and advising them for the good of their country to comply promptly with my requests, I referred again to Amir-ul-Mulk's desire to be recognized as Mehtar and pointed out that, by helping me whole-heartedly in the manner indicated, he had an excellent opportunity of proving the sincerity of his protestations of friendship towards the Government of India.

After the deputation had left I had duplicates made of my letters. These I entrusted to Rab Nawaz Khan, who I thought would be able, with the aid of his father-in-law, Fateh Ali Shah, to find trustworthy messengers capable of eluding the guards which Amir-ul-Mulk might have placed on the roads. I had just finished doing this when one of Amir-ul-Mulk's advisers came to inform me that the Mehtar wished to see Jemadar Rab Nawaz Khan and that he refused to send on my letters until he had seen him. I replied that I declined to send the Jemadar to the fort at that hour of the night, and directed the messenger to inform Amir-ul-Mulk in open Durbar that I regretted that he had delayed my letters, as I was bound to suspect that by his action he did not intend to keep the promises of allegiance to the Government which he had made earlier in the evening.

It was now very late, and after placing a second sentry at the top of the steps I prepared to retire to rest in the bedroom on the side of the house nearest to the burial-ground and the masjid. I had not finished undressing when a further deputation arrived from the fort to inform me that my letters had been dispatched, as it had been decided that it was useless to attempt to stop my letters from reaching their destination.

I did not sleep very soundly that night as I kept asking myself again and again whether I had done rightly in directing Harley to send me fifty more Sikhs. Mr. Robertson had certainly ordered me to send for the rest of my escort, but was he right in giving such an

order? I had seen how terribly difficult the country was, through which the detachment would have to pass, and I realized how easy it would be for mountaineers like the Chitralis to surround the Sikhs in one of the defiles after blocking the track in front and behind. However, though I was pretty certain that Sher Afzal's supporters wished to put an end to our interference in Chitral, I did not think it likely they would commit themselves by an overt act of hostility until Sher Afzal himself actually arrived on the scene. Provided the commander of the detachment was reasonably diplomatic I hoped all would be well. At the same time I remembered that my reinforcement had to march sixty-three miles, that the men would probably be heavily laden, and that consequently some days must elapse before my anxiety as to their safety could be set at rest. I listened to the sounds of mourning issuing from the adjacent masjid, to which poor Nizam-ul-Mulk's body had been brought, wondering how long it would be before Harley and Mr. Robertson would receive reliable news of what had happened in the event of my letters being stopped.

Early next morning Rab Nawaz Khan volunteered to go to the fort to reassure Amir-ul-Mulk's adherents by telling them I really meant to abstain from interfering in the administration of the country until I received orders from the Government. He was confident that the party in favour of the Government was so strong and that the others were so afraid of us that it was most improbable he would be harmed. With some reluctance I agreed to the Jemadar's proposal. He returned from the fort about 11 a.m. and told me Amir-ul-Mulk wished to come and pay his respects to me. I assented at once as I thought it important to see Amir-ul-Mulk as soon and as often as possible, and I hoped that I might thus be able to reassure the people about the coming of the Sikhs and to strengthen my own position.

Rab Nawaz Khan also brought news that Nayab, the headman of the important village of Shoghor in the Lut Kuh valley, on the road to the Dorah pass and Badakhshan, together with his two sons, had been killed by Amir-ul-Mulk's order. Apparently the first thing Amir-ul-Mulk thought of after killing Nizam-ul-Mulk, was to satisfy his lust for revenge against those who had aroused his enmity during the reigns of his father and brothers. There were two men against whom he nourished a special feeling of hatred, the headman of Shoghor and his own half-brother Ghulam Dastgir, who lived at the village of Kesu, about twenty miles below Chitral. The latter had taken an active part in the political assassinations which had been so numerous since death had put an end to the firm rule of his old father, Aman-ul-Mulk, and he was not exactly a popular person. He was shrewd enough to recognize this fact and energetic enough to

take suitable precautions to ensure timely warning of the need for flight. I learnt afterwards that he had posted a sentinel on a hillock overlooking the road in the direction of Chitral with instructions to fire an agreed number of shots in the event of danger. On the day of Nizam-ul-Mulk's murder Ghulam Dastgir was at home, and, on hearing the signal shots, immediately mounted his pony, which was always kept ready saddled, and together with his little son and a few trustworthy servants rode off down the valley with the utmost speed, and made no halt until he reached the camp of Mr. Udny at Nashagam some thirty miles distant. He would certainly have been killed by Amir-ul-Mulk's myrmidons had he acted less promptly. Nayab, the headman of Shoghor, was less fortunate. The executioners arrived before the news of Nizam-ul-Mulk's murder, and Nayab and his two sons were immediately cut down with swords, in the usual Chitrali fashion, the sons being killed first, one by one, in front of their despairing father, an added torture expressly ordered, I understand, by Amir-ul-Mulk. I was horrified at the merciless manner in which the savage young Chief had taken his revenge, and determined to do what I could to prevent the perpetration of similar horrors. Such executions had doubtless been only too common in Chitral in recent years; but I could not help picturing to myself the despair of their women-folk when the wretched victims were dragged out to be killed, probably within ear-shot; and it was brought home to me what heart-breaking anxiety must have been the portion of the wives of many leading men at each change of ruler.

It was now arranged that, as the weather was fine and Amir-ul-Mulk would be accompanied by a numerous retinue, the meeting should take place at 2 p.m. on the *chabutra* in the garden adjoining my house. Before the Mehtar's messenger left I took the opportunity of impressing on him the necessity, in his master's own interest, of forwarding my letters without delay, and of refraining from further bloodshed. It was true, I said, that I had no power to recognize any one as Mehtar, but they could take it as certain that Amir-ul-Mulk would not improve his chances of gaining the favour of the Government if he continued to be so ruthless towards those who had incurred his enmity in the past. It was a great satisfaction to me to learn afterwards that this warning had the desired effect.

I decided to meet my visitor at the step leading on to the *chabutra*, on which I caused a carpet and two chairs to be placed. I instructed Rab Nawaz Khan to keep close to me throughout the interview and to seat himself on the ground slightly behind me and between me and Amir-ul-Mulk, who was to sit on my left. When a Chief is received by a British officer in India, it is usual for the latter to place his guest on his right. On this occasion I purposely placed Amir-ul-Mulk on

my left so that both he and his followers might realize that I was determined to do nothing which would imply recognition of his claim to the rulership. The more important of Amir-ul-Mulk's followers were to be seated in a semicircle on the carpet in front of us and the remainder were to stand on the ground on either side of and in front of the *chabutra*. Naik Narain Singh and his seven Sikhs were to be drawn up with loaded rifles about twenty yards behind the chairs. I decided to wear uniform, but not to carry a revolver. Rab Nawaz Khan obtained my permission to conceal a revolver under his coat. He told me afterwards that in the event of treachery he had determined to do his utmost to kill Amir-ul-Mulk. He had for some years been on friendly terms with Nizam-ul-Mulk, and it was not unnatural that he should harbour a feeling of hatred for his murderer. I told Narain Singh that, though I had every reason to hope that the meeting would terminate peacefully, it was possible that an attack might be made on me, and that, in that event, I wished him to fire on the Chitralis. I thought that, if the Sikhs opened fire, the Chitralis would probably take cover behind the wall enclosing the garden, and that the Sikhs might thus have a better chance of retiring to the house, where they could offer a stouter resistance to the enemy. Narain Singh, a very fine specimen of the Jat Sikh, both as regards soldierly bearing and physique, heard my remarks very coolly. He was an admirable non-commissioned officer, and I can never feel sufficiently grateful to him and his seven comrades for the devoted manner in which they watched over me during the week intervening between the murder of the late Mehtar and the arrival of the detachment of fifty Sikhs from Mastuj under Subadar Gurmukh Singh. During those days they got very little sleep and the strain on their endurance was very considerable. They took it all very calmly, but it was obvious that they were very much in earnest about performing their duty and went so far as to refuse the rum I offered them for fear that it might render them less wakeful. When I repeated the offer Narain Singh informed me they all had agreed together to take no rum or opium until the arrival of reinforcements. It was a privilege to be associated with such men.

Punctually at the time appointed Amir-ul-Mulk arrived. A considerable crowd, many carrying rifles, accompanied him. A common-looking man wearing a smart velvet coat and *sáfar* edged with gold lace, such as is usually given as a dress of honour at Government durbars, and carrying a Snider carbine walked immediately behind him and stood close to his chair afterwards. This was the Kalash Kafir, who had fired the fatal shot at Nizam-ul-Mulk. I met Amir-ul-Mulk at the step leading to the *chabutra*, and showed him to his chair. When he had taken his seat I noticed that

he carried a loaded Martini Henry carbine which he placed on his lap with the muzzle almost touching my leg. His hand was clammy and his face haggard, and he was obviously very ill at ease. Plain and stupid-looking, he was a great contrast to the handsome and intelligent Nizam-ul-Mulk. He left the speaking to his uncle, Mehtarjau Mohamed Ali Beg, and himself hardly opened his mouth the whole time he was with me. Mohamed Ali Beg repeated the statement made the previous day that Amir-ul-Mulk realized that he had done wrong in killing his brother, but that, as he had done so in self-defence, he trusted the offence would be overlooked. He added that the whole country was resolved to accept Amir-ul-Mulk as Mehtar and that the Assembly hoped, therefore, that I would recognize him as the legitimate ruler and that I would be his friend in the same way as my predecessor had been the friend of Nizam-ul-Mulk.

Once more I replied that I had no power to recognize any one and that the amount of friendly support which would be afforded to Amir-ul-Mulk would depend on how he and his adherents behaved. I continued my harangue by advising the assembly to wait quietly until I should receive orders from my Government and refrain from killing their fellow countrymen. I concluded by reassuring them about the coming of the troops from Gilgit and said the strength of the force to be sent would depend mainly on their own behaviour. I also stated that, though I was unaware what action my Government would take with regard to the Mehtarship, I could promise them that there was no intention of annexing their country and that we had no wish to interfere with their laws and customs, in short, that the fate of their country was in their own hands. There was nothing more to be said, and Amir-ul-Mulk rose to go. I escorted him to the edge of the *chabutra* and Rab Nawaz Khan went as far as the gate of the garden with him; as he was returning to me he overheard one of those who had accompanied Amir-ul-Mulk, an old Khushwakté Adamzada named Shahid-ul-Aman, remark that it was a waste of time to discuss the situation with me, and that it would be much better to kill me at once in the same way as Hayward Sahib had been killed at Darkot.¹

¹ I have already referred to the murder of Hayward in 1870; Shahid-ul-Aman was one of those present at the murder. He was appointed headman of Reshun after Nizam-ul-Mulk's murder, and when the detachment under Lieutenants Edwards and Fowler (now Brigadier-General Edwardes and Lieut.-General Sir John Fowler) reached that village in March 1895 he took a prominent part in the fighting which ended in the annihilation of the detachment and the treacherous capture of the two officers.

Long after peace had been restored in the summer of 1895 (Mehtar Shuja-ul-Mulk then being a minor) it was reported to me that the Adamzadas of Reshun led

It may be readily imagined how relieved I was to get this meeting over without mishap. What I had feared most was that one of the many loaded rifles might be discharged by mistake. In such an eventuality the effect on my unhappy and nervous young visitor and his excited following might have been disastrous. I now felt fairly confident that Amir-ul-Mulk's most influential advisers had determined, for a time at any rate, to follow my advice with a view to ingratiating themselves with the Government of India.

I wrote again that evening to Mr. Robertson describing the meeting with Amir-ul-Mulk. I expressed the opinion that Amir-ul-Mulk was a mere puppet in the hands of Sher Afzal's party, who would not hesitate to kill him should it be necessary in Sher Afzal's interests to do so. I also stated that Sher Afzal's adherents had sent urgent messengers to Kabul to beg him to come at once to Chitral. I added that although the men who had most influence at the moment were distinctly adverse to us, it was of some comfort to me to be able to report that so far no men of importance from the Mastuj district with the exception of Mohamed Rafi, the Hakim of Laspur, had come in to join Amir-ul-Mulk. I also wrote that I was doing my best to collect supplies and that I hoped to be able to procure about eighty maunds of wheat.

As I was on the point of closing this letter the Jemadar informed

by Shahid-ul-Aman were concealing some of the rifles captured from our men in the above-mentioned fighting. I considered the report to be reliable, and as the rifles were not produced when I demanded their surrender I quartered a strong body of Laspuri levies in the village with authority to feed themselves at the expense of the Adamzadas. The Laspuris, who had no love for the Adamzadas—there are no Adamzadas in the Laspur district—by whom they had been much oppressed in the past, lived at Reshun in what to them was undreamt-of luxury, and thoroughly enjoyed themselves. The plan met with complete success as within a very short space of time most if not all of the rifles were handed over to me and rifles concealed by the men of other villages were also brought in. I can remember to this day the disgust depicted on the face of Shahid-ul-Aman when he brought to me the rifle which he had appropriated as his own share of the spoil. It is customary for elderly Muhammadans to dye their beards red when they begin to turn grey and Shahid-ul-Aman adhered scrupulously to this fashion. I hardly recognized the hoary old sinner when he came to hand over the rifle with his beard as white as snow and looking generally unkempt and appreciably leaner than usual. He and most of Sher Afzal's followers had buried their rifles near one of the passes on the Bashkar border before surrendering at Dir to Major Harold Deane, the Chief Political Officer with Sir Robert Low's relief force, after the raising of the siege of Chitral fort. He had thus been obliged to make a long and arduous journey for a man of his years in order to retrieve the weapon. I must confess that I had no feeling of compassion for the old man when I compared his then sorry plight with the savage exultation with which he had no doubt participated twenty-five years before in the cruel slaughter of the solitary defenceless Englishman which has been so movingly related in Sir Henry Newbolt's poem, 'He fell among Thieves'.

me that Amir-ul-Mulk had sent urgent messengers to his brother-in-law, Umra Khan, the Khan of Jandol,¹ to be ready to help him in case of need. I added this report as a postscript.

About 11 a.m. on the 3rd January Aqsakal Fateh Ali Shah came to say that Amir-ul-Mulk wished to see Jemadar Rab Nawaz Khan again. I agreed, but before he went I had a satisfactory talk with Fateh Ali Shah as to the possibility of obtaining supplies for my escort. I formed the opinion that Fateh Ali Shah was trustworthy. As I have already mentioned, his daughter was married to Rab Nawaz Khan, with whom he had been on most friendly terms for some time past; he had been the first to inform the Jemadar of Nizam-ul-Mulk's murder and had come to meet me in the ravine; he had dispatched two messengers for me without letting Amir-ul-Mulk's supporters know, one of the messengers being his son Sultan Shah. Fateh Ali Shah now told me that he was my friend, and added that he was ready to join me with a hundred followers the moment he thought there was any chance of my being attacked; he thought that at present there was no danger of that, and that he could serve me best by remaining in the fort with Amir-ul-Mulk. I replied that I relied on him and that I would take care that his services were not forgotten.² He then went off with the Jemadar to the fort. The latter returned about 1 p.m. and reported that he had been received most favourably. All the chief men rose and greeted him as he walked through the courtyard and even Mehtarjau Mohamed Ali Beg, the leader of the anti-English party, displayed eagerness to pay him attention. Amir-ul-Mulk received the Jemadar in a friendly manner and reiterated his promises of loyalty to the Government and said he was entirely in our hands. When writing later in the day regarding this interview to Mr. Robertson I expressed the opinion that Amir-ul-Mulk was speaking the truth when saying he was entirely in our hands, that I did not think he had any reliable friends, and that I thought it was becoming more and more clear that he was merely a tool to be discarded whenever Sher Afzal might appear on the scene.

My next visitor was a very shifty young man named Aziz Beg, a son of the Mehtarjau Mohamed Ali Beg already mentioned.³ After professing his loyalty to the Government of India and his sorrow at the death of Nizam-ul-Mulk he produced after much hesitation a tiny piece of paper from his turban. The paper bore the seal of Shah Afzal (not to be confounded with Sher Afzal), a first

¹ Amir-ul-Mulk's own sister was the wife of Umra Khan.

² Fateh Ali Shah was afterwards appointed one of the three members of the Council of Regency during the minority of Shuja-ul-Mulk, the present Mehtar.

³ The affix *-jau* signifies son. Thus *Mehtarjau* means 'son of a Mehtar'.

cousin of the late Mehtar Aman-ul-Mulk. Aziz Beg said he had been commissioned to give me a message from that prince. The message was to the effect that Shah Afzal intended to advance on Chitral with his supporters to avenge the death of his brother-in-law, Nizam-ul-Mulk; that he did not wish to become Mehtar himself; all he wanted was to serve my Government and to avenge the death of our friend; and before advancing he wished to have my advice. I replied to Aziz Beg that I was glad Shah Afzal had asked my advice; that I wished him to tell Shah Afzal and his supporters that I had no authority to recognize any one as Mehtar or to encourage any one to avenge Nizam-ul-Mulk's death; and that I hoped he and his friends would remain quietly at their homes until the wishes of the Government were ascertained. I never discovered whether Aziz Beg's professed mission was genuine or otherwise. Shah Afzal, from what I saw of him afterwards, appeared to me to be an unassuming elderly man of no force of character and not a person likely to attempt to avenge any one's death. I suspected at the time that Aziz Beg was sent by his father to try to test my sincerity.

The next arrival was Mast Khan, who was with Nizam-ul-Mulk when he was killed. He informed me on behalf of the late Mehtar's party that they would never recognize Amir-ul-Mulk as Mehtar and they trusted that his younger brother, Shuja-ul-Mulk, would be recognized in his stead. I replied that I would represent their wishes to the British Agent, but that I could do nothing more except to urge them to remain tranquil until the wishes of the Government of India were made known.

Late that night a messenger came from Mohamed Rafi, the Hakim of Laspur, to say that the people of the Mastuj district were anxious to know what attitude I wished them to adopt, but this messenger departed before I could give any reply. I also received messages from Nizam-ul-Mulk's mother and widow taunting me with my inaction.

Before going to bed I wrote again to Mr. Robertson and also sent a second letter to Harley. The latter would naturally be disappointed at being told to send Subadar Gurmukh Singh to Chitral in command of the fifty Sikhs instead of coming himself; I therefore explained that I was most anxious that a British officer should be at Mastuj to receive any important men who might come in and to reassure them that, if more troops arrived from Gilgit, they must not think that we intended to annex the country or to interfere with their customs of life. I added that if he were asked for advice, he should reply that all would be wise to remain quietly in their villages until the orders of the Government were received, and that meanwhile neither he nor I could indicate what the policy of Government

was likely to be. At the same time he could tell all who might come to him that he would let the British Agent know their names and that the Sarkar would remember them. If any men applied to him for protection he might permit a few to take up their residence in the fort, provided they agreed to give up their arms and to make their own arrangements for food.

That night, the 3rd January, a Council was held in the fort at which it was decided after some discussion that it was hopeless to attempt to oppose our Government. Some were for attacking me and opposing the march of the detachment of fifty Sikhs who were coming to join me from Mastuj. Fortunately these fire-eaters were overruled.

Judging from the fact, as I learnt afterwards, that my first letter to Mr. Robertson regarding the murder of the late Mehtar did not reach Gilgit till the 8th January I fancy the roads must have remained closed until the holding of this Council.

Fateh Ali Shah, when he came to me on the morning of the 4th of January, and told me of the Council meeting, added that Amir-ul-Mulk no longer made any secret of the fact that he was a supporter of Sher Afzal, and that he was heard to have declared at the moment when Nizam-ul-Mulk was shot, that he only acted on behalf of Sher Afzal, whose coming he would welcome.

On the 4th the wily old Kaka Khel timber merchant, Mian Rahat Shah, who had married a daughter of the Lut Mehtar, visited me.¹ Rahat Shah was loud in praise of Sher Afzal and suggested that I should advise Government to accept that prince as Mehtar. He also brought a message from Nizam-ul-Mulk's mother to the effect that Amir-ul-Mulk had confiscated most of her apparel and all her valuables and asking whether I could not prevail on Amir-ul-Mulk to treat her properly. I replied that I sympathized with the lady in her troubles, but that I could not interfere on her behalf.

The Jemadar visited the fort again the same day. I directed him to reassure the people once more that Government had no intention

¹ A considerable trade in deodar logs had been developed during Aman-ul-Mulk's reign. The procedure was that the trader paid an agreed sum to the Mehtar, who then arranged to fell the trees by forced labour, to saw them up, and to put the logs into the Chitral river, and in this manner the timber eventually reached Nowshera.

The logs were carefully marked before being consigned to the river, and the traders were thus enabled to recognize the timber for which each had paid. The Mehtar added appreciably to his revenue in this manner but not to his popularity, and I was told that Sher Afzal had promised to abandon the system of forced labour. Whether the latter would have kept this promise is doubtful. According to Colonel Durand, Rahat Shah was the most important man in Chitral in 1888, as Aman-ul-Mulk trusted his advice almost implicitly. His home was in the Peshawar district.

of annexing their country and that their treatment at our hands depended entirely on their own behaviour.

On the 5th and 6th January I received a number of visitors, but my time was mainly occupied in supervising payments for the supplies of flour and grain promised by Fateh Ali Shah, which now began to come in. The question of supplies was one of great urgency. I could not expect Subadar Gurmukh Singh's detachment to bring much with them from Mastuj, and it was imperative that I should without delay collect as much as possible in order to feed them for a prolonged period. I accepted the smallest quantities of grain or flour from the villagers and of *ghi* from the traders in the bazaar; I paid for them promptly and liberally and repeatedly warned all concerned that I would personally hear the complaints of any who might feel aggrieved at the treatment received by them at the hands of my subordinates. I hoped in this way to encourage all who had any articles of food to spare to come in quickly. The fact that supplies had commenced to come in at all was a good omen, and I was much encouraged.

To my great relief the detachment of fifty Sikhs under Subadar Gurmukh Singh arrived on the 7th January. All the men were fit, and the march had been uneventful. I heard afterwards that the Subadar had been most tactful in his dealings with the villagers during the march from Mastuj. He was evidently much relieved to have accomplished the journey without mishap. After he had seen to the comfort of his men and posted sentries he accompanied me for a short stroll. I took him to the high ground overlooking the polo ground whence a good view is obtainable of the valley in the direction of independent tribal country and Afghanistan. I can remember to this day how the keen old soldier's eyes glistened when he expressed his hope of meeting in stern conflict the enemy with whom his Sikh forbears under Ranjit Singh, the great Maharaja of Lahore, had striven in the past, a hope that was only too soon to be fulfilled.

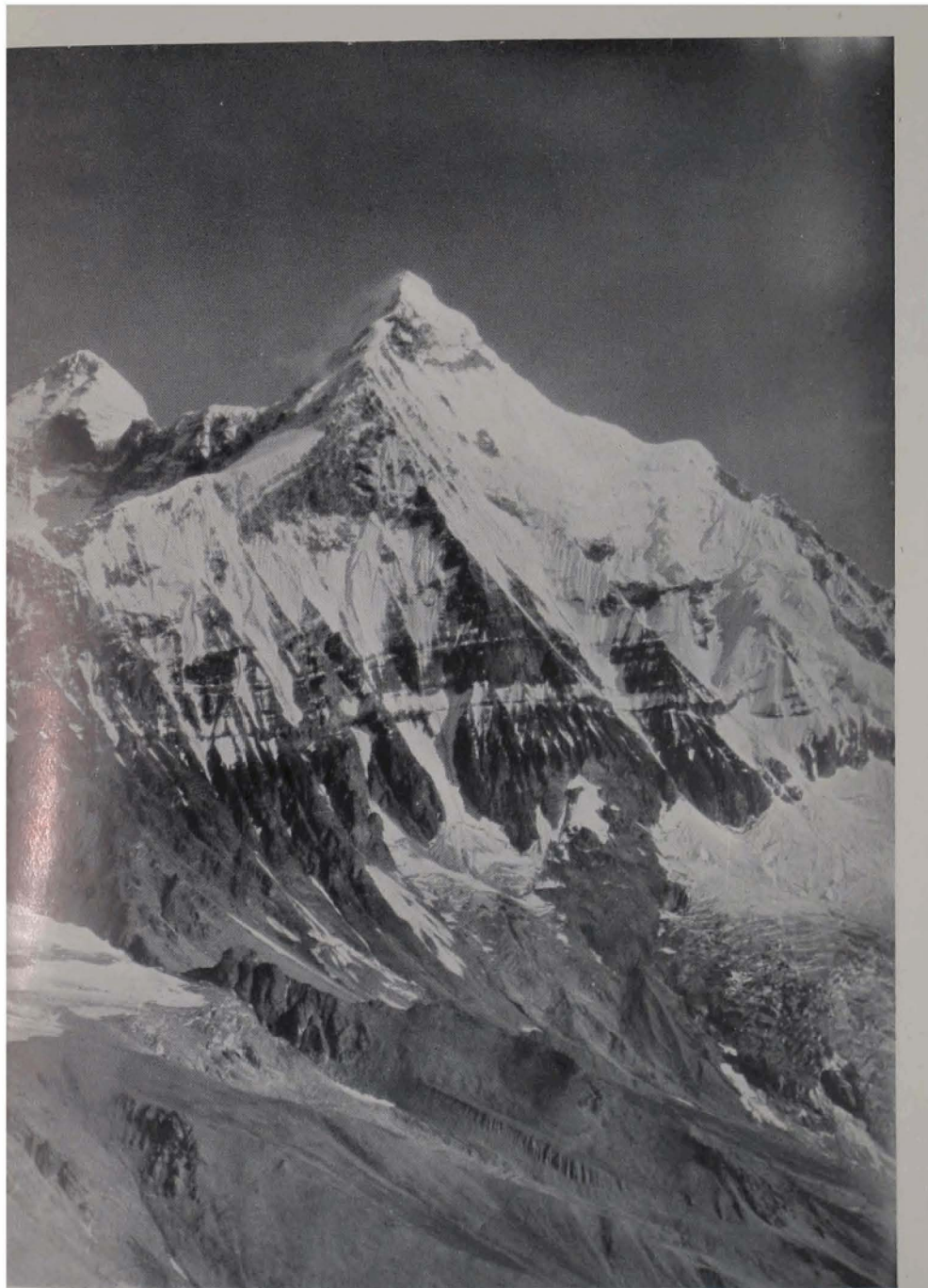
NANDA DEVI

HUGH RUTTLEDGE

THE mountaineer who has the good fortune to visit the Kumaun Himalaya is irresistibly reminded of Sir Leslie Stephen's *The Playground of Europe*; for, as Dr. Longstaff has said, Kumaun has the most Alpine character of those Himalayan districts which have as yet been explored. Vast though the scale is, communications are as good as in the Switzerland of eighty years ago; and numerous valleys pierce the ranges, affording easy access to peak and glacier, as well as the means of 'living on the country'. The superstitious dread of mountains, so common among primitive hillmen everywhere, is rapidly disappearing—a process accelerated by the Great War, when large numbers of 'paharis' served in regiments or labour-corps in France. It is a little startling when, in some remote valley, you run across a wild-looking shepherd, clad only in a blanket and his own long hair, who accosts you cheerfully with 'Comment vous portez-vous, Monsieur?' If you can cap this in French, and continue in intelligible Hindustani, your shepherd will take you, figuratively one hopes, to his bosom; and will often prove a most excellent guide on his own hill-sides, a universal provider of transport and simple food, a first-rate rock-climber, and, if suitably clothed and booted, no mean performer on snow and ice. His fear of *deotas* and other ghostly phenomena will usually be in inverse proportion to your capacity as a mountaineer. Once convince him that you know your business, and he will follow you anywhere. Before that stage is reached he may try to lead, convinced that he is a better mountaineer than any foreigner; but a fall into a crevasse or two is a wonderful steadier.

We have, then, in Kumaun easy access to the snows and a sporting peasantry. In spite of this, and of the fact that some strenuous climbing and exploration has been done during the last one hundred years, only two of the major peaks—Trisul and Kamet—have been climbed; while no one has reached even the foot of the grandest of them all, the highest peak in purely British territory in the Empire, Nanda Devi, 25,645 feet. It is the purpose of this paper to explain the difficulties of approach to this mountain, the Goddess Mother of the Central Himalaya.

Though the region is not volcanic, Nanda Devi stands within a vast crater-like ring, 70 miles in circumference, the average height of which is some 20,000 feet. On this ring are twelve measured



Nanda Devi from ridge near Traill's pass

peaks over 21,000 feet high, while there is no known depression less than 17,000 feet; except on the west, where the Rishiganga river, rising at the foot of Nanda Devi and draining some 240 square miles of ice and snow, has in the process carved a stupendous gorge.

Two internal ridges, converging from north and south respectively upon this river from the walls of the ring, form a kind of inner sanctuary.

Nine several attempts have been made to reach the mountain, in the course of which the ring has been crossed once, and reached but not crossed three times.

It was naturally supposed that the Rishiganga gorge, however difficult in appearance, should provide easier access than the tremendous walls of the 'crater'; and the first recorded attempt was made here in 1883 by Mr. W. W. Graham and two Swiss guides. They were beaten back by the difficulties of the lower section, turned these by a goat-track to the north, and were again brought to a standstill higher up.

In 1905 Dr. T. G. Longstaff, with the brothers Brocherel of Courmayeur, tried a new line of attack, by the Lwanl Gadh on the east. After some hard climbing, and still harder load-carrying, they placed a light camp on the south-east ridge of the East Peak of Nanda Devi, which forms part of the barrier wall. From this point, at 19,000 feet, they were able to see the whole southern face, and the southern glacier of the inner sanctuary. But it is doubtful if laden porters, however good, are capable of making a pass here, and the attempt has never been repeated.

In 1907 Dr. Longstaff, with General Bruce, the Brocherels, and some Gurkhas, made the only recorded crossing of the ring; from the north, by the difficult Bagini pass (20,100 feet). According to the Survey map, this should have led them straight to the northern face of Nanda Devi. Unfortunately, handicapped by lack of resources and time, the surveyors, whose general accuracy in this tangled region is the admiration of the traveller, had been forced to guess at the internal economy of the ring. Distant views of ridges, seen from comparatively low ground, are notoriously misleading. The party found itself forced away to the south-west, to a point about half-way down the course of the Rishiganga, the view of the mountain being screened by the northern inner arm of the barrier.

From here Dr. Longstaff ascended Trisul (23,360 feet), on the southern wall; and, leaving his companions to rest after the exertions of that famous climb, made a desperate attempt to ascend the upper gorge of the Rishiganga, but was pulled up by impassable cliffs less than two miles from the source. The party then broke out of the

ring westwards, by a track used only by shepherds; and the upper gorge has since that day been left severely alone.

After efforts such as these, most people would have been content to cry 'enough'. Not so Dr. Longstaff. The remainder of the climbing season proper was devoted to an exploration of the Kamet region; and then, with the monsoon—and the leeches—in full swing, he attempted to enter the ring from the south, first by the Nandagini and then by the Sunderdhunga valley. But the Kumaun leeches are voracious, and even the kind of eyes which Sam Weller did *not* possess cannot pierce monsoon clouds, so both these reconnaissances were inconclusive.

Much refreshed by a twenty-years' interval, Dr. Longstaff returned to the assault in 1927, when my wife and I were privileged to accompany him. After some hardish work, in the course of which I received the finest lesson in route-finding of my life, the crest of the ring was reached and the existence of a feasible pass over into the Rishiganga gorge established. Bad conditions of weather prevented further progress, but in any case this line of approach leaves the problem of the upper gorge unsolved.

Before this, in 1926, a party consisting of Colonel-Commandant (now Major-General) R. C. Wilson, Dr. T. Howard Somervell, and myself attempted to get into the ring via the Timphu glacier on the north-east. Though we were unable to push this attack to the limits of possibility, enough was seen to justify an opinion that further advance, especially with laden porters, requires a very complete previous reconnaissance, preferably up the left bank of the glacier, turning the ice-fall by the north. Future parties might well try this, or alternatively the Shakram and Mangrau glaciers, basing their operations on the big Bhotia village of Milam. Finer weather may be expected here, on the north side of the main chain, than on the southern ridges.

During my 4½-years' service in Kumaun, my eyes often turned to the col at the head of the Sunderdhunga valley, directly to the south of Nanda Devi, which was reconnoitred in such difficult conditions by Dr. Longstaff in 1907. On account of intervening ridges only the upper slopes can be seen from a distance, and these look practicable. Could the whole be climbed, and descended on the other side, by far the most direct and accessible route to Nanda Devi would lie open. From every possible view-point in the district I fed a steadily growing optimism on study with the telescope, but could never find time for the test of practical experiment. Retirement in 1932 brought the longed-for opportunity, and with the guide Emile Rey of Courmayeur, grandson of his famous namesake, I left Europe in April of that year. We were joined at Almora by

six Sherpas kindly recruited for us at Darjeeling by Colonel Tobin and Mr. Wood-Johnson. These men had served their apprenticeship on Mount Everest, Kangchenjunga, Jonsong, or Kamet. It was intended that they alone should attempt the serious climbing with us, the preliminary work up to the base camp being done by fourteen locally recruited Dotials and Danpurias.

We received the greatest assistance and support from Sir Malcolm Hailey, President of the Himalayan Club; from the district authorities; and from local residents, English and Indian; and were able to reach the base camp, at the head of the Sunderdhunga valley, by 24th May. From this point an interesting miniature glacier leads up through a very narrow, gloomy gorge to the grazing-ground of Maitoli, directly under the barrier wall. The gorge should be treated with respect, for it has a knack of throwing avalanches or stones upon the unwary from the cliffs above.

Emile had been able to see a good deal of the face below the Sunderdhunga col from Dhakuri, sixteen miles away, and had already ventured an opinion that it looked as formidable as the Brenva face of Mont Blanc. He was much more emphatic when we turned the last corner, to look up at some 6,000 feet of exceedingly steep rock and ice.

The col is probably 18,500 feet high. The left, or western, half of the face below it is defended near the top by an ice terrace some 200 feet thick, extending for about a mile and a half. This terrace resembles those on the north-west face of Kangchenjunga. From it large masses of serac continually break away to sweep the face and form the avalanche cones which decorate the base of a precipice at the foot. The face *might* be climbed; but this would involve three days and two nights prolonged step-cutting, and continual danger from the ice terrace. Emile, quite rightly, I think, ruled it out at once.

The right, or eastern half of the face presents a choice of three remarkably unpleasant arêtes. For two-thirds of the way up they are steep—in some places apparently overhanging; and we could see no suitable platforms on any of them for tents. The couloirs between are constantly raked by ice.

Emile, by no means a pessimist, studied this problem for two hours, and then frankly gave it up. He thought that the two of us might possibly work out a route up the middle arête, but that it was out of the question for the laden, or unladen, Sherpas. The latter agreed, unanimously and without hesitation. They remembered the fate of their comrade, and my old friend, Chettan, on Kangchenjunga.

So ended in disappointment the plan of this little expedition. It

was the old story—lack of previous reconnaissance, which the Himalaya never forgives.

The only objective which now suggested itself was a peak 21,624 feet high, standing on the ring and above the right bank of the Pindari glacier to the east. If successful we should get a good view of Nanda Devi and her southern glacier; perhaps even see a way down into the sanctuary.

In bad weather, we almost ran round into the Pindar valley, and, to make a long story short, established a last camp at 17,500 feet under the east ridge of our peak. Emile, unacclimatized to anything higher than the Alps, was indignantly wrestling with the first headache of his life. It eventually yielded to a dose of ammonium chloride—a remedy almost more nauseating than the disease. Some very amusing climbing landed us on the ridge, minus materials for another camp, as only two out of the six Sherpas were able to get up at all, and none with loads on their backs.

This second and final disappointment was to some extent compensated for by the exhilaration of the climb, and by a remarkably fine view of both peaks of Nanda Devi which lasted ten minutes; and by a somewhat sensational descent. In fact, our peak was in no condition for an ascent, and the weather of 1932 was the worst I have seen in the Himalaya. There had been no winter snow, but a heavy fall in April, followed by continuously unsettled conditions. We found nothing but new snow overlaying rotten ice, and Emile's comments bristled with *nom de nom* and *nom d'une pipe*, and other emotional Gallicisms; especially when his topi fell off and disappeared spinning like a top, in full career for the Pindari glacier thousands of feet below.

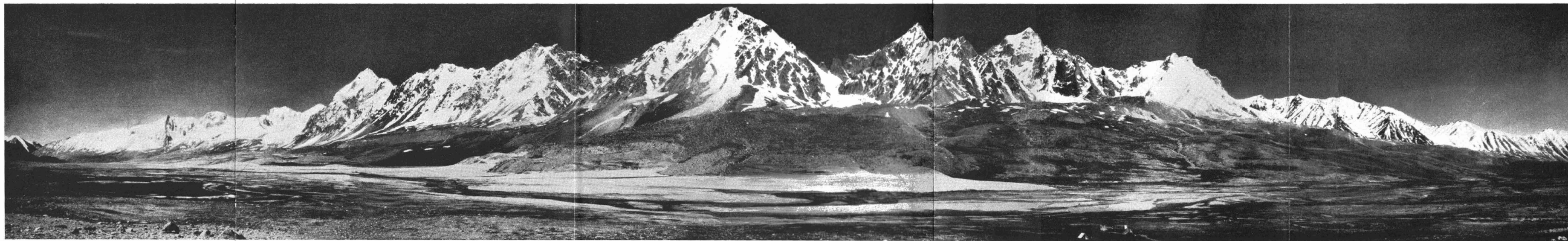
But both he and I would like to return to that fascinating ring. I doubt if the Sunderdhunga will ever 'go'. It is in itself both difficult and dangerous, and exposed to the full force of the monsoon. Better, perhaps, is the Rishiganga gorge; though two very strong parties have failed there, time and patience and skill might find a way across those tremendous cliffs. Lastly, there remains further exploration of the Milam side.

In no circumstances will access to the Goddess be easy. Parties should take every precaution to ensure a safe line of retreat, for a regular line of communications is impossible, and bad weather may mean imprisonment for life, and that a short one.

After all this pother over the approach, what of Nanda Devi herself? The few men who have seen her at close quarters are unanimous that the chances of an ascent are terribly small. It is just possible that a party of exceptional strength and determination might, after prolonged reconnaissance, find a way up the south-west shoulder. It is worth trying.



The Tso Moriri: snow massifs of Spiti on left



The snowy range east of the Upper Shyok (Muztagh-Karakoram) as seen from Ku-Lungpa

A SCIENTIFIC EXPLORATION OF THE EASTERN KARAKORAM AND ZANSKAR-HIMALAYA

HELLMUT DE TERRA

Yale North India Expedition

UPON my return from Dr. Trinkler's Central Asian Expedition in 1928 I was almost certain that another journey to eastern Ladakh and the Tibetan borderland would in the near future prove to be necessary. Our previous work called for additional and more detailed data which would be of great help in completing our scientific knowledge of this little known and yet most promising region north of the Himalaya.¹ The intermediate position of this portion of Ladakh, which lies between the highly elevated Karakoram peaks in the north-west and the flat, rolling plateaux of the Lingzi-tang and Chang-tang in the south-east, makes it not only a great field for geographical studies, but for geological and morphological research as well. The queer 'disappearance' of the high Karakoram towards Tibet is one of the most striking features of the high relief in southern Central Asia. To date geologically the origin of the uplift of the Karakoram and to determine the processes which created those vast and highest plateaux of the earth seemed especially inviting at this time when problems concerning mountain structure and origin stand in the foreground of scientific discussions. In addition there are a great many lakes between the Kashmir valley and the north-western Tibetan plateau which awaited thorough biological investigation, and I believed that such work might also contribute to a reconstruction of the younger mountain history of this region. The expedition plan embraced also the Kashmir valley and portions of the Salt Range, so that the five summer months of 1932 which we spent in Ladakh, represent only about one-third of the entire undertaking. The present article deals only with the journey into the Pangong, upper Chang-chenmo, and Tso Moriri regions.

The staff of my expedition, which was sponsored by Yale University and by the American Geographical Society, consisted of Mr. G. E. Hutchinson, assistant professor of biology at Yale, of Mr. G. E. Lewis, fellow in vertebrate palaeontology, of my wife and myself, who undertook the leadership. Thanks to the interest and kind assistance of the Surveyor-General of India, a surveyor was attached to our party for the Karakoram portion of the journey. We were

¹ *Himalayan Journal*, vol. iii, pp. 42-50, 143-5.

extremely lucky in getting the well-known and highly experienced mountain surveyor, Khan Sahib Afraz Gul Khan, the same man who did such invaluable work when attached to the former expeditions of Sir Aurel Stein, Colonel Mason, and Mr. Visser.

Srinagar was again our meeting-place, and everything was prepared there for our start on 16th May. My wife had succeeded in solving the 'packing of the rations' problem for four people in such a way that it was only necessary for us to open one box for each week. Most of our provisions and equipment were sent ahead to Leh, but we still needed forty animals. A local caravan-dealer was commissioned to bring us and our baggage to Kargil—an arrangement which proved a great success, for it freed me of the normal worries attendant to hiring coolies and collecting transport at Gund. The Zoji La was still officially closed and heavily snowed up. We crossed it between two and six in the morning, ascending the ravine through deep, soft snow which a warm southerly wind had brought almost to the melting-point even during these early morning hours. Avalanches began to fall a few hours after we had crossed the pass, blocking it for twenty-four hours, so that we felt that our night march was well rewarded by the safe arrival of the entire party at Matayan.

Once in Leh the transport problem had to be tackled first. After considering the various factors involved in our journey to the Tibetan borderland, I decided to purchase about thirty local ponies and to rely on a limited amount of additional transport to be obtained from the local villages around the Panggong Lake. Yaks were both scarce and expensive that year in Ladakh, their numbers having been greatly diminished by pestilence; and besides, yaks require ample grazing-grounds, which would very probably not be at our disposal. Sabur Malik of Stok village was engaged as caravan-bashi. He was in charge of the horses as well as of the twelve coolies, most of whom came from Tia village near Nurla. Sabur, who had been employed formerly by both Dr. Trinkler and Mr. Visser, was not quite the type of man I wanted, but to get a really good man, similar to Sven Hedin's old Mohamad Isa, appeared to be impossible. The purchasing of ponies, saddles, and coolie rations together with their equipment occupied our time; but we managed to find some hours also for local biological and geological excursions in Leh and its environs. A short trip to Hemis Gonpa, undertaken for the sake of the mystery plays, proved at the same time successful scientifically, for I exploited a locality of fossil plants which I had found previously. The plants appeared in the tertiary rock formation which builds up the southern flank of the Indus valley and could be easily collected from the greenish shales. An entire petrified forest appeared before me: palm leaves, swamp plants, leaves of a great

variety of trees which must once have clad the slopes of an ancestral Karakoram range!

On 21st June we started from Leh. As is usually the case, the first march with a self-owned caravan seemed full of little troubles and hindrances, and it was late in the evening when the last ponies appeared at Digar Polu (15,200 feet), our first high camping-ground. Darkness fell too quickly to suit us, for the evening was so inspiring and perfect with the blue-violet light resting below in the deep furrow of the Indus valley and the snowy Zaskar range beyond glowing in transparent tints of rose. The crossing of the Digar La (17,860 feet) is without any serious obstacles though its southern flank presents a steep ridge over a thousand feet high, overstrewn with coarse boulders which make riding quite impossible. The Khan Sahib, optimist that he is, set up his planetable amidst thick clouds, patiently waiting for a sunnier moment to start his work. Finally it came, and in camp that afternoon he presented the first part of his map for our inspection and for discussion of our various observations. But things were not too cheerful at camp for two members of our party were very much the worse for the altitude until black coffee and several pills of *Kola cum lecithinum* started them on the way to recovery.

The path to Digar leads at first along the broad valley floor, then descends steeply across huge moraines which plunge like boulder cascades downwards to Digar. This sudden fall in the relief, which amounts here to almost 5,000 feet, is very characteristic of most of the high valleys in Ladakh. It indicates that the young erosion of the Indus drainage system affected a much older and flatter relief, carving a steeper pattern out of a highly elevated, smoother land surface which presumably dates back to the period which, in these regions, preceded the Great Ice Age. No other cause than extensive uplift can in this case be made responsible for this very active erosion which creates these sudden breaks in the valley floor. We camped near Labaps (11,800 feet) situated at the outlet of the Tang-yar valley which we planned to follow on the next day. This meant ascending once more, from 11,800 feet to over 14,000 feet, and when we reached our tents at Sundung we had, by ascending and descending, accomplished within forty-eight hours a range in altitude of 12,000 feet! On the way to Tang-yar we passed Kurgon Gonpa, a weird-looking lamasery of the yellow-capped sect, built on pyramidal pillars of rock. Tang-yar serves as a trading-post for the salt-caravans which come from Rudok province in Tibet. And here the lamas of the Nubra monasteries wait to exchange their grain for the Tibetan salt. A herd of thirty bharaI appeared in the vicinity of our camp, but we could not discover a single decent head

amongst the lot. The lambadar of Labaps had arranged for twenty yaks to meet us at Tang-yar from where we were to cross the Nebuk La towards Tankse (Tang-tse). I wished to spare our own ponies as much as possible, for some of them already showed saddle-wounds for which the U-shaped straw saddles used by Turki traders and enthusiastically recommended by Sabur Malik were, in my opinion, to blame. In the course of time these pack-saddles proved to be great failures. Whether this was due to the fact that they may have been filled with the wrong kind of straw or that they were otherwise badly made I cannot say, but I should in the future always prefer the Leh type of pack-saddle which appeals to the visitor by its simple construction. On the following day we found that, due to a heavy fall of snow, the Nebuk La was impassable, so we made for the neighbouring Shakya La (18,100 feet), which the Tibetan salt-caravans had been using for the past month. The ascent from Tang-yar was gradual, and we found snow only on the pass itself and 200 feet below. The view from here was magnificent: the high Karakoram peaks due north-west near Panamik, the jagged line of peaks east of the Shyok bend, and the Ladakh range, due south-east and south, with its U-shaped valleys, afforded a complete panorama such as is rarely to be found in Ladakh. From here it became evident that the Tang-yar valley separates the Ladakh range from a high and distinctly marked but short section of range which lies between the Shyok and the Tang-yar valleys. My geological survey here confirmed a former¹ suggestion of mine, that this short section of a range is the linking orographic element between the Kailas-Karakoram in the north-west and that of the Panggong regions south-eastwards. From the Shakya La we moved on and down, into the valley along which runs the regular route from Leh over the Chang La to Tankse. We camped beside the river which provided us with a nice catch of snow trout for our dinner. When we woke the next morning we found that all our ponies had disappeared. Our coolies claimed that the yak people from Tang-yar had played a trick on us and had driven our animals back with them across the pass under cover of darkness. Later in the morning, however, they were driven into camp, and a strong sermon on the subject of tying up horses during the night having been delivered by the *bara sahib*, we were able to start. We followed the valley down by Durbuk, reaching Tankse at six o'clock in the evening. Five years ago, while doing geological work in the surrounding country, I had camped here for a week, and I well remembered the bright nights with a full moon shining into the rocky gorge above which rises an old monastery remarkable for

¹ See H. de Terra, *Geologische Forschungen im Westl. K'un-lun und Karakorum-Himalaya*, Berlin, 1932.

its ancient and beautiful frescoes. Across from the monastery lie huge granite blocks with the inscriptions of Nestorian christians, relics of bygone missions which carried the gospel into Tibet at a time when Anglo-Saxon tribes in central Europe were just beginning to be converted.

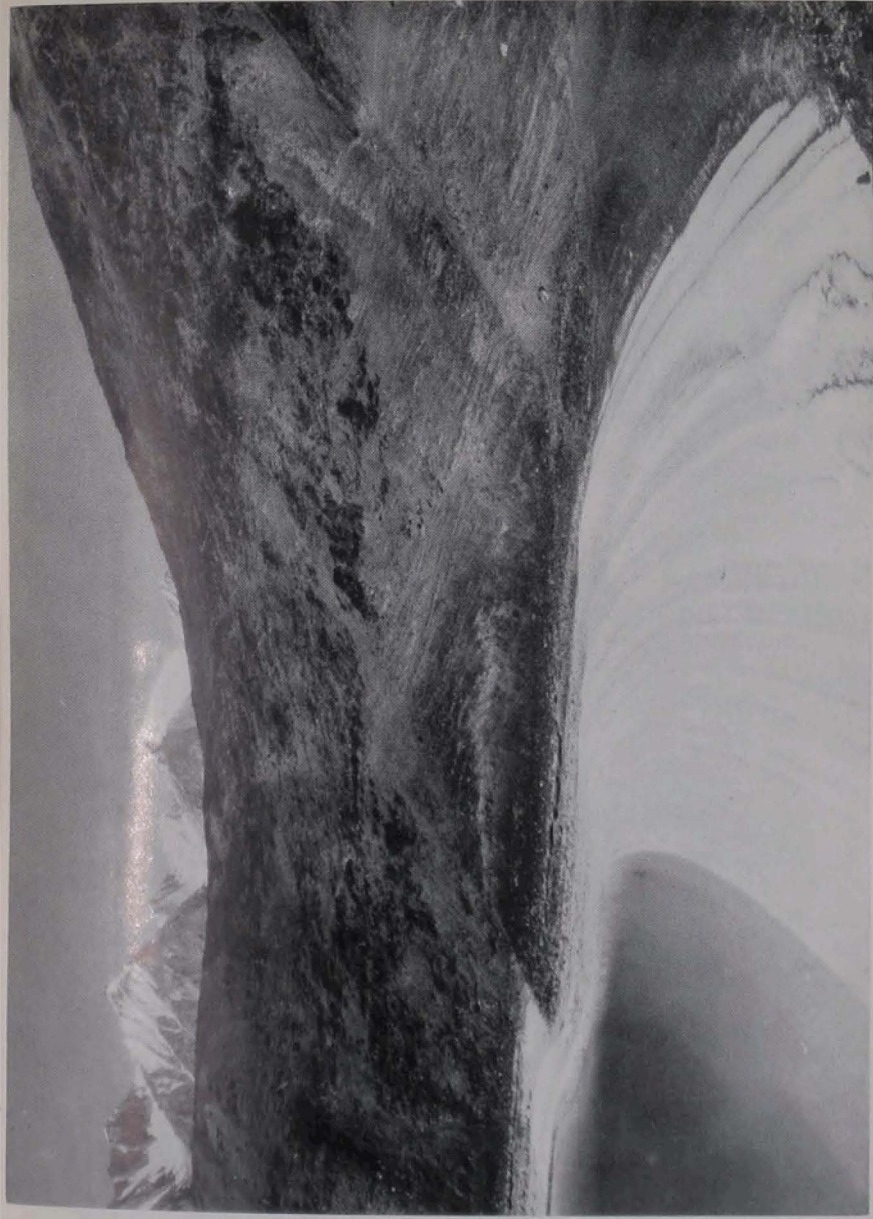
Two more marches brought us to the north-west corner of the Panggong Lake, where we found the depot which had been established for us by the caravan which had carried the larger part of our baggage along the regular route and which had left Leh a few days ahead of us. Half a mile below Lukung we found a good grazing-ground which had the additional advantage of being well sheltered from the sand-storms which make camping on the shores of the lake so uncomfortable. The lake could be reached in a half-hour's ride, and Professor Hutchinson set to work at once unpacking the canvas-covered, rubber boat and his biological apparatus which our coolies looked upon as instruments for black magic. Fortunately for us, our larger supply of grain arrived promptly from the monastery at Durbuk which had sold us twenty-six maunds at a price lower than that fixed officially at Leh. Suddenly the weather turned truly Tibetan. Hail- and snow-storms followed each other at short intervals until the lake basin was almost invisible, especially as tremendous dust clouds filled in the intermissions, blowing with great force from the Muglib side and for two days completely obliterating the most beautiful lake I know of.

Our negotiations with the people of P'hobrang, the last inhabited spot south of the Chang-chenmo, for additional transport for the next part of our journey, were successful as far as the animals were concerned. They refused, however, to go beyond the Lanak La, the frontier pass towards Tibet, and hesitated even to promise to accompany our party from there along the boundary via Nyag-zu and back to the northern shore of the Panggong. I won their confidence by promising to allow their animals to graze and rest at Kyam, and as they realized that we would also have to utilize the scarce grazing-grounds for our own animals, they finally consented to hire us yaks and ponies for twelve annas a day and six annas for each day's halt.

A week's excursion to Mang, a larger village on the southern shore of the Panggong, served to acquaint us with the biology and younger geological history of the lake and its basin. The latter, especially, attracted my attention, and my work around Mang confirmed Dr. Trinkler's idea that the clay beds which surround the lake must be interglacial in origin. At Mang shell-bearing clays are thickly covered by terminal moraines which surround the oasis, and from their relative positions to the present lake shore and their

composition, I found that the last ice advance, during the Pleistocene, could not have reached the lake. An older and evidently much stronger glaciation is to be held responsible for the glacial features which give to the Panggong lake-basin its trough-like appearance. Professor Hutchinson found the deepest sounding here at forty-nine metres. The lake water appeared to be almost brackish and to be inhabited mainly by *Gammarus* and *Daphnae*. A few fish could be seen in one of the larger lagoons east of Mang, but most of them were dead and had been injured by sea-gulls and terns. A day's excursion to one of the more prominent glaciers south of Mang proved that the lowermost limit of the present glaciation lies at 17,000 feet. From this vantage point I looked down at the cobalt blue lake and its surroundings. The relief north of the Panggong is that of a gently dissected, highly elevated plateau surmounted by a few isolated, conically shaped, and snow-covered summits. The plateau level seemed equal in height to the one on which I stood further south. Here the Kailas-Karakoram, very much dissected and divided by numerous deep glacial troughs, appears with a set of high, top-levelled spurs which slope down to the lake in such a manner as to give the impression of having once been cut off by a huge mass of moving ice which must have filled the lake basin before the last interglacial period. Towards the north-west a high, snowy range forbids one to look into the Shyok region, and I decided at once to visit it before our trip to the upper Chang-chenmo.

I planned to go from our depot-camp at Lukong, via Chagra, into the upper Ku-lungpa, and then cross over into the lower Chang-chenmo, passing on the way a couple of high mountain lakes, of which the Ororotse Tso seemed, to our biologist, to be the most promising. From the lower Chang-chenmo we hoped to follow up-stream by Pamzal to Kyam, where a second depot was to be established by a special caravan. Having sent the latter ahead to Kyam, our party started on the same day for the Ku-lungpa. From Chagra we followed the valley up-stream and by turning into a western side valley came to two low passes (17,600 feet), which we crossed without any difficulty. The descent from the second pass into the upper portion of the Ku-lungpa was, however, tiresome. The path led over extremely coarse boulder rock down 1,500 feet and then up again to a third flat pass, christened by us the 'Kyang La'. From here we reached the broad, undulating plain which represents the head portion of the Ku-lungpa. Right in front of us lay the high, precipitous peaks which make the watershed between the Shyok and the Panggong basin. They form a most impressive sight, with glaciers flowing down to the high plain, which, though over 17,000 feet above sea-level, is overwhelmed by those towering peaks, the highest



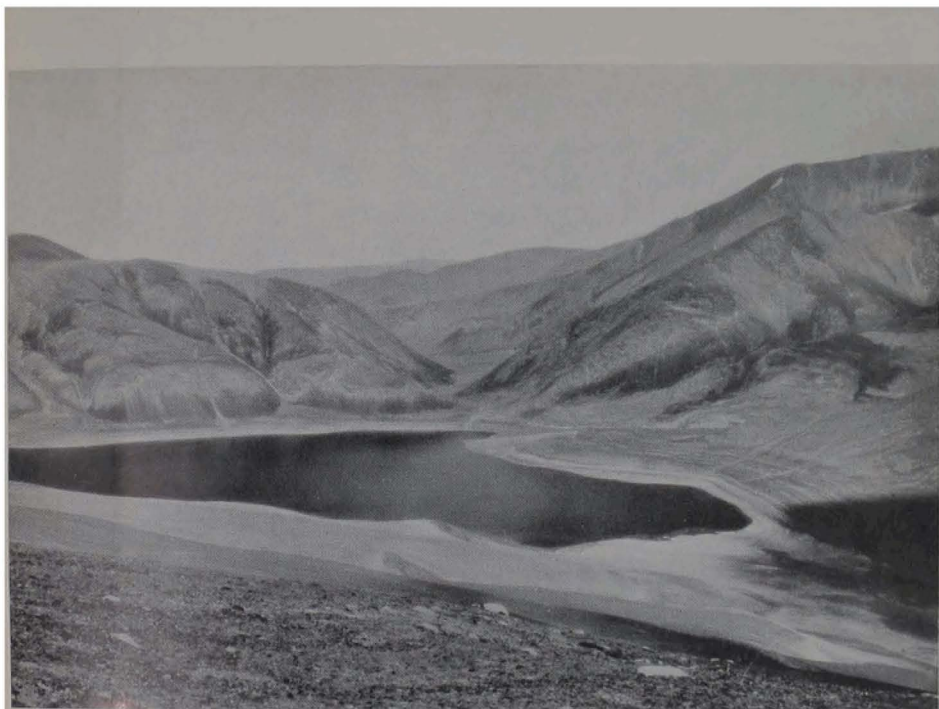
Gravel beaches in bay of Chartse (Panggong). Through the transparent lake water the drowned part of the lower beach levels may be seen

of which is 21,050 feet. No traveller who passes through the Panggong area should miss an excursion up here, for the upper Ku-lungpa offers not only very grand alpine scenery but a certain amount of game as well. The moraine lakes near Togarma, where we pitched our tents, abound with duck, while the near-by Ang-tung La is good shooting-ground for bharaI, and there are plenty of alpine flowers and smaller mammals which should yield new and interesting material to any one who is scientifically inclined. The extraordinary contrast between the high plain and the snowy range which rises so abruptly above it, reminded me at once of the relief in north-west Tibet where the Aksai-chin plateau is locally surmounted by glaciated massifs which are, however, less dissected than these and smoother in outline. As the level of this Ku-lungpa plain is the same as that of the western Tibetan plateau, there can be little doubt that the former is a remnant of the great plateau which must once have extended not only across the western Karakoram but over the entire Panggong as well and farther south-east into the Indus region. My geological survey proved that here lies the continuation of the high Muztagh-Karakoram, for the snowy range is built of the same granite massif and marble which characterize the main axis of the Karakoram system.

On the 11th of July we left our camp at Togarma and started for the Ororotse Tso, riding north and ascending the pass which forms a flat divide between the Ku-lungpa and the Chang-chenmo. As the sun broke through deep hanging clouds the majesty of the scenery around appeared more inspiring than ever. The plain was still veiled by drifting mist, and the icy cascades seemed to fall from the granite spires into earth bottomless and imaginary. Our Ladakhi coolies must have been similarly impressed by the grandeur about them for, once arrived at the pass, they erected a *mani* which they adorned with a prayer flag—a piece of cheese-cloth printed with lamaistic prayers. They seemed to be well provided with these flags for they repeated this ceremony at intervals during the coming weeks, especially at such places and passes which were as yet innocent of *manis* or where the existing ones had been neglected. From half a mile beyond the pass we looked down on a big lake which was entirely frozen over and deeply set into a huge cirque within bleak rocks. It resembled the magic mirror of some mountain ghost, in fact the whole region wore an eerie air. Our biologist friend could soon be seen on the middle of the lake, standing on a sheet of ice over three feet thick and searching for cracks through which to reach the lake bottom at different places. By afternoon he had already gathered an amazingly rich collection; the frozen lake appeared to be swarming with life, especially at those places where

the slightly warmer and more nourishing stream waters had access to it from the shore. Accompanied by one coolie I descended into the valley which leads from the Ororotse Tso down towards the lower Chang-chenmo. A small shepherd trail, indicated by stone heaps, proved difficult to follow, and had it not been for the instinct of my coolie I should have lost my way amongst the huge boulders. These boulders fell step-like on the terraced floor of the ravine at a rate of 2,500 feet in one and a half miles. I descended another thousand feet and looked from a moraine wall down into a tremendous gorge which in itself must be at least 2,000 feet deep. It was flanked on either side by almost vertical rock plates of granite and choked with gigantic blocks which barred the view towards the junction with the Chang-chenmo valley where the river seemed to squeeze its way through precipitous walls of green slate. Higher up and opposite the valley junction appeared a high range lifted above plateau-like spurs, and from here a glacier of considerable size descended southwards into the barren valleys. Again there was this twofold arrangement in the relief: a higher relief with broad valleys and levelled spurs, and a lower, steeper one. As to the gorge, it seemed absolutely impossible for our caravan to descend that way. Coolies might manage it after a very long and tiring march; but with loaded animals it was out of the question, and in addition I pictured to myself a Chang-chenmo swollen by the melting snows, blocking the passage at each bend! The return to Chagra via the Ororotse Tso therefore seemed inevitable, and I consoled myself with the fact that I had at any rate had a good look into the abyss of the lower Chang-chenmo and its northern mountains where I had recognized the same formations which form the Aghil-Karakoram farther east. But this time Hutchinson ran away with the lion's share of scientific results, and he decided to stay a day longer at the lake. The day with a pass of over 18,000 feet, a consequent descent of 4,000 feet, and a difficult re-climbing of 17,600 feet, had proved to be rather strenuous. I longed for better air and more oxygen and therefore returned with the others along a different route, but over the Ororotse La, back to Chagra.

As our depot caravan was waiting for us at Kyam in the upper Chang-chenmo, we left Chagra after a short halt. After our last experiences the Marsimik La seemed tame and easy, and after a two-day's march we reached Pamzal in the Chang-chenmo. The granite core of the Karakoram which one crosses on this route seems to be underlain by crystalline rocks; this suggests that the 'Karakoram granite', like so many granite massifs in the Alps, is allochthonous in a geological sense, that is, it has been thrust by mountain-making processes over different formations. This creates a



Mitpal Tso, a typical Kar lake in the Ladakh range



Changpa nomads near P'hobrang

peculiar structure in which the higher peaks are made of granite while the lower regions, exposed in the deeper valleys, display the underlying crystalline rocks. On entering the Chang-chenmo even a layman must be struck by the sudden change in the relief and in the general colouring of the rocks. This is due to an important geological boundary, for it is here that the marine sediments of an ancient mesozoic sea abut an older metamorphic rock floor. Between this region and the K'un-lun in Chinese Turkistan we would find mainly those marine strata locally rich in invertebrate fossils. At one locality three miles from Kyam I collected a few hundred specimens which must once in the Permian period have lived on a coral reef. This find was important for it confirmed the geological theory of the former existence of the Tethys sea which connected the Mediterranean with the Himalayan and Karakoram regions.

The Khan Sahib, who had been working at his planetable continuously from the Digar La onward, left us for a week at Kyam. I sent him towards the Lanak La so that he might survey the head of the Chang-chenmo and work his way down along the border until he could join up with us on our route to Drogpo-karpo some twenty miles south-east of Kyam. I had already seen that region while working with Dr. Trinkler's expedition, and therefore preferred to stay in the neighbourhood of Kyam working out the complicated structure, which promised important results. Animal life also seemed to be interesting hereabouts and the hot springs yielded a peculiar fauna with forms absolutely foreign to their surroundings. Our collection of mammals was here enriched by a Tibetan antelope and a fox which was caught by our coolies almost in front of our tents.

On the 25th of July we left Kyam and turned south-east towards Nying-ri. The road led us over an easy pass where a herd of kyang staged a beautiful performance for my motion-picture camera. In looking at them I was reminded of the exercises of a cavalry squadron for, although no commands were audible, they moved in a perfect line with the greatest precision, for all the world as if they were on a parade ground. Around Nying-ri we met wild yak, ammon, bharal, and wolves, in fact the whole valley with its high neighbouring ridges seemed almost like a game reserve. This was of course due to abundant grazing which made the area into a paradise for large and small game. The climbing of a neighbouring ridge afforded a wide view towards Tibet. From a height of 19,300 feet I looked over to the great plateau which clearly is dissected, along its southern and western edge, by a meagre drainage system belonging to the upper Chang-chenmo. Due east I could see a glaciated massiv which showed the morphological features of the Muztagh-

Karakoram. The survey shows it as a heavily glaciated group of at least three peaks over 21,000 feet, which lie due south of the Lanak La. From there all along the Tibetan border towards Drogpo-karpo, the orographic trend of the Karakoram ranges becomes rather obscure. The only clearly defined range lies south of the latter place, and this, with regard to its glaciers, general outlines, and height, resembles the Muztagh-Karakoram south of Pamzal where we had surveyed a peak of over 21,000 feet. It seems as if this range grows lower towards the east where an undulating relief, in the neighbourhood of 19,000 feet, indicates the adjoining Tibetan plateau. *The Muztagh-Karakoram can thus be quite accurately traced from the Shyok bend over the Marsimik La and south of Drogpo-karpo to the Tibetan frontier*, south of the Lanak La, where it loses its most characteristic features: its great height and strong glaciation. The world's second highest mountain range is here replaced by a few isolated snow massifs (e.g. 'Tartary Peak,' north-east of Dyap Tso) which surmount the plateau of west Tibet, which in itself, as I have previously pointed out,¹ consists of at least three peneplains in levels between 19,000 and 17,500 feet. That a younger volcanic activity occurred on the northern slope of the Muztagh-Karakoram can be seen at Pamzal and around Drogpo-karpo, where dikes and other intrusions of trachyte are frequently met with in pleistocene gravels.

Scarcity of water forced us to proceed to Migpal-kongma, which valley we followed down to Nyag-zu. Although we had passed large patches of *nieve penitente* on our way (15,900 feet) this spot was warmer than any other, the solar radiation thermometer climbing up to 145° F. at noon! Willows and tamarisks were abundant, and amongst them lay the scattered bones and horns of ammon, bharal, and kyang, who evidently winter here in this sheltered spot.

From Nyag-zu our caravan split into two parties and proceeded towards the Panggong. The Khan Sahib chose the route via the Kiu and T'hrat-tsang La and we turned south into the Ane-lungmo towards Chartse on the northern side of the Panggong. On this latter route we crossed a regular 'sheet-structure' in palaeozoic and metamorphic mesozoic rocks. These are thrust towards the north in the fashion of regular dip-folds similar to the arrangement in the Alps, which is taken as a sign for highly complicated nappe-structure. We reached Chartse within two days and, although the second march had been a long one, I thought it best to go that afternoon to the westernmost bay-side in order to investigate the road. The P'hobrang people claimed that this shore-route, which is marked on the old maps, had been abandoned long ago because of the rising lake-level. I found this statement to be correct, for the old path

¹ *Zeitschr. f. Geomorphologie*, vol. v, 1931.

could be seen clearly five feet below the present water-level which had risen to the wave-cut cliff. This, especially, made it entirely useless, and our coolies had to construct a new path which led above the cliff and brought us safely back to Lukong. The considerable rise of the Pangong lake-level called for further investigation. Our surveyor discovered that an old trigonometrical station which had been determined in the centre of the lake opposite Yaktil, sixty-five years ago, had entirely disappeared. Hutchinson made several soundings on the spot and discovered a drowned islet, six feet below the water level. This fact gave a more accurate picture of a rise of the lake level—which we could now estimate at ten to twelve feet.

Our journey from Lukong via Mang to Shushul added fresh evidence. Walking for miles along the shore line, I found three old drowned beach-levels and several inundated gravel-fans. Tamarisk trees and bushes were found swept along the lake shore where their roots were seen hanging freely into the water. Some of them had been swept fifty feet into the lake where they lay on a flat gravel-beach three feet under water.

From Shushul, Hutchinson and the Khan Sahib set out for the neighbouring Pangur Tso, and two of our most intelligent Ladakhis were sent across the border to the upper portion of the Pangong Tso, called by the Tibetans 'Tso Nyak'. Our coolies joined us at our camp five miles south of Shushul, bringing back a good collection of lake fauna and an equally good set of rock specimens. This experience proved to my satisfaction that an intelligent Ladakhi, properly trained in scientific collecting, can be of great assistance. The biologist returned from the Pangur Tso with a new fish, and this was the first time that the western portion of the Pangur had been thoroughly mapped. The geology around Shushul affords an excellent ground for research, especially with regard to the late cretaceous folding of the Karakoram and its subsequent movements in tertiary times. These latter must be made responsible for the great fault-line which passes Shushul and which is clearly marked by hot springs.

On 16th August we ascended the Sta-t'hrao La, minus one pony which had been gored by a yak overnight; this was the only transport animal which we lost during the entire four-and-a-half months' journey to Ladakh! The Mitpal Tso, a beautiful example of a kar lake, gave further evidence of the recent rise in lake levels in Ladakh. There are over thirty old beach-marks on the eastern shore of which the four lowest are inundated. The surroundings of the Mitpal Tso (16,000 feet) are remarkably rich in game, and we frequently sighted herds of ammon and bharal. The route from here to the Yaye Tso across the Kak-sang La is easy and follows the valley which leads

eventually from Ladakh granite into the softer formations of the Indus Tertiaries. These fall down to the Indus in sharply dissected ridges, a most remarkable demonstration of a sudden break in the relief. The Indus river was crossed by boat and skin raft near Nyoma, and, following the lower Puga valley, we reached the Kyagar Tso (15,335 feet) on 25th August. This salt lake gave even better evidence of a recent rise than did the Yaye Tso, but an examination of the interglacial gravel terraces which surround its basin proved particularly interesting. Levelling with a Zeiss level showed clearly a definite tilting of these lake terraces and the strata themselves dipped in a similar fashion. It seems certain, therefore, that this region, like the Kashmir valley, has suffered a *sub-recent crustal movement* of which I could find no traces within the Karakoram regions.

From here to the Tso Moriri it is only a half-day's ride and we established our camp there on a green spot near the north-west bay of the lake. To the south we had a high range built of gneissic granite on which a broad plateau rest was prominent. And this continues across the lake towards the north where it forms an undulating relief over metamorphic, presumably mesozoic, formations. Here, then, we find a part of 'Chang-tang' which in itself is only a remnant of a former extension of the Tibetan plateau.

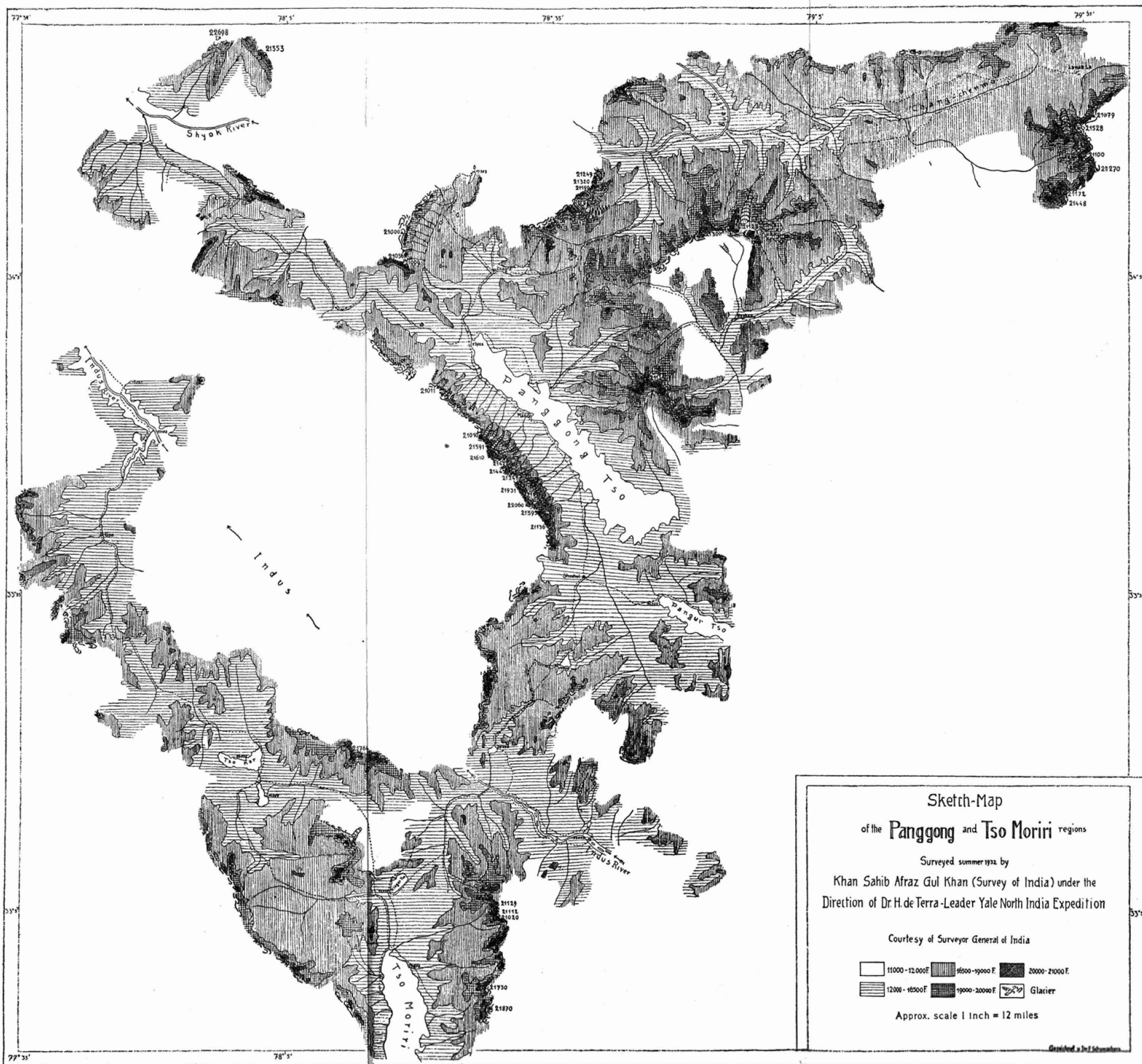
A visit to Karzok Gonpa proved well worth while. Not only is the building itself both interesting and well kept but the road leading there along the shore of the lake is very beautiful, offering a wide view on the blue lake with the snow massifs of Spiti in the background—a superb view which is unrivalled anywhere. Here I saw numerous *mani*-walls of ancient build which had collapsed entirely due to the rise of the lake-level. And the path which formerly circled the walls was found lying under three feet of the transparent water!

On 31st August we started for the Kar Tso. This lake basin is a huge depression of presumably structural origin, and it presents the most complete set of ancient lake terraces. There are more than thirty and the highest lies 360 feet above the present lake-level. From here our party returned via Gya and Miru down the Indus valley to Leh.

In summing up some of the more general results of our work in eastern Ladakh, so far as this can be evaluated at the present time, I should like to mention the following:

The mapping of 4,600 square miles between Leh and the Tibetan border on a scale of two miles to one inch.

The geographical reconnaissance of the orographic trend in the eastern Karakoram, especially of its main axis, and a morphological survey resulting in the view of a pre-pleistocene extension of the



Sketch-Map
of the Panggong and Tso Moriri regions

Surveyed summer 1932 by
Khan Sahib Afraz Gul Khan (Survey of India) under the
Direction of Dr H. de Terra - Leader Yale North India Expedition

Courtesy of Surveyor General of India



Approx. scale 1 inch = 12 miles

Tibetan peneplains across portions of the Karakoram and Zaskar-Himalaya.

A geological survey showing the geological structure of those ranges, based on numerous cross-sections and on new fossil evidence of which a large collection was made from localities hitherto unknown.

The biological and chemical investigation of nine high mountain lakes which resulted in the amassing of completely new facts concerning their origin and their faunistic character.

A zoological collection comprising a large number of fish, crustaceans, insects, and a few mammals.

A herbarium of Ladakh plants with over 500 representative specimens.

A NATURALIST'S JOURNEY TO THE SOURCES OF THE IRRAWADDY

F. KINGDON WARD

ONE of the least known mountain ranges of the Indian border is that which forms the watershed between the Lohit-Brahmaputra and the upper Irrawaddy, where Assam, Burma, and Tibet meet.¹ It is true that only the southern end of this range is in British-Indian territory; but since farther north it blocks what is virtually the only way into India between Burma and Tibet, it is of considerable significance. So far as appearances go, this Lohit-Irrawaddy divide is only a southern arm of the mightier Tsangpo-Brahmaputra-Salween divide—the so-called Ninchin-Thang-La range; the other branch forming the divide between the Irrawaddy and the Salween. But appearances may be deceptive. All the rivers here run from north to south; the mountain ranges between them therefore appear to do the same. But, as is well known, farther north, all the rivers flow from west to east, or at any rate south-eastwards, and again the mountain ranges between them appear to—and in fact do—trend east and west. Therefore, unless the mountains definitely curve round southwards, they must belong to two quite distinct systems.

There is, of course, a third possibility, namely, that the north-south ranges represent the flanks of grooves cut in the main east-west ranges by rivers flowing through them; but this is discounted by the fact that geologically the north-south ranges appear to be features of original structure and *older* than the Himalayan ranges. However, this very circumstance makes it certain that they must have been profoundly affected by the uplift of the much greater Himalayan ranges. Indeed, the rather abrupt elevation of these meridional ranges along the Burma-China frontier, north of latitude, say 27° , suggests that these snow peaks owe their presence, not to the original formation of these ranges, but to a secondary impetus due to the uplift of the Himalaya. In other words, if we could plot all the snow peaks north of the 27^{th} parallel, between the meridians of 96° and 100° , we should find that they really trend east and west, across the rivers and across the grain of the country, and not on short meridional lines, as they appear to the traveller to do. Although, owing to the peculiar river system, they appear to belong to the older uplift, they actually belong to the newer.

¹ The sketch-map (p. 48) is published by permission of the Royal Geographical Society. See also Survey of India maps 91 H and 92 E.

To return, then, to the Lohit-Irrawaddy divide. If the above theory is correct, it is not a question of the Ninchin-Thang-La range (an east-west range) dividing into two at its eastern end, with the Irrawaddy rising in the angle between them; but of that river rising from the southern slope of the range and gnawing its way back into it, leaving great spurs on either flank. To the west of one spur the Lohit flows southwards; to the east of the other the Salween does the same.

Confining our attention to the Lohit-Irrawaddy divide, as we may continue to call it,¹ this range stretches southwards, or south-westwards, from the source of the Irrawaddy in latitude 28°30' N. to about 27°30' N. before bifurcating again into the Patkoi and Kumaon ranges. In the course of its seventy odd miles it is crossed by five passes, named, from south to north, Hpungan pass (10,080 feet), Kumjawng pass (9,682 feet), the Diphuk La (14,280 feet), the Shori La (height unknown), and the Zasha La (15,711 feet).²

At its southern end the range is low, the highest peaks in the neighbourhood of the Hpungan pass barely exceeding 13,000 feet, while in the immediate vicinity of the Kumjawng pass they hardly reach 12,000 feet. A little farther north they jump up to 15,000 feet again, while in the neighbourhood of the Diphuk La they exceed 16,000 and even 17,000 feet. Between the Diphuk La and the Shori La there is again a sudden increase in elevation above the snow-line to over 19,000 feet, while around the Zasha La also there are lofty peaks.

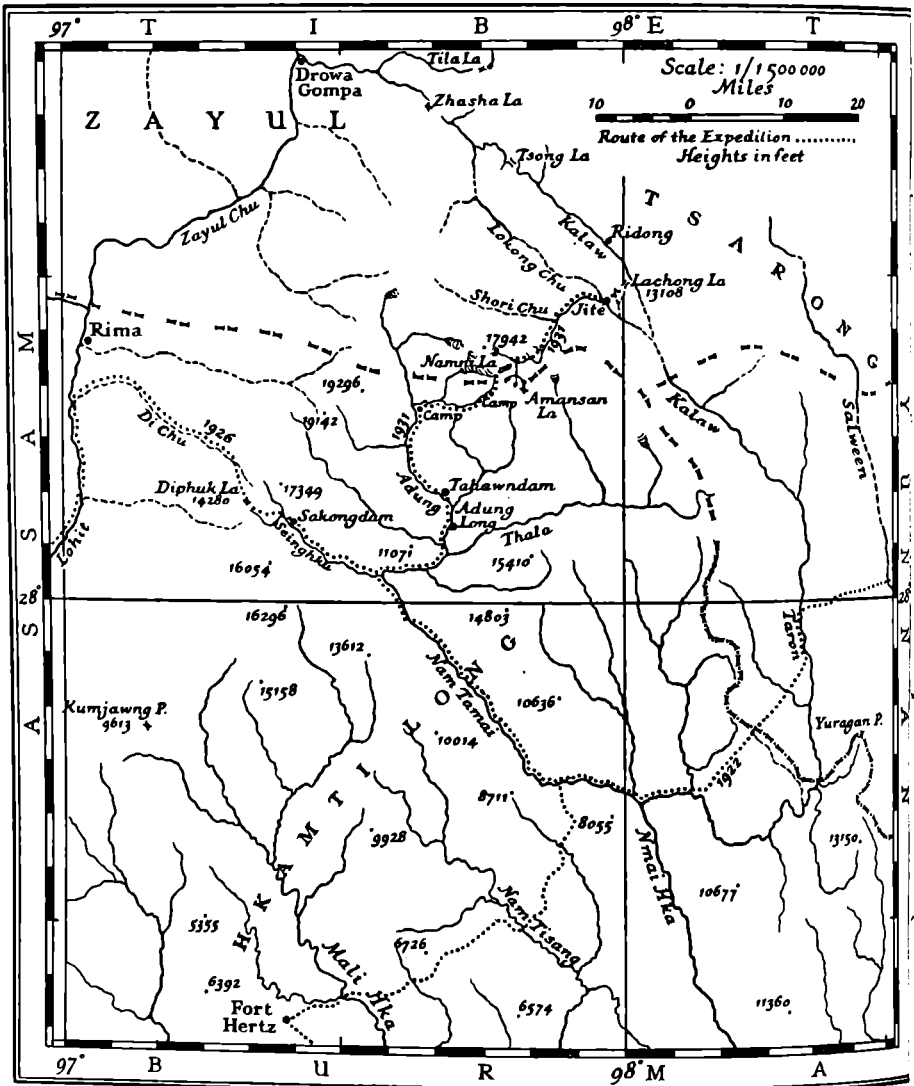
It was to explore again on the Lohit-Irrawaddy divide that Lord Cranbrook and I visited Upper Burma in 1930-1. I had crossed the Diphuk La in 1926; but we proposed to explore farther north. Our objects were to collect fauna and flora at the sources of the Irrawaddy and to continue the tracing of the southern limits of the great ice-sheet which once covered so much of this country from the Tsangpo to the Yangtze and beyond.

We arrived in Burma in November 1930, and left Myitkyina, the northern terminus of the Burma railway, on the 26th. Using mule-transport we reached Fort Hertz (214 miles) on the 16th December. There is now a dry-weather cart-road from Myitkyina to Sumpra Bum, rather more than half-way to Fort Hertz. Motor-cars even have done the journey, but it would be flattery to call it a motor-road, since a day's rain is sufficient to render much of it impassable.

¹ Also marked on some maps, for no sufficient reason, Namkiu Mountains. The Namkiu (river) is the Shan name for the western branch of the Irrawaddy, north of Fort Hertz.

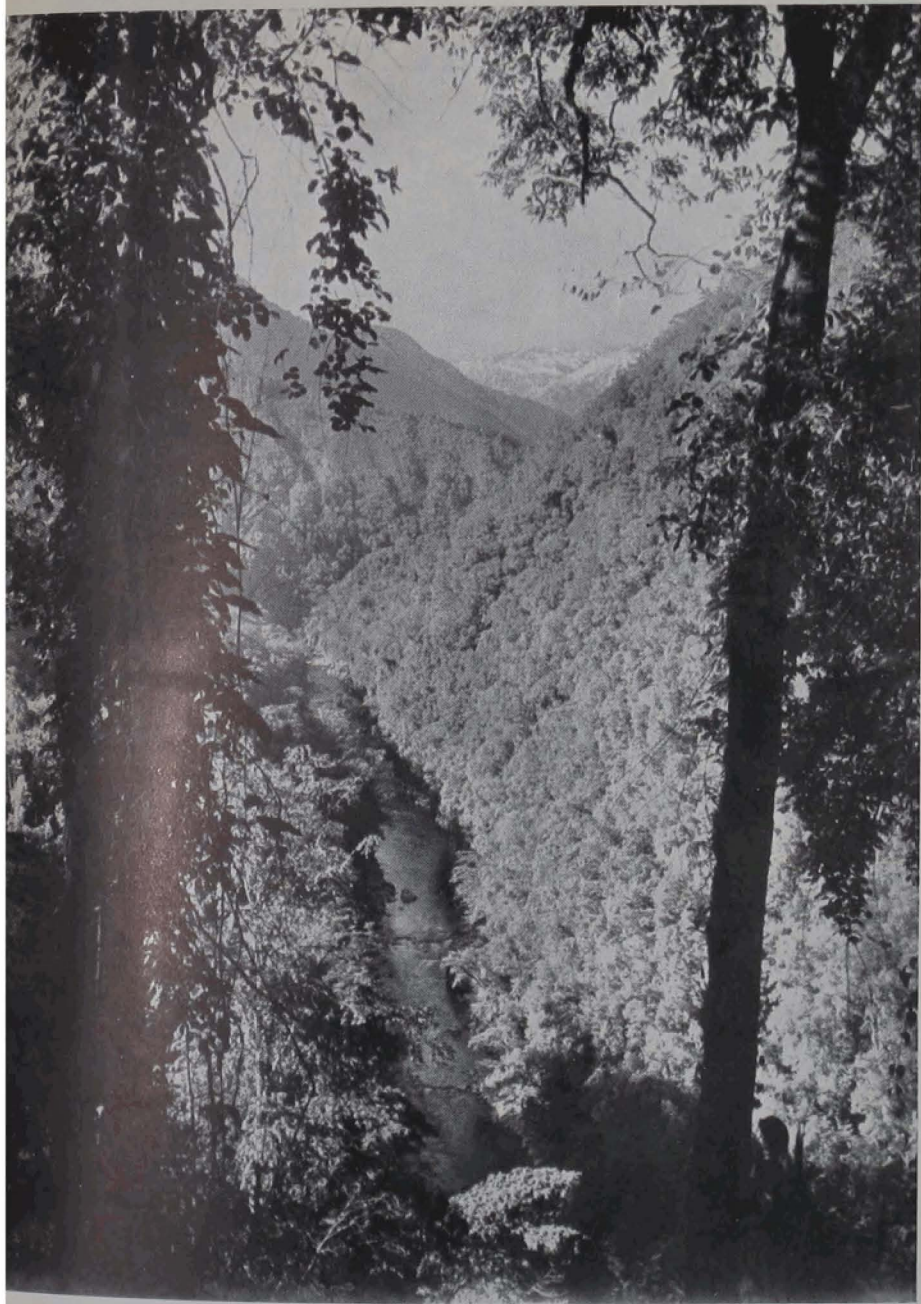
² The Hpungan pass is on Survey of India map 92 A, the Kumjawng pass on map 92 E. The others and the greater part of our travels are shown on map 91 H.

The first fifty miles is, however, regularly covered by lorries and buses, of which there are two or three marvellous antiques in Myitkyina, owned, of course, by Chinese contractors. It is only a



Sources of the Irrawaddy

question of time—and money—before there will be a very fair dry-weather dirt-road to Sumpra Bum, and there is no insuperable obstacle to carrying such a road on to Fort Hertz. To be able to reach Fort Hertz in three days from Myitkyina would be a great step forward; but lorry hire would be expensive, though not more so than that of mules. At present the charge for a mule is Rs. 30, as payment



Looking north up the Nam Tamai towards the Tibetan frontier range

must be made for the return journey as well as the outward one; and a mule only carries 120 lb., the trip taking nineteen days.

After halting for several days at Fort Hertz we set out for the Nam Tamai, which lies to the north-east; the Tamai is the second largest branch of the eastern Irrawaddy. From Fort Hertz to the Tamai is nine short, but steep, stages, soon to be reduced to eight. Owing to the attitude of the Chinese authorities, or rather of the Yunnan authorities, who have laid an embargo on the activities of the Chinese mules working east of the Myitkyina-Fort-Hertz road, we could not take mules to the Tamai, though there is a dry-weather mule-path (*not* a cart-road) all the way. So we had to use coolie transport. The difficulty could have been overcome by engaging mules from the Shan States instead of Yunnan animals in Myitkyina; but it was hardly worth the expense, since we should have had to pay for the mules, not only returning empty all the way, but also for the journey to and from the Shan States as well. For our part we were in no hurry after leaving Fort Hertz; but it is well to record that we could have procured mules in Myitkyina which would have gone right through to the Tamai river with us, and possibly several marches up that stream.

Travellers for Fort Hertz must remember that they can buy hardly anything on the road, though there are one or two Chinese shops at stated intervals, where tinned milk (mostly of an ancient vintage!), kerosine, and other luxuries can be obtained, at a price. There are half a dozen shops in Fort Hertz itself, where tinned stuff in some variety can be bought; and what perhaps is more to the point, unlimited rice. Between Fort Hertz and the Tamai nothing at all can be bought, though the road passes through one village, Nogmung, four marches from the edge of the plain. Neither can any supplies be obtained in the Tamai valley, up which we marched for six days' journey—actually not much more than fifty miles—in January 1931.

By the end of the month we had reached the Seinghku-Adung confluence. I had explored the Seinghku valley in 1926, and crossed the Diphuk La at its head to the Lohit river twice. The Adung river is the main stream, that is, the upper course of the Tamai; and it was this branch that we followed in February 1931, using the local Daru coolies for transport. These are the people variously called Taron, Tellu, and other names, or at any rate other pronunciations. There is some reason to believe that they are connected with the Mishmi of Assam; anyhow there are very few of them, and they are shockingly oppressed by the Tibetans, Lisus, Chinese, and indeed by every one who comes into this country, except of course the British. The natural result is that the British are the one people

who cannot make them do anything. They will work, willingly or unwillingly, for Tibetans, or Lisus, or any one else; but they will not work for the British.

The problem of travel in the upper Irrawaddy jungles is entirely a problem of transport. Everything has to be carried, because nothing can be obtained locally. The valleys at the sources of the Irrawaddy are not entirely uninhabited; but one might easily think that they were, for all one sees of man or hut. Such villages as there are do not remain in the same place for more than two or three years at the most; the tribes, if not nomadic, are at any rate vagrant.

We reached the Tamai on the 7th January, the Seinghku confluence (six stages) on the 25th, and Tahawndam (four stages) on the 5th February, though our last loads did not arrive till the 12th. In all we had about seventy loads, so that the rate of progress was not startling. In the rainy season, if possible at all, it would have been very much slower; but it is hardly possible to move about, below 10,000 feet, during the rains, and above that altitude it is impossible to travel between December and May because all the passes are then blocked by snow. Movement at the headwaters of the Irrawaddy is therefore restricted.

Tahawndam is literally the last village in Burma; but it is more Tibetan than Daru. In the Tamai valley there are mithan, but no other cattle; in the Adung valley there are not only cattle and half-breed yak, but also sheep and goats, as in the Seinghku valley. This is a sure indication of a more temperate climate; and indeed Tahawndam is not only at 6,000 feet altitude, but it is completely surrounded and overshadowed by hill ranges whose peaks attain 15,000 feet or more and are snow-clad for at least nine months of the year. Our ultimate object was to cross the pass at the head of the Adung valley into Tibet; that is, if there was a pass. We were told that there was, and moreover that it was regularly used. In fact, as we found, the people of the Adung valley traffic with the Tibetan villages over the Namni La, and not with the people of the Tamai and Fort Hertz.

At Tahawndam we found permanent cultivation and grazing (on south slopes), as well as the usual shifting hill-side cultivation of the Darus. The entire population of the valley and its tributaries above the Seinghku confluence may number 500 men, women, and children. No doubt it varies considerably from year to year according to the incidence of famine, pestilence, and raiding; it has probably never exceeded that figure. Consequently the difficulty of assembling even thirty or forty coolies at one place on the same day may be imagined. Actually it cannot be done; even twenty are rarely obtainable, and usually for ten one must be thankful. Probably half of these will have insufficient food for a two-days' march,

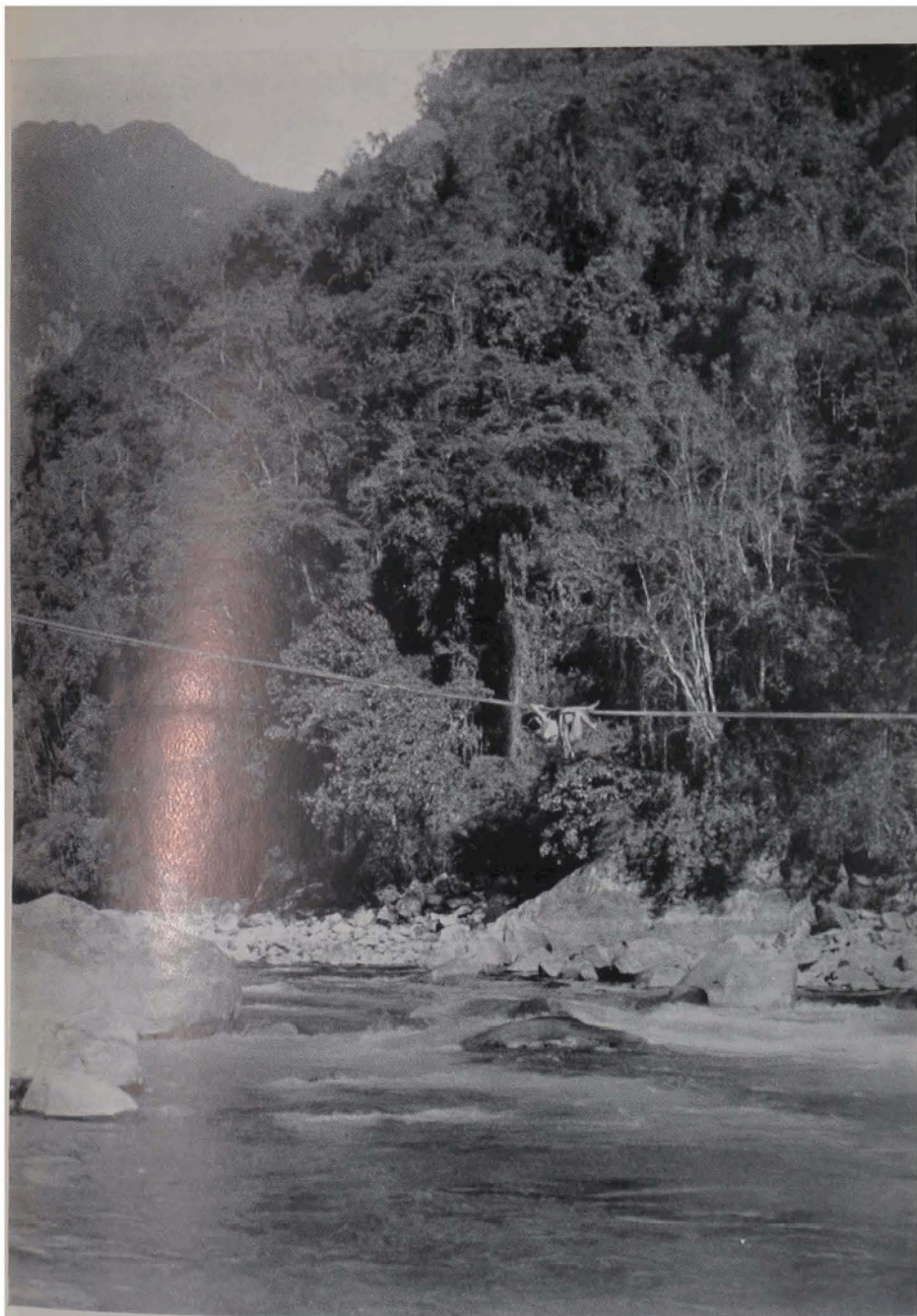
though they require little enough in all conscience. Any one who contemplates exploring or collecting in this country should arrange to dump a hundred bags of rice—double-bagged and padlocked—at a forward village during the so-called dry weather, and be prepared to take on and feed permanently ten coolies, preferably bringing them with him from another part of the country.

As it was we made our next move up the valley, three days' march, to 8,000 feet in the middle of May. In June we ascended to our alpine camp at 12,000 feet, and there, three hours' climb from the pass, we spent the summer. In September we crossed the Namni La which leads, not directly over the Lohit-Irrawaddy divide, but over a lofty range separating two of the Irrawaddy head-water streams, the Tamai and the Taron.

On either side of the pass we observed five glaciers; there is a sixth a little farther south, and there are almost certainly one or two more to the north-east though we could not see them. They are all either hanging or corry glaciers; and besides these there are also several snow-beds. The group of glaciers round the Namni La, however, are not the most southerly in Burma; so far as my own observations go, there are no glaciers in the Seinghku valley or south of the Diphuk La, but there may be a few small ones north of that pass, before the 19,000-foot peaks are reached. It is probably correct, however, to say that there are no glaciers south of the 28th parallel, between the Brahmaputra and the Salween to-day; and only remnants south of latitude 29°, or even 30°, in that area. Except for the Burma-Assam re-entrant, between meridians 94° and 96°, the southern edge of the ice-sheet certainly came down to the 28th parallel, and still farther south in the Himalaya and in China. It is important to notice that this ice-sheet at one time completely cut off the Indo-Malayan region from the central Asian region, and the central Asian region from the eastern Asiatic; but it never completely cut off the Indo-Malayan region from the eastern Asiatic, which, farther east, must have long been in contact for hundreds of miles.

Tahawndam, the last village of the Adung valley, is a Tibetan settlement comprising three families. The Tibetan system of cultivation is very different from that of the jungle tribes. It is always permanent; the Tibetans cannot live except where permanent cultivation is possible, so it is unlikely that they will push any farther down the Irrawaddy. As it is, 6,000 feet is very low for them. The principal crop at this altitude is barley. The Tibetan also requires permanent grazing; and we found the southern slope of the valley denuded of forest, covered with high grass and bracken. It is burnt afresh every year about March.

There were herds of yak or half-breed yak, goats, and sheep at



Daru rope-bridge over the Nam Tamai just below the Seinghku river confluence

Tahawndam, and up to the time we left in the middle of May, the Tibetans supplied us with fresh milk every day, and with butter weekly; we had enough for our needs, but of course could have done with more, had it been available. After we went up the valley, we got no more milk and only a little butter occasionally. There was not enough grain cultivated to supply us; but from time to time we obtained a little *tsamba* (roast barley-flour), Indian corn, peas, wild honey, and other things. For meat the Tibetans relied largely on pork from the village pigs, chickens, and on the chase—serow, gooral, and barking-deer are all common. The Tibetan hunts with dogs and short gas-pipe guns; the Daru only uses the cross-bow, with poisoned arrows, but he also snares animals and pheasants. About June the Tibetans take their animals up the hill-side to the higher pastures at 8,000 feet; the forest on southern slopes having first been burnt in some places up to nearly 10,000 feet. There is a good path from the valley on to a shoulder, whence the path ascends the ridge into the *Abies* forest. I followed it to over 11,000 feet, and there is no doubt that in the summer the cattle go right up to the alpine region, immediately overlooking the village. By this time, however, we were far up the valley.

The mountains are composed entirely of granite and are precipitous. Enormously high smooth cliffs are exposed, and the streams fall into the river in a series of leaps. Washouts and rock-avalanches are of frequent occurrence. Three small streams, dry in winter, which descend close to the village from a common source at about 14,000 feet, came down in spate during the heavy rains of July and did a good deal of damage. Thousands of tons of gravel and rock were washed down, obliterating a field and the site of our camp, but just missing the village. There is not much doubt that these washouts are aggravated by burning the forest on the south slopes. Nevertheless, owing to the greater accumulation of snow on the north face destructive avalanches and washouts occur here also, and there is little to choose between them.

I have mentioned wild honey above. In the months of May and June this honey is obtained largely from the many rhododendrons which grow in these forests and is poisonous, at least to some people. Classical students will remember the sad story of the Retreat of the Ten Thousand in Xenophon's *Katabasis* and how the Pontine honey affected the Greek soldiery. Cranbrook, having eaten his first meal of wild honey at Tahawndam, went off into a trance, and two of our native servants were ill. I was not affected, possibly because I ate more moderately of the 'Tree of Knowledge'. But it is a point well worth bearing in mind.

Honey was not the only eatable we found wild in the Adung

valley. Bamboo shoots and a bright orange-coloured fungus which grew in enormous tiers on the silver firs at from 11,000 to 12,000 feet afforded a welcome supply of fresh food (vitamin content unknown!) in the summer; also there were in the alpine meadows unlimited supplies of a very mild garlic (*Allium sp.*) of which we ate the leaves chopped up. These things proved very useful during the three months when we had no potatoes. Big game—if *gooral* can be classed as big game—having proved itself unprocurable at about 8,000 or 9,000 feet up the valley (Cranbrook shot two *gooral* on the opposite cliff from our camp, but we failed to recover the bodies), and non-existent in the alpine camp at 12,000 feet, we relied on smaller game for fresh meat; squirrels, pheasants, and even smaller birds were all welcome to the pot.

In July visitors from Tibet came over the top into our valley and asked—demanded would be a better word—permission to dig up *pai-mu*; this is the Chinese word for the bulb of *Fritillaria Roylei*, a well-known general tonic in China. The 'rights' in this valley and its main tributaries apparently belong to a wealthy Tibetan family which lives in the Salween valley two days' journey south of Menkung; I stayed in their mansion in 1913 and can testify to their wealth. The Tibetan headman—I believe he is even a petty official—himself came over the pass; but for the actual work he employs a gang of ruffians from the Tzekow region on the Mekong—Sino-Tibetans, Lisus, and other *banditti*. The Tibetan spoke nothing but Tibetan; but the Chinese interpreter spoke Daru, as well as Chinese and Tibetan; and it was with him that I negotiated. I had the not very bright idea of formally giving these unpleasant-looking bandits permission to dig *pai-mu* in the Adung valley, in return for their taking us over the pass and entertaining us hospitably on their side, and even allowing us to travel northwards into drier country. This scheme was only partially successful. When the truculent Tibetan chieftain had gone back to his own country, the Mekong contingent of semi-Chinese warriors did indeed return to us and carried ten loads for us three days' journey to the first village the other side of the pass, called Jité. But beyond that they would not budge, saying that they were afraid; and the Jité people said likewise. This was why the Tahawndam folk would not take us over the pass either. It was a pity we could not reach Ridong on the other big branch of the Taron, said to be three marches from Jité, over three mountain ranges; these 'ranges' could only have been spurs, separating southward-flowing tributaries of the Jité river.¹ Both Cranbrook and I eventually reached the top of the first spur above Jité,

¹ See Map, *Geographical Journal*, vol. lxxx, p. 474, from Lord Cranbrook's compass traverse.

but owing to the bad weather we could see nothing. However, the main thing was to cross the pass, and this we accomplished.

With half a dozen coolies in our permanent employ we could have easily reached Ridong, but the weather throughout September was so bad that, from a mapping point of view, it would have been little use. So far as we can judge, Ridong seems to be placed on existing maps several miles too far north; Bailey did not get an observation for latitude there and no other European seems to have visited it. I was told there was a good cantilever bridge over the Taron at Ridong, and about thirty houses scattered about. There is said to be no path down to the river, near which there are only a few scattered wild Tarons (Darus). Nevertheless Daru slaves are fairly numerous in the Tibetan villages upstream and as far as the Salween river. Perhaps some day Geneva will interest itself in the matter—or is it too remote? Meanwhile I may remark that Lhasa is unable to make its voice heard in this part of Tibet; for I was assured, locally it is true, that the Tibetan Government had strictly forbidden its nationals to enter the Adung valley, pending a decision as to whether the Indian Government proposed to claim or abandon it. All this makes it rather doubtful whether a Tibetan passport would have been of any assistance to us.

It was, however, a satisfaction to us to cross the Namni La on the 1st September and to continue our observations on the glaciation of this region. The river we followed down to Jité has its sources in several glaciers and is one of three head-waters which together make up the Taron river. Possibly it is the largest, and, if so, then we found what is technically the source of the Irrawaddy—though we claim no special merit for that! We are satisfied to have found *one* of its many sources.

The climate on the other side of the range is distinctly colder and drier than on the Burmese side, but we derived small satisfaction from this fact in September. It rained practically the whole of the three weeks we were there, and when not actually raining, we could see nothing for mist. That the climate was not quite the same was, however, proved by a different type of vegetation, as well as by the appearance of different species. There was also the fact that the last human habitations in the Adung valley are at 6,500 feet, while Jité is about 4,000 feet higher, a fact which may, however, be due partly to the nature of the valley. At any rate there is no gain-saying the point that the Adung valley is in direct communication with the dense sub-tropical forest region of northern Burma; whereas the Jité valley is linked with the chilly wind-swept grass plateau region of eastern Tibet.

On the other hand, if the grassland plateau region is drier than the

forest region to-day, one suspects that it was not always so. The north side appears to be far more glaciated than the south side; and, as already stated, there are several glaciers on the north side, and only two insignificant ones on the south. It is true that the drier climate might *preserve* the effects of ice-action better; but it could hardly initiate larger glaciers. On the southern slope, the wetter climate might destroy the evidences more effectively, but it would keep the glaciers in action longer. Some argument may therefore be made out for a gradual change of climate in this part of Asia.

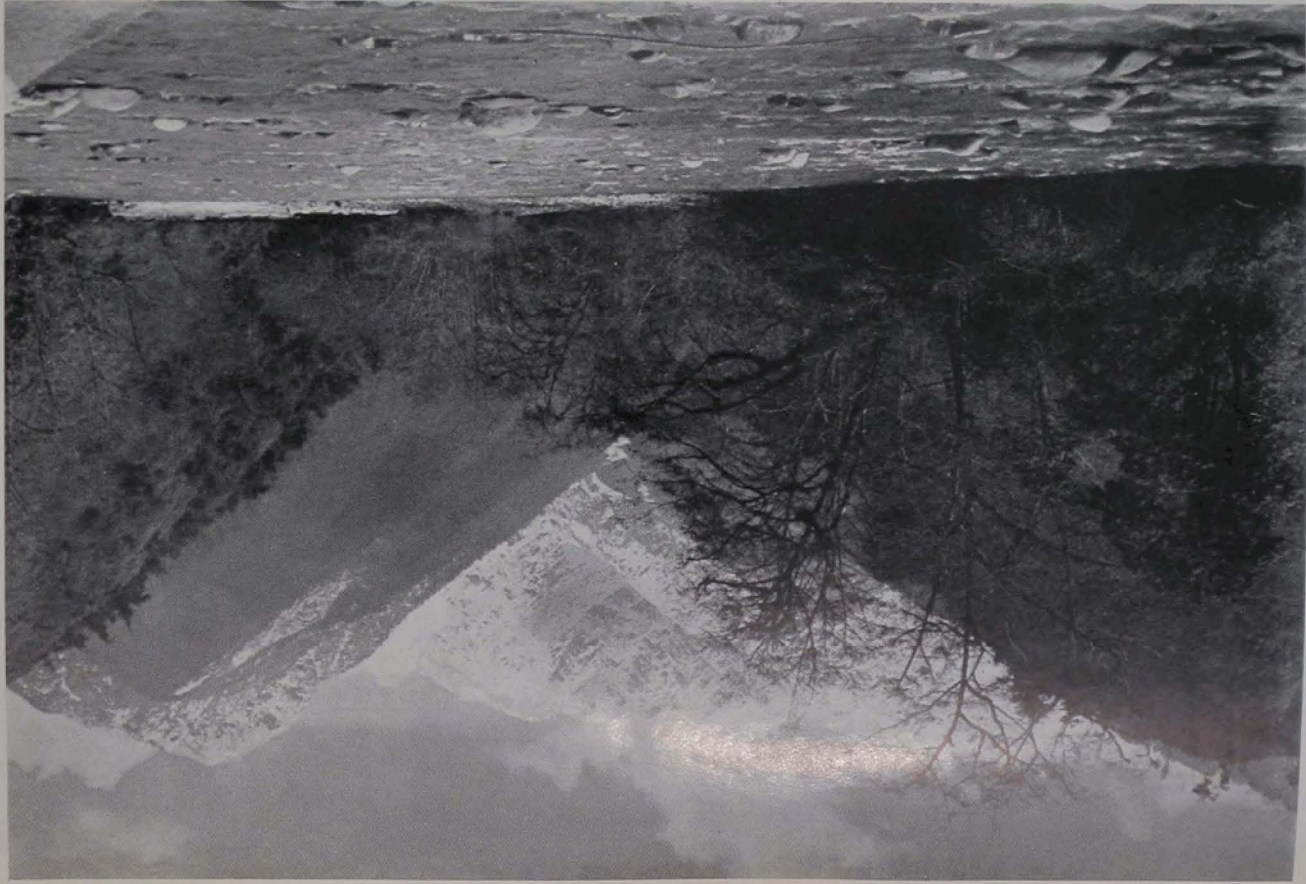
It is worth noting how very sparsely inhabited this mountain country between the Lohit and the Irrawaddy really is. Crossing the range by the Diphuk La, it is eight good marches from village to village, or eleven marches from the Nam Tamai to the Lohit, passing perhaps four villages, comprising in all from twenty to twenty-four houses, with a total population of a hundred souls. Crossing by the Namni La, it is seven long marches from village to village. Reduced to miles, the distances may not sound formidable, but any one who thinks that a seven-mile march up one of these valleys is not an honest day's toil, had better try it!

After crossing the Namni La on the 1st September we descended to a lovely little alpine lake, of which there are many scattered about in these mountains. Below the lake the valley ended in a cliff, perhaps 500 feet high and overlooking a larger valley, the upper part of which was, as usual, flat; farther down, this valley ended also, not exactly in a cliff, but in a very steep ravine, which led to a yet larger valley. In this, the main valley, there was an enormous pasture, probably 300 hundred acres in extent, where yaks, sheep, and goats grazed. There was no permanent habitation here, at an altitude of 12,500 feet, but from here onwards the path was fit for pack animals. Farther down we crossed a fairly big river from the north; this was the Shori river, and at its head there is a pass over the Lohit-Irrawaddy divide, carrying the road to Sanga-chu-tzong and Lhasa. There may be villages up this valley—certainly there are a few families. A cantilever bridge spans the Shori river, and on the other bank is a shelter hut, evidently a favourite halting-place for the night. From here to Jité is a short day's march.

Arrived at Jité on the 4th September, we found the local inhabitants reaping the barley. It is a miserable village of three or four houses, standing on a bare shoulder of the mountain, over 10,000 feet above sea-level. A considerable river flows in from the north, in a deep valley, to join the main river just below the village. The combined river turns more and more towards the south, and joins the Ridong river (Kalaw Wang) at some unknown point.

The Jité river flows in a very narrow gorge, shut in by sheer cliffs,

Looking up the Adung river from Base Camp at 6,000 feet, in February



and I was unable to reach it, much less to follow it. The road to Ridong, a very good one, though muddy, diverges from the river, keeping more to the south-west. I followed a good path up the northern branch of the Jité river for several miles, and came to another house, but the path ended there, and I was told that there was no route up the valley, a piece of information I found difficult to credit, though I could not disprove it.

In this part of Tibet the valleys are well forested up to 12,000 feet—juniper and fir above, birch, maple, oak, *Pyrus*, *Prunus*, and many other trees below. There is abundant meadow and grazing country. The climate is severe. The people speak a bastard kind of Tibetan, but have few dealings with Tibet proper, and perhaps fewer with Yunnan. No doubt the sturdy folk of the Mekong valley 'milk' them as they in turn 'milk' the people of the Irrawaddy jungle.

This part of Tibet appears to have no comprehensive name. It is not part of Zayul, nor is it part of Tsarong. Zayul is presumably a province; Tsarong a smaller designation, a district, comprising the arid part of the Salween, around Menkong. The name *Tsarong* means 'the hot valley'. The Jité district lies to the south-east of Zayul, and south of Tsarong; it is certainly not hot, and still less dry.

The Jité people were very frightened of us. Translated, that simply means that they were frightened of incurring the displeasure of their officials, owing to our presence. But greed triumphed over policy. When they found that we had money, and when their officials demanded taxes, they came to us with offers of food and raiment. We bought a little *tsamba* and cornflour, also butter, potatoes, and turnips. Had we reached Ridong we might have bought unlimited supplies; as it was we did not get very much, but enough to go on with.

The officials and 'the church' would have no dealings with us. I was told there was no official at Ridong; but there is no doubt that news of us had spread all over Tsarong, and perhaps Zayul also. There was a priest of sorts—not a lama in the strict sense—at Jité; but he kept well out of our way and had not even the courtesy to call. The general boycott made me wonder whether we should ever get coolies to take us back to Burma; we might just be abandoned and forgotten, I thought. I therefore sent our only Daru coolie back to our own village with a message to the headman, requesting him to send a rescue party. If ever he received the message, he did nothing about it.

However, after twenty days, the Tibetans collected some ponies and took us back to the foot of the pass. Though we had only ten or twelve loads, we had only five or six coolies, and as soon as the transport animals had to be abandoned we had to move in relays. We

recrossed the Namni La under depressing conditions, pouring rain, a bitterly cold wind, and thick mist. Arrived at our camp, the Tibetans departed and we were stranded again, out of touch with either village. Cranbrook sportingly volunteered to march down to Tahawndam for help, and he accomplished the journey in five days, while I stayed in the 12,000-foot camp and collected seeds. At the end of October, after three weeks in the alpine camp, I rejoined Cranbrook at the next camp below, to which he had come back; and we leisurely returned to the village, collecting as we went. By the first week in November we were all back at the base camp making preparations for departure. We left Tahawndam on the 20th November and were back in Fort Hertz early in December. Christmas was spent on the road, and we reached Myitkyina on New Year's Day 1932, after an absence of just over thirteen months.

The natural history results of the expedition were very good. Cranbrook made an excellent collection of birds and mammals, including several new species; the range of other species was extended and more clearly defined. We also collected a number of insects, including new and rare species. Though our half-dozen snakes included no new ones, the small collection proved quite interesting to those who like such things. The botanical collection requires more working out, but it includes many new species and some beautiful plants which have been introduced into cultivation.

The geographical results are less satisfactory, for we were held up sooner than I had anticipated. In order to travel even in these remote parts of Tibet without permission from Lhasa—or even perhaps with it—two conditions are absolutely essential. Firstly, one must have a nucleus of reliable coolies, drawn from some other part of the country, on whom the Tibetans cannot visit reprisals, and who must be, therefore, dependent on one for food; and secondly, one must move with speed. Had we been able to feed ten coolies, and to cross the Namni La with our own men before the news of our arrival at Tahawndam reached Jité, there would have been nothing to prevent us from reaching Ridong at any rate, and perhaps Tsarong. But obviously even this method presently breaks down. The official Tibetan reply to these tactics is to place an embargo on all food; any one who sells food to the unpopular party does so at his peril. Ten coolies cannot carry loads and enough food for themselves for very long.

Nevertheless, our glacial observations were decidedly interesting and satisfactory; and we discovered this route directly connecting Burma with Tibet. Now, having crossed both passes, I unhesitatingly pronounce in favour of the Diphuk La, as a direct link.

THE PASSANRAM AND TALUNG VALLEYS, SIKKIM

DR. EUGEN ALLWEIN

AFTER the retreat from Kangchenjunga in late September 1931, we had still some two weeks to spare which we could devote to a closer inspection of Sikkim and its mountains. Pircher and I therefore planned to make a route over the Simvu saddle into the quite unknown Passanram valley. We picked three porters, Norsang, Angchu, and Ketar, and provided ourselves with provisions for five or six days, by which time we hoped to reach the first settlements in the Talung valley.

Near the Green Lake, on the 1st October, we parted from the main body of the expedition. After crossing the Zemu glacier we ascended the steep moraine on the right-hand side¹ of a short glacier, and over its flat upper portion moved towards the Simvu saddle. Near the last boulders we pitched camp at 5,100 metres (*c.* 16,750 feet). The weather was perfect when early next morning we stood on the saddle (17,760 feet), where we had an amazing view down the Passanram valley and upon the mountains on either side of it. To the north-east it is flanked by the appalling southerly wall of Siniolchu which rises to 22,625 feet; to the south it is wedged in by the spurs of Simvu (22,360 feet). While the ascent from the Zemu side had been comparatively level, the ground at once falls very steeply down the other side towards the Passanram glacier. From the saddle already we could plainly see that the existing map was quite incorrect; for the Passanram glacier does not rise from the Simvu saddle, its main source being rather the great glacier cirque of the Simvu massif from which it sweeps down to the main Passanram glacier with a mighty ice-fall; a big tributary glacier seems to originate on the upper Simvu saddle (point 5660 of the photogrammetric map),² while a mile east of that point the Simvu saddle proper, on which we stood, gives birth only to a small but extremely steep hanging glacier, falling directly to the main glacier 2,600 feet below. The main glacier at first trails away in a south-easterly direction until, lower down, where it is already buried under debris, it bends southwards.

First of all we had to reach this valley glacier; the hanging glacier itself was impassable, being completely broken up into ice-barriers

¹ All side indications are given in the sense of looking down the valley, river, or glacier.

² This map is published with Herr Bauer's book, *Um den Kantsch*, see Review, p. 143. The Passanram and Talung valleys are shown on Survey of India map 78a.—Ed.

and towers. We trudged down along its right-hand side, in the ravine between rock and ice, to a debris-covered expanse which, however, some distance down developed into bare forbidding rocks. Finally, over a ledge, we succeeded in reaching a long rock-couloir which we descended to the junction. Here we found ourselves at once amidst a bewildering labyrinth of crevasses that delayed us for a while, until at last we managed to get out on the main glacier to the right. On it, in the afternoon, we marched down the valley, the weather changing for the worse, and eventually, in pouring rain, pitched camp on the grassy moraine of the right bank of the glacier.

It was a wonderful morning, with a deep blue cloudless autumn sky, when we crept out of the tent. Hastily we cooked breakfast, then made a little ascent up the slope rising behind the tent to get a preliminary survey of the surrounding country. Right opposite towered the rock and ice wall of Siniolchu; from the point, where the glacier bends south, to the summit, which is almost vertically above it, there is a difference of height of nearly 13,000 feet: this might well be one of the world's highest rock walls. Some curious secondary glaciers, markedly distinguishable from the main glacier, that are exclusively fed by the avalanches thundering down from Siniolchu, are to be seen at the foot of the wall. On a ridge radiating south-eastwards is set a mountain strangely contrasting in character to the mass of Siniolchu, a kind of Dent du Géant, but vastly larger in scale, with a mountain character one would scarcely expect to meet among the icy giants of the Himalaya.

We marched down the glacier; below the first bend it becomes steeper but is free of debris and crevasses. Some ibex were grazing on the slopes to the right; they were not to be frightened away, as they certainly had never seen man before. We were the first Europeans in this valley, and few, if any, natives have been up so far. At midday we passed the snout of the glacier, and an hour later pitched camp in a basin of the valley which from this point takes again a more easterly trend. On the slope a little above the camp appear the first trees, while the valley-bottom is covered with herbaceous plants and dense bushes.

Next day in perfect weather we marched along the right bank down the valley. At first all went well, though in one place a smooth rock wall, rising straight up from the river-bed, necessitated a deviation up the already densely forested slope. In the afternoon we found that the valley was narrowing, and twice we had to climb high; for the first time we had to cut a way with our bowie-knife. Towards three o'clock we reached a basin beyond which the valley narrows to a glen. Here we found a camping-place with some

remains of charcoal—the first signs of man's presence; we could not, however, explain where he had come from, for the glen itself was quite impassable, while the forest-clad slope of the valley, on our side of the river, was very steep and composed of smooth rock. About 300 feet above the opposite bank of the river there seemed to be a flat terrace. But now, in the afternoon, the height of the water did not allow us to cross the river. We camped at the old fire-place, intending to ford the river next morning if possible.

In this, however, we were unsuccessful. A yard from the bank the water reached far above our knees, and the torrent was so rapid that we were forced to return at once. There remained no alternative but to ascend the densely forested slope towards a saddle that seemed to lead into a secondary valley. But even in this we had no luck. For the whole day we ascended without having a view. When in the afternoon we reached a clearing we saw the saddle far down below our standpoint; we had gone too high, but it would not have been much use to us, since the secondary valley ran into the glen not far from our camping-place. We now decided to leave the Passanram valley altogether and to force a way directly into the Talung valley into which the Passanram valley had failed to lead us. We had to bivouac in the forest, for it was impossible to pitch the tent, though we were lucky to find a flat, though muddy, spot where we prepared a dry layer of rhododendron leaves for our sleeping-bags. The day's work had been rather fatiguing: first we had had to struggle through dense forest, then through timber-forest (*Hochwald*) almost bare of undergrowth; this was broken by a smooth rocky step, over which we found, only after a long search, an upward passage. Higher up the underwood became more dense, so that our progress was impeded. For five days now we had been on the way; our provisions were getting scarce, for we had expected to reach the first settlements in the Talung valley, shown on the existing map as being in that part of the valley we hoped to reach the next day.

The 6th October was a trying day, and at the end of it we were still far from the Talung valley. Directly from our camp, that lay approximately on the edge of the timber-forest, we laboured up through thick rhododendron jungle, ten or twelve feet high. This was very tiring, every yard was gained only after a long struggle; the obstructing branches clung to our rucksacks, making them hideous nuisances. Constantly we had to force our way through narrow clearings. The wood of the rhododendron is incredibly tough; twigs of the mere thickness of a thumb are almost impossible to disentangle from one another. Under such circumstances the passage of an alpine slope with creeping firs appears comparatively a pleasure! Every now and then we had to wait for the porters, who were particularly

handicapped by their voluminous loads. Finally, we came out on a clearing that offered a wonderful view of Siniolchu, the Needle, and down the whole Passanram valley, and as far as Singhik, where the road leading down to Mangen could be distinctly seen. Not far off there was the saddle, leading into the Talung valley, but thick rhododendron jungle intervened. Again a long struggle with the tough underwood followed, until we finally stood on the saddle, from where we hoped to descend quickly into the valley. But a fresh obstacle in the shape of a high plateau, a thousand yards broad, on the other side of the ridge, took us four hours to overcome, being, as it was, covered with huge boulders and dense rhododendron jungle. At last we emerged to find ourselves in a little high valley where we found a beautiful camping-place with lots of black berries which our porters knew to be edible and which in flavour reminded me of grapes.

Again we had to camp in the forest, for even on the next day we failed to reach the Talung valley. We started early in the morning, and at first all went well. We descended through the bed of a torrent, but after a few hundred yards we found ourselves on the edge of impassable precipices. We tried to find a way to the right and up to what looked like a practicable ridge bordering our glen, but dense bamboo thickets and steep rocks drove us back. Along the left bank we succeeded, through bamboo jungle and down steep walls, in descending 300 feet, then everywhere forbidding rocks barred the advance. We traversed to the right and at last were rewarded by success. Through bamboo and the usual rhododendron jungle, then timber-forest, and up a few rocky steps we attained the ridge, where we experienced an agreeable surprise: there were distinct traces of a path, twigs were broken, trees marked with the axe, sporadically there was an actual path; but after a short distance all this ended. Like hounds we crept about in the bush, looking for the trail, then turned back to the last traceable mark, traversed to both sides, went up and down, but were unable to find the continuation of that path. For the present this did not matter much. The timber-forest of the ridge caused us to indulge once more in the hope of reaching before dark the first hamlet, but again we were doomed to disappointment: a precipice of from six hundred to a thousand feet lay before us, and along its upper edge we traversed until nightfall.

The following morning, after another short traverse, we found a possible way down. Zig-zagging over rocks and precipices we descended slowly; there were places which could only be negotiated with great difficulty, and once we even had to let ourselves down carefully with the aid of the rope. Thick rhododendron jungle intervened. But at ten o'clock we stood at last on the bank of the Talung



Passanram glacier and valley from Simvu saddle



Passanram glacier, Simvu saddle, and Siniolchu from about 11,000 feet on the Passanram-Talung divide

river. The place where we had reached the valley was shown on the map as being between the two settlements of Pangong and Sanyen, but not a trace of the path, also recorded by the map, was to be seen. Our situation was now getting serious, our provisions being almost exhausted, since we had been on the way for eight days, instead of only five or six. The Talung valley by no means promised an easier passage than the Passanram; it was as deeply cut and as narrow. The slopes, particularly those on our side, were steep, the bare rocky walls rising immediately from the rapid torrent being fringed with dense forest and almost impenetrable undergrowth. One hope remained: on the other side of the river the map recorded another path, which we dared to suppose would actually exist! We therefore searched for a suitable spot to make the crossing. After an hour of hard labour, we gained a hundred yards and found such a place; here the river was divided by enormous boulders into three channels, each fifteen to twenty feet wide. We felled some trees and began to construct a bridge. Old Norsang at first looked on rather sceptically, but Angchu and Ketar were in their element. They put off their shoes, climbed about the rocks of the bank, sneaked like cats over the first thin poles pushed across the river-arm to the boulder in the middle, and fastened the thick trunks there. In three hours the bridge was ready and crossed without incident. But not a trace of a path on the other side! At the junction of a tributary torrent we pitched camp, while Pircher went high up the ravine on a vain search for the path.

The 9th October was another exhausting day that brought us little progress, a mile and a half at most as the crow flies. In a rather depressed mood we pitched camp and cooked the last poor remnants of our provisions. The river became wilder as we advanced, forming rapids and falls; the slopes of the valley were as steep as ever, and the forest as dense. Once we tried a detour which led us high up into the flank but in the end resulted in little progress. On the contrary we got into a maze of wild rocks, a porter fell, and we had to risk a difficult retreat; in three and a half hours of hard labour we only gained 200 yards! At this rate it would take us a fortnight to reach the first settlements. We therefore now kept close to the river-bank, climbing every now and then over rocks polished round by the water. Every rock rising immediately from the river necessitated a long detour into the thick bush. Every pace had to be cut with the bowie-knife, and when we pitched camp we had not even reached the junction of the Passanram valley with the Talung. Our skin and clothes were torn by sharp thorns. We were lucky to have fine weather; but no end of our difficulties was to be seen.

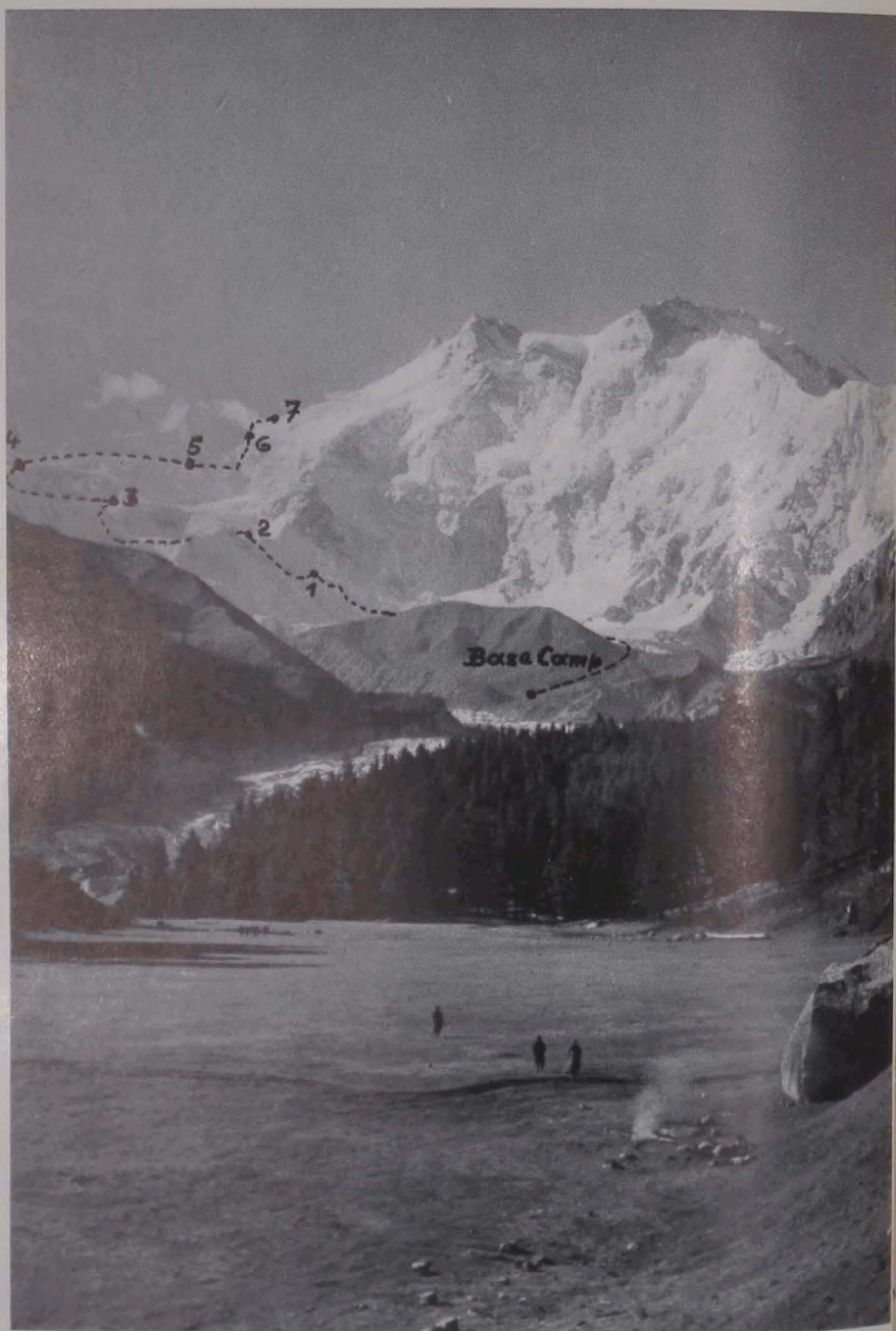
Under similar conditions the following morning we continued our

way. But at last there appeared the first traces of human presence, some trees being hacked and twigs broken; finally we came on a track, freshly beaten through the jungle, the cut foliage scarcely having withered. The porter's faces brightened and with fresh energy we went on. An hour later we came to an uninhabited hut, which was, of course, immediately searched most thoroughly for eatables; a few nuts and some pumpkins, growing before the hut, were the poor result. Some time afterwards we met the first native, who seemed to be hunting with bow and arrow; he was gone like a flash. Our porters declared that as he disappeared he exclaimed *Migö*, meaning 'wild men'. According to the old tales of the natives, the *migös*, living in the mountains, at times descend into the valleys to vex the people. Some younger people who followed were more plucky, and they told us that we were soon to come to the next village, where rice, chicken, eggs, and milk were to be had. Here in the Talung valley still live the Lepchas, the aborigines of Sikkim, unmixed by other races, while out in the Tista valley they are gradually displaced by the more robust Tibetans and Nepalis. They are a strange people of whom science can tell us little, wood-dwellers who have to wrest laboriously from the forest their scanty crops of rice and buckwheat.

Sakyong is the name of the first village we reached in the afternoon, where we prepared a hearty meal. For the first time our travels assumed the character of a pleasure trip, such as had been intended at the outset. We engaged a native porter who knew the way. The village lies several hundred feet above the river, to which the path leads steeply down and where it is crossed by a rope-suspension bridge. This is built in the old style as practised by the Lepchas since early times. Stone piers on either side are connected by ropes of twisted creepers, the gangway consists of two or three bamboo stalks suspended by short ropes of creepers. The biggest rivers are bridged in this fashion, the Talung river in this reach being certainly from 100 to 130 feet wide. On crossing, the whole construction begins to oscillate and swing; with the deep river roaring below and the ropes creaking ominously, these bridges are not made for nervous people.

On the far side of the river the path leads once more high up the slope, and finally, across a gap of a ridge, into the Tulung valley, where in the hamlet of Be we pitched camp, at midday, because we were told that in the next village there were no supplies to be had, a matter of decisive importance to us at the time.

A march through an amazing forest next day brought us back into the main Talung valley, which we followed downwards till midday. We crossed the river by a bamboo bridge and on the other side



Nanga Parbat from 'Märchen Wiese' camp

ascended to Ronglu, lying on a terrace 1,000 feet above the river, where in a garden we pitched the last camp in the Talung valley.

Straight away from the hamlet the path, leading into a secondary valley, begins to ascend, until high up it traverses to the left and crosses a ridge where there is a fine view of the lower Talung valley. Then it descends steeply to Lingtam with its monastery and chortens. A lama met us with a salaam, bringing chicken and butter, for which in turn we gave him our bowie-knife that we would no longer need; after the pattern of the bayonets of our engineers this had a saw-edge on the back which visibly impressed the people. The valley in this part is comparatively densely populated, and we passed many small villages, while on the opposite slope some extensive settlements were to be seen. There are many rice and millet fields; of domestic animals there are kept small cows, black pigs, goats, sheep, and fowl. About midday, after a steep ascent, we reached a gap exactly opposite Mangen, but to get there we had to cross the intervening Tista valley, cut to a depth of over 1,500 feet. The ascent to Mangen was steep and hot, and we were pleased when, in the shade of the village lime-tree, we could settle for a rest. We ought to have gone on to Singhik, where our comrades were awaiting us, but were much too lazy! We sent a messenger, who took so long, that Bauer came to look for us, having felt some anxiety about the delay in our return.

THE ATTACK ON NANGA PARBAT, 1932

WILLY MERKL¹

ONE cannot mention the name of Nanga Parbat without first thinking of Mr. A. F. Mummery, who, accompanied by two Gurkhas, attacked the great mountain in 1895 with incomparable courage and unexampled heroism. Mummery attained the noteworthy height of over 20,000 feet on the north-west side. He was lost on the Diama glacier, and Nanga Parbat claimed him for ever. But his deed will remain in the history of mountaineering as the classic accomplishment of a brave man, which will not be forgotten.² Nearly forty years have passed since Mummery's attempt, and as yet none of the loftiest mountains of the earth have been conquered, and few of the thousands of Himalayan and Karakoram peaks. These eternally snow-covered summits, which no human foot has trodden, are the aim and desire of the mountaineers of all nations.

My friend, Dr. Welzenbach, was contemplating an assault on Nanga Parbat in 1930, and had thoroughly studied the problem. His expedition, however, could not then be undertaken, and it was only in 1932 that an attack became possible. While considering the problem, I came to the conclusion that it would be easiest to attack the mountain from the north-east. The conditions we met with have since proved this decision to be right. The southern precipice was already recognized by Mummery as unclimbable; and I had also many doubts about the Diamirai side, where the route must ascend a rocky ridge, and from there to the summit rises a steep enclosed ice-field nearly 6,000 feet high. Contrary to Welzenbach's plan, which was to follow Mummery's route, I decided to make my attack from the north-east, in order to avoid the ridge with its extremely dangerous ice-avalanches and the very long and difficult rock-climb for the porters. On the north-east side there were three possible lines of approach: the North Ridge leading up from the Diama pass; the East Ridge from the Rakiot peak and the north-east side; and a combination of a traverse of the Rakiot glacier with the attainment of the East Ridge, which presented itself to us in the course of the undertaking.

The German-American Himalaya Expedition left Europe on the 28th April 1932. Besides myself, the leader, there were eight of us:

¹ I am indebted to Mr. C. J. L. Reynolds of Worcester College, Oxford, for his translation of Herr Merkl's paper.

² See *Himalayan Journal*, vol. iii, pp. 1-12.

Peter Aschenbrenner of Kufstein, Fritz Bechtold of Trostberg, Hugo Hamberger (expedition doctor) of Rosenheim, Herbert Kunigk of Munich, Felix Simon of Leipzig, Fritz Wiessner of Dresden, and the two American members: Rand Herron of New York and Elizabeth Knowlton of Boston, who accompanied us as the reporter for the English-speaking press. On the boat, the *Victoria* of the Lloyd-Trestino line, we had the pleasure of meeting Mr. Hugh Rutledge, who gave us an interesting account of his earlier Himalayan expeditions and a letter of recommendation to the finance minister of Kashmir, Mr. Jardine. When we arrived in India we found the hospitality of the English and Indian authorities most comforting. In Bombay we were granted complete freedom from customs-duty for our whole baggage; in Srinagar Major Irvine, Dr. Ernest Neve, and Major Kenneth Hadow, a grandson of the Hadow who in 1865 so tragically came to grief during the ascent of the Matterhorn, assisted us not only with advice, but also with practical help. It was here too that we received permission to enter Chilas territory through the kindness of the then minister of Kashmir, provided we did not interfere with the inhabitants.

In Bandapur, on the 23rd May, the whole of our baggage was packed on ponies in the extraordinarily short time of half an hour; then began the march up the Gilgit road which connects India with Chinese Turkistan—a very important road, which leads by Guraiz and Astor to Doyan at the foot of the Nanga Parbat massif. On the way we had to cross the Tragbal pass (11,586 feet) and the Burzil pass (13,775 feet) with our 110 ponies; both these passes still lay deep in winter snow. We were very relieved to reach the rest-house of Sirdarkothi on the far side of the Burzil pass. By the side of the foaming Khirim torrent we rode on down the valley. From a short distance behind Godhai we saw Nanga Parbat for the first time. It was the greatest mountain we had ever seen in our lives. The view of the southern wall took our breath away; it is perhaps the most massive and steepest wall in the world. We had to throw our heads back to gaze at the spectacular precipice leading towards the summit, clothed in permanent snow. Any thought of conquering this towering virgin wall of ice from the south side was abandoned; but there was still a north side, which was the goal and hope of our advance.

In Astor, our last stage, Captain R. N. D. Frier met us; Major Gillan, the political agent for Gilgit, had sent him to help us. Captain Frier was an especially valuable companion on account of his knowledge of languages, and his experience with coolies. The friendship of our English comrade, who never failed us at any time during the whole expedition, and who, even under the most difficult

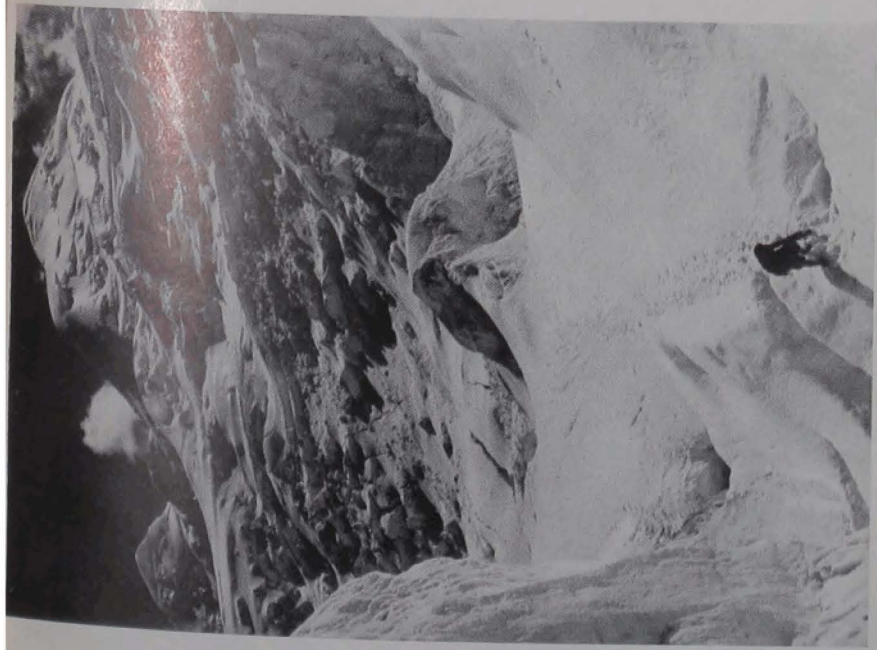
conditions, was always punctual according to the plans, went far beyond the ordinary.

A week was passed in Astor while we collected porters and inquired about the route. Owing to the fact that the Kashmir Government had only allowed us to enter Chilas territory on condition that we did not disturb the inhabitants, we were compelled to traverse the Himalayan ridges at a height of from 10,000 to 13,000 feet. For this reason our approach will rank as one of the longest on any Himalayan expedition up till now.

In crossing the three ridges—the Lichar, Buldar, and Rakiot—we experienced the whole romance of pushing forward in a strange and pathless region. In the lower Buldar camp we decided to make a cut across the Buldar glacier. The new map of Nanga Parbat, which the Survey of India had very kindly put at our disposal, caused us to follow this plan. The Buldar glacier as shown on it caused us to think that the shortest ascent to the mountain led over it; but actually the glacier is shown a good deal too long, and we discovered during our reconnaissance that its surface was composed of broken and quite impassable ice. Above it towered the main summit of the Chongra peak (22,360 feet), terribly steep. Any ascent of Nanga Parbat over the Buldar glacier was utterly out of the question.

The passage over the three ridges was successful. From the Lichar valley we crossed the Buldar valley and finally reached the Rakiot valley with the best camp of our whole approach—the 'Meadow in Fairyland'. It lies there in serene charm amongst the light green of the pasture, embroidered with the stars of the edelweiss and surrounded with the trunks of ancient timber-forests. Just like a corner of undestroyed paradise did the fabulous meadow above the glacier snout appear to us, overshadowed by the ice-clad northern flank of Nanga Parbat, and by its three tremendous satellites, Gonalo peak, Rakiot peak, and Chongra.

Four weeks had passed since our halt in Srinagar before the main camp was set up in the Rakiot valley, first at 10,500 feet, and then a few days after, on the 29th June, at a height of 11,800 feet. It was not possible to push on higher owing to the nature of the glacier, which extended to 9,800 feet. This also rendered the ascent more difficult. The loads arrived in the main camp in relays and we could now count them for the first time for a fortnight. It was discovered that ten loads, containing the whole of the kit for about forty porters, had been stolen. We had now only four complete and five more meagre outfits for the porters, a truly desperate situation. Finally, good humour helped us to overcome this blow of fate, which indeed, in its consequences, was the most serious we had yet met and which made an ascent impossible according to our time-table.



West Chongra peak from Camp 2



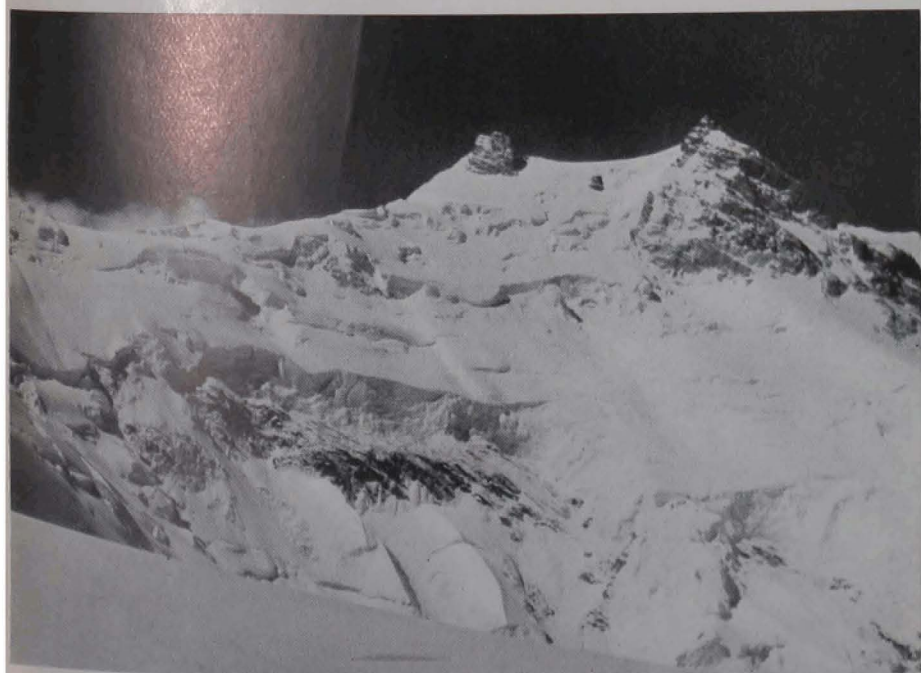
Rakiot peak and route as far as Camp 7

On the 30th June the attack began in earnest. Our plan was to force a way over the Rakiot glacier and establish a high camp on its terraces. The site for Camp 1 below a large serac appeared quite near. But the journey there seemed endless and we had at this point our first foretaste of the great scale of this part of the Himalaya. Aschenbrenner and Wiessner remained with six porters in Camp 1 (15,000 feet) to set up Camp 2 on the next day. The rest of us returned to the Base Camp. The way over the broken glacier demanded all our attention. On the next day Wiessner with four Hunza men appeared back at the Base Camp—very much contrary to plan. What had happened? In the night a giant ice-avalanche had fallen in the neighbourhood of Camp 1. The powerful blast had stove the tent in, and cracked the bamboo poles like matchwood. It was difficult to calm the frightened coolies. One porter only was willing to push on to Camp 2. The transport question was becoming serious. After great difficulty we succeeded in quieting the porters to some extent; but they now demanded a very high rate of pay, and we had to swallow the bitter pill and comply! Over and over again we had to learn that our porters of these parts did not possess the same willingness to work nor the same stamina as the porters of the eastern Himalaya. Even the Hunza men, who were attached to us as porters for the higher camp, disappointed us greatly. At first their big powerful frames made a great impression; as far as the Base Camp they overcame all the stages of the approach in the best of form. But they were entirely unserviceable for the high camps: very few emerged from Camp 4; only one reached Camp 6 in good condition. We were, however, dependent on their services, because the reliable and proved Darjeeling porters were all engaged elsewhere.

The attack progressed. Through wild seracs the way led steeply up to Camp 2 (16,700 feet), which was pitched among the weird ice-features of the first great glacier-terrace. Our three tents stood in a hollow; opposite them a roomy ice-cave had been cut. These ice-caves did not prove of much advantage. We did not derive the same benefit from them as my friend, Paul Bauer, had done on Kangchenjunga, where conditions were quite different from those on Nanga Parbat; and contrary to the accepted practice that one should avoid the ice-faces of the great Himalayan giants, we were forced to make our whole ascent over such slopes. Here the ice-fields, flanked by high ridges, are consequently protected from the wind, and are exposed to irradiation in such a way that the sun burns on them like a concave mirror. The heat was so great in the months of July and August that we could only work till eleven o'clock in the morning. The variations in temperature were great: it was



Rakaposhi from Camp 4



Nanga Parbat eastern peaks from Camp 4

only the matter of a step from the glowing heat of the sun on the glacier to the icy cold of the cave. A stay of a few minutes in that cold shook us to such a degree that we speedily left the cave and sought the tent.

Under these circumstances the tents proved themselves better than the ice-caves. Among other patterns we had the closed Mummery tent, which was exceptionally good. We preferred the larger type to the smaller, as it was not so stuffy. On the 5th July Camp 3 was established. The congratulations of our comrades made us realize how well everything goes with close co-operation and how much each individual can serve a cause; we were all pulling together to erect the high camp; and this period, sometimes of hard exertion, sometimes of enforced idleness, waiting with nothing to do, sometimes in really tight corners, was passed in absolute companionship.

I cannot now think of my friends without mentioning the name of him of whom a terrible misfortune has deprived us for ever—Rand Herron. On the journey home, on 13th October, he fell to his death from the Chefren Pyramid near Cairo. Throughout the expedition he was an ideal comrade, always fighting in the front line, always striving for our common aim and making sacrifices willingly. He braved all the dangers of the Himalaya; but the 500-foot wall of the Pyramid, built by the hand of man, caused his death. Such was the extraordinary and uncanny tragedy of his end.

Let us return to our work on the mountain. On the 8th July, Camp 4 was built on the second terrace of the Rakiot glacier at a height of 19,000 feet. On account of its exceptionally favourable position we made it the advanced base camp for the great attempt—for the last, hard, decisive attack on the mountain. From this position we could see the whole route down to the base camp and arrange all the climbing parties, an advantage which we later learnt to value especially because the separate camps were cut off from each other for days during heavy falls of snow. Towards the mountain we could see right across the valley, 2,500 feet deep, which was to cost us so much effort. Across it runs the glittering edge of the ridge, which leads to the East Peak of Nanga Parbat.

It was now that the first two climbing successes were recorded by the expedition. On the 14th July Aschenbrenner and Hamberger climbed the westerly Chongra peak, 20,480 feet, and two days later Aschenbrenner and Kunigk conquered the Rakiot peak, which is 23,170 feet above sea-level. On the 18th July all the attacking party was gathered in Camp 4 and all preparations made for the great assault. On the same day the period of fine weather seemed to break up, and it began to snow. It snowed the following day and the day after. The waiting was terrible; our patience was

severely tried. It did not improve the outlook when Dr. Hamberger found that Kunigk had a serious inflammation of his appendix. The word 'appendicitis' has an ominous significance at a height of 19,000 feet! It was only slowly that we realized that, just before the main attack, we must do without our doctor, and one of the cleverest members of the advance party. In the midst of our consternation, the weather cleared. The paralysing time of inaction was over and forgotten; and with renewed power the sun called us to action, to the attack.

On the 23rd July Aschenbrenner, Bechtold, Herron, and I broke through to Camp 5. We had to go without the coolies, all without exception being ill, while not one of us Germans and Americans were ever mountain-sick, during the whole course of the expedition. We four alone, then, fought on. The heavy rucksacks pressed on us, and we could only go slowly in the deep snow, which became worse and worse. The task of finding the track on the steep snow-covered wall, which was built up of debris fallen from the Rakiot peak, became an absolute torment. When at last the next ice-terrace was reached, the route still led on endlessly towards the proposed camp. An 8-metre [feet?] jump over a gaping crevasse brought a longed-for change in the monotony of the climb. At length we reached the chosen place, where we put up Camp 5 at a height of 20,330 feet. So close did the East Peak appear that the hope of reaching the ridge on the next day seemed justified.

But no lucky star shone on the next few days! Under our heavy loads we kept sinking in up to our knees. It required all our energy to find the way at this height. In spite of all our will-power we could not progress with our heavy rucksacks, and we were finally forced to return to Camp 5. Aschenbrenner complained of frost-bite in his toes, and it was quickly decided that he must go down and get them attended to. On account of this another of our best men fell out of the attack.

Now, above all, the problem of the valley must be solved. For weeks it had been occupying our thoughts and endeavours; for weeks we had been studying the region. An avalanche never fell during the whole time, although the seracs looked fierce enough. The very moment, however, when I was on the point of descending into the valley with Bechtold, an ice-tower broke from the ridge, and crashed down the valley in the form of a huge ice-avalanche. Excitement reigned in camp, but we were all the more determined to make a way through the valley; for at each part of the ridge, which we wished to climb, there were no seracs. The path which we had made proved itself to be free from avalanches.

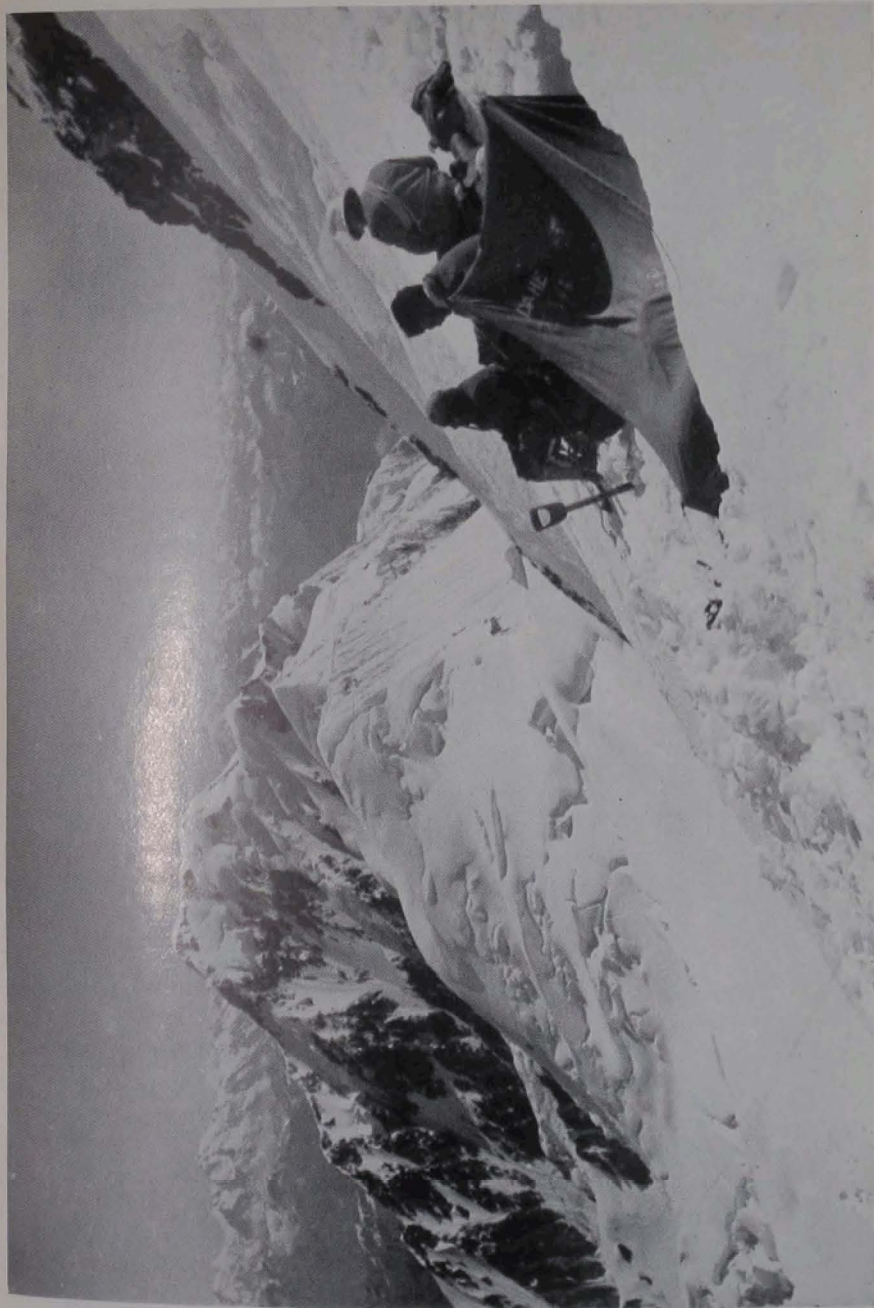
This adventure awakened in us the memory of our great avalanche

experience in Camp 3. We were there watching, also about sunset; everything had been arranged for the night in the ice-cave; the snow-covered peaks died out slowly in the light, the shadows on the ice-clad flanks rose higher and higher, the last lingering rays of the sun shone on the summit of Nanga Parbat. Suddenly a thundering crash broke the indescribable peace and calm of the evening, a huge mass of ice came crashing down from the flanks of Nanga's eastern peak, till the ice-blocks reached the glaciers below and were screened from our view by the wave of the avalanche. Then again there was silence—breathless, unearthly silence. Clouds grew up out of the depths as a white vapour and rose higher and higher, till they blotted out the whole mountain. We stood facing the growing apparition as if rooted to the spot. It was only when the oncoming mass of ice, sweeping everything before it, reached our camp and darkened the clear brightness of the evening, that we crept shuddering to the entrance of the cave. It was dark for many minutes. The terrifying storm swept right over us. Everything was covered with a thick layer of ice dust, as if fresh snow had fallen!

On the 25th July, to-day, I am standing quite close to the place where the fall of ice crashed down that time, with Bechtold, the friend of my youth, the most trustworthy companion on all large mountain expeditions. We succeeded in solving the problem of the valley and in breaking through this threatening wall. We quickly reached the seracs. The going was very difficult here. The overhanging walls of ice were as dangerous as the ice-blocks which constantly threatened to collapse. We had to calculate every step of the way beforehand exactly, in order to pass the most difficult places in the shortest possible time. The crossing of the danger zone was successful. It now meant cutting a series of steps up the ice-slope. Step after step we hacked into the hard ice, breathing painfully. At last we stood at the top of the slope, for which we had striven so hard. We established Camp 6 just on the upper edge at 21,650 feet. The ascent through the seracs to the ridge had been found, and the route so arranged that all danger from an avalanche was excluded. It was now only a question of time before we should conquer the East Peak, whence the way to the summit would lie open.

Back in Camp 5 we met Herron, Simon, and Wiessner. They had had no success in getting porters for the advance-guard together. We were, therefore, compelled to carry the loads ourselves, and to make the journey between Camps 5 and 6 three or four times, in order to bring up provisions, tents, and sleeping bags for the attack. In the end two porters reached Camp 6 under Wiessner's leadership.

We now searched for a route beyond this camp to the ridge. The mountain-side, however, although it looked harmless enough, was



Chongra peak from Camp 6

alive with traps. The powdery snow was bitterly cold and as foundationless as flowing sand. Finally Herron alone summed up enough energy to persevere and succeeded in climbing another 330 feet. Simon climbed to help him, but it was impossible to progress farther. The exertion was, however, too much for them and they were eventually forced to return all the way to Camp 4 owing to severe heart-trouble. It is well known that exertion at this height necessitates increased open-mouthed breathing and consequently there is an increased tendency to catch cold. We had brought with us no oxygen-apparatus because of its high cost and transport difficulties. Up to the height of about 23,000 feet, which we had reached, we had never had any need of it.

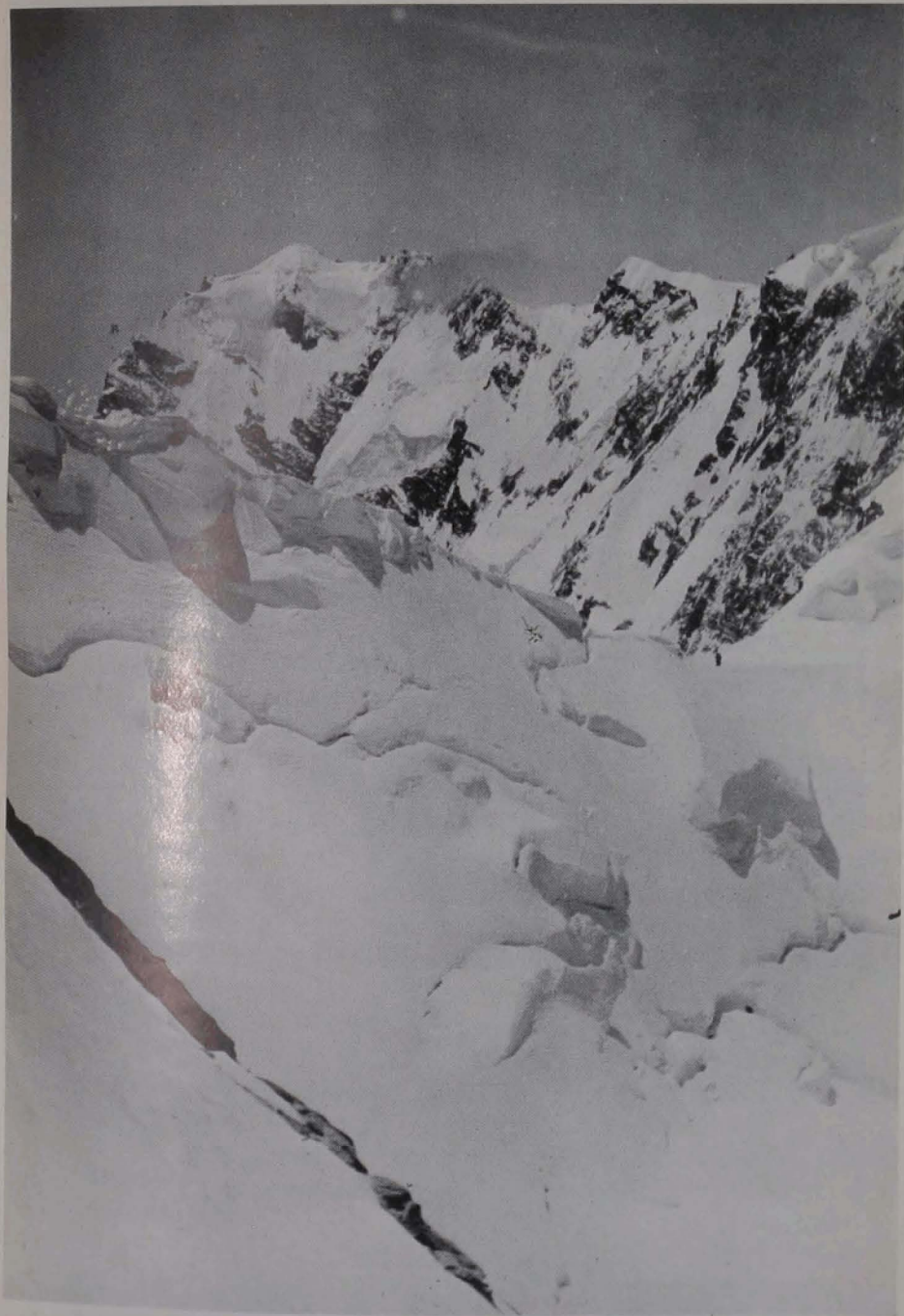
On the 29th July we tried to traverse the higher part of the valley to reach the ridge. The advance-guard was reduced to Bechtold, Wiessner, and myself. Moving forward in this trackless country was a torment. We waded waist-deep in the snow, and at last gained the height, but at a snail's pace. A single step, then five deep breaths, then another step—in this way we crept forward, with the greatest effort. At last we were only a rope's length away—and then we stood on the crest of the ridge. The happiness of that moment cannot be described. The fight for this ridge had been stern and difficult. Now at last we stood, overjoyed, at its summit in a blaze of light. The ridge led up to the East Peak at a slight incline; the technical difficulties were overcome. From the East Peak an extensive plateau led to the main peak of Nanga Parbat, which we now observed here for the first time. The plateau fell down into the Rupal valley in a perpendicular precipice of 16,000 feet. There was a magnificent panorama of rows of peaks many of which had probably never been seen before. We climbed down to Camp 6 in order to fetch tents, sleeping-bags, and supplies to the ridge on the next day. But one of the porters was mountain-sick, and the other refused to move from his companion's side. At this stage it was impossible to give in. Bechtold and I therefore packed everything cheerfully, and carried up the loads, which were sufficient for four people, by ourselves. The heavy loads weighed us down. Progress was terribly slow. At last, at seven o'clock in the evening, we stood on the ridge. It was bitterly cold. Without a moment's hesitation we set up our small storm-tent on a narrow bridge in a hollow. We fell into a deep sleep without eating, for the first time in Camp 7 (23,000 feet). On the next day we intended to traverse the exposed ridge. In five or six more days of fine weather victory would be ours. In the morning, however, thick banks of mist began to envelop the mountain. In spite of this we tried to go forward; but in vain. Snow set in and drove us back. We squatted in the hollow and waited. The snow

continued so heavily that we were forced to descend to Camp 6. An impenetrable mist forced us back twice, until we eventually found the way through the hollow at the third attempt. The tracks of the day before were obliterated. We trudged through the snow up to our hips. We made a direct descent in order not to loosen an avalanche. Once, when there was nothing else to do, we had to cross a crevasse. The suspense was great. We reached Camp 6 dead tired.

The unabated snowfall forced us, on the 1st August, to make the hard decision to evacuate Camp 6 in order to economize provisions in the high camps, which had been so arduous to carry up. The return journey with the sick coolie was especially troublesome, very slow, and full of responsibility. The man was utterly down and out, and he repeatedly fell on the rope and remained lying there for a long time. We had to strain every nerve to get him over the steep icy wall of the valley. Captain Frier met us in Camp 5 with four porters. He only got them as far as this through constant encouragement, and had loyally fought his way through deep snow with them to us. The bad weather continued and drove us right down to Camp 4. The snow-storm and the perpetual misery of the porters were disastrous. Our first big attack on Nanga Parbat had been repulsed.

We waited impatiently in Camp 4 for the sun. Half the porters who had just come up were ill again. In spite of this, when the weather cleared on the 24th August, we planned the second attack; but on the following day a fresh blizzard frustrated our intention. Our spirits were even gloomier than the weather. One day, as the clouds rolled back for a few hours, we looked down into the Rakiot valley, saw the meadows glittering, the smoke from the camp rising up and we gazed longingly at the dark pine-forests; but these delights no longer tempted us, when, after many days, Nanga Parbat raised her head above the clouds, and her summit shone near and clear. In such moments the ennui of waiting left us and our desires were kindled afresh. But snow set in once more, and a new mantle of fresh snow buried the certainty of victory, and robbed us of seeing the summit.

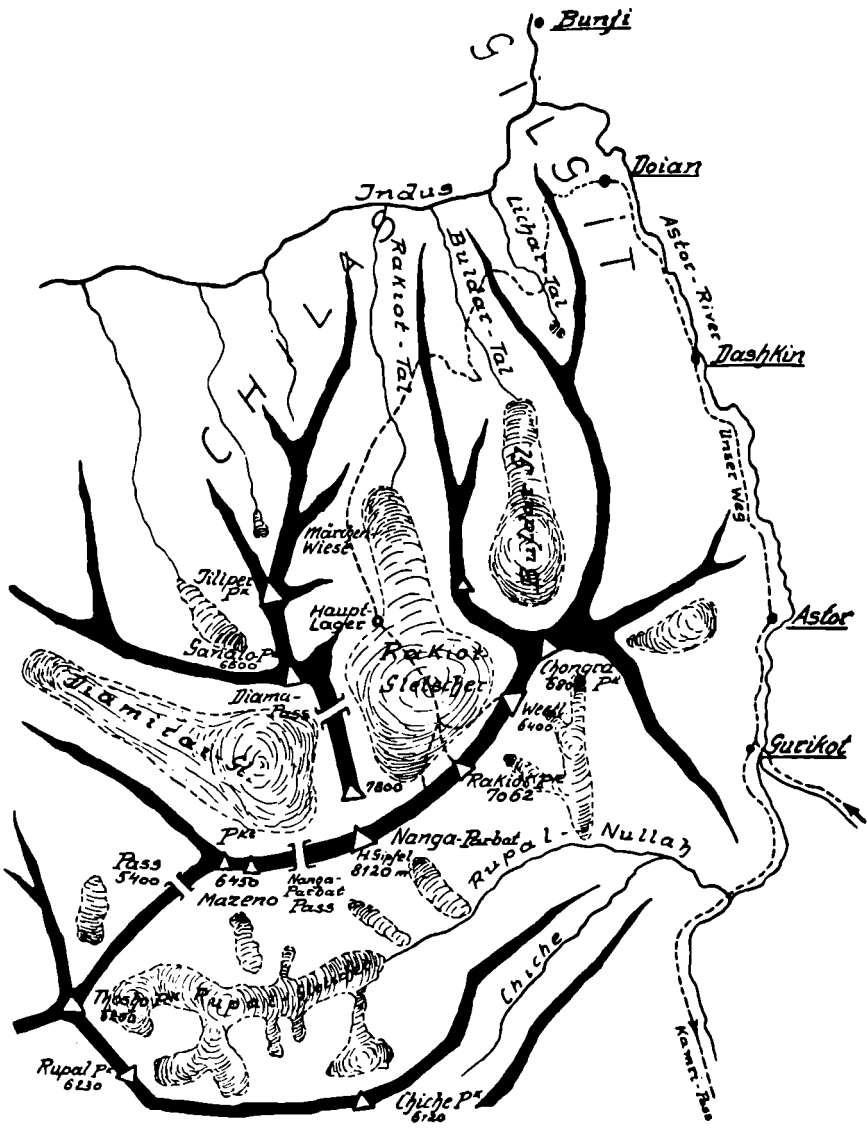
Bechtold, Aschenbrenner, and Simon, who were descending for the homeward journey, advised us to give up. It was hard to separate ourselves from such loyal friends. But Wiessner, Herron, and I wanted to try our luck once more, for the weather cleared at last on the 14th August. To prepare everything for a final attack we had to descend to the Base Camp to procure the necessary provisions for the coolies. A week slipped by doing this. When we were at last ready to set out from the Base Camp on the 28th August, the short spell of fine weather was over. Our ascent was rendered much



Nanga Parbat, 26,620 feet, from Rakiot peak

harder by the fresh snow which had fallen during the last few days. The rapidly steepening route to Camp 2 was especially painful for the coolies in the crumbling powdery snow. The sun burned down on us unmercifully as we tracked our way along the steep slope to Camp 3; and as we reached Camp 4 a blizzard set in. Nearly all our porters complained of being frozen. Nine out of twelve were ill.

For the next few days snow continued to fall monotonously, and we were imprisoned in Camp 4. Camps 5, 6, and 7 could no longer be cleared; with the snow four feet deep and nine coolies ill, we had to give up the last hope of conquering Nanga Parbat. It cost us a sleepless night to reach this decision. The renunciation was hard; the realization of defeat was bitter. With a little more luck throughout we might have won through.



KULU

A. P. F. HAMILTON

ANY ONE who has stood on the 'Ridge' in Simla will have noticed the range of snow-clad mountains to the north, but few, probably, know that these mountains lie, for the most part, in that small corner of British India called Kulu. These mountains, which, as seen from Simla, terminate with the great snow-capped dome of the Deo Tibba (20,410 feet above sea-level), at their northern extremity, are some seventy-five miles from Simla as the crow flies. The administrative tract of Kulu extends from the Sutlej in the east to the Beas in the west, comprising the two *tahsils* of Kulu and Saraj, but this paper deals only with the former, Kulu proper.¹

The country forms the greater part of the catchment area of the head waters of the Beas river, one of the chief tributaries of the Sutlej, and though generally spoken of as the Kulu 'valley' is, in reality, a wide triangular tract, with the Beas valley running up the western side of it, the apex of the triangle being at Larji, the southernmost point of it, where the Beas turns west and runs out of Kulu into Mandi State. To the east of the Beas, and forming the greater part of Kulu, lies a wide area of mountainous country enclosing several rivers, tributaries of the Beas, the largest of which is the Parbati. The Beas valley runs almost due north and south in Kulu, and, were the view not obstructed by the wooded range of the Dhauladhar where it passes through Suket State, it would be possible to look right into it from Simla.

Kulu lies between the Great Himalayan and Dhauladhar ranges and is almost entirely enclosed by them. The northern and eastern boundaries are formed by the Pir Panjal branch of the former range, and on it lie numerous peaks of over 20,000 feet; this range separates Kulu from Lahul and Spiti, both of which are in the Kulu subdivision of Kangra. Near the head of the Kulu valley a lofty and precipitous ridge takes off from the Pir Panjal and runs south until it joins the Dhauladhar range almost opposite Nagar; this ridge separates Kulu from Bara and Chota Bangahal, also part of Kangra district, in which lie the head waters of the Ravi river. The rest of the western boundary of Kulu is the Dhauladhar range as far as the Dulchi pass, and thereafter the Beas river, both of which divide Kulu from Mandi State.

¹ See Survey of India maps 52 H and 53 E, scale four miles to an inch. Mr. Maclagan Gorrie's paper that follows deals with the Saraj *tahsil*.

The Pir Panjal range throws off, in a southerly direction, several great spurs into the central and eastern parts of Kulu, the first of these, starting near the Hamta pass, runs south-westerly for nearly thirty miles, dividing the Beas from the Malana and Parbati valleys, and ends in a high escarpment above Bhuin at the junction of the Beas and Parbati rivers; a short but very precipitous spur, ending opposite Jari, divides the Malana and Parbati streams. The country to the south of the Parbati consists of a ridge, about sixty miles long, which has its origin in a knot of high mountains overlooking the Sutlej river; this ridge runs in a general westerly direction forming the left wall of the Parbati throughout its length. At a point south of Pulga it throws off a branch south-westwards to form the left bank of the Hurla river, which joins the Beas a few miles below Bhuin.

The scenery of Kulu is very varied; on the whole it is more Alpine than Himalayan, but some of the side nullahs are typically Himalayan with their streams foaming over continuous cataracts and waterfalls, enclosed between great cliffs and almost impenetrable forest. The scenery of the Beas valley differs so much from that of the rest of the country that it deserves to be described separately. At its southern end is Larji, 3,160 feet above sea-level; here the summer heat is great and the vegetation typical of the foot-hills; a few palms are to be seen and the hill-sides are sparsely covered with grass, euphorbias, and a few scattered wild olives and long-needed pines. A few miles above Larji the valley widens out and the road passes through rich cultivation; here the beauty lies not so much in the mountain scenery as in the pleasant aspect of the fields and villages with the blue Beas winding its way placidly between them.

Throughout the greater part of its length the valley is wide and open, so unlike most Himalayan valleys. Another great charm lies in the abundance of the alder-trees which fringe the river and often form extensive groves either along the banks or on the islands formed by the branching of the stream. During the hot weather they afford pleasant shade for the traveller on the road and for the trout lying in the deep pools under the river bank. Locally alder-trees are of considerable economic importance, providing both timber and fuel for the valley villages which are far from the coniferous forests high up the mountain-side. The scenery is restful rather than grand: the wide valley with its villages and cultivation, gradually rises on either side to moderate or easy mountain slopes on which are dotted hamlets with their surrounding of terraced fields and groups of oak and apricot, and often of walnut and elm. Between the villages tongues of deodar and blue pine often stretch down from the great belt of coniferous forest above; this belt extends almost unbroken

between elevations of 7,000 and 11,000 feet. There is a wealth of forest scenery in Kulu; from the alders along the valley one passes up through blue pine and deodar to the virgin forest of spruce and fir, dark and gloomy in appearance but lit up here and there with patches of maple, walnut, horse chestnut, and other broad-leaved trees. Above this the forest gives way to open grassland—locally known as *thach*, bright with flowers after the melting of the snow—or perhaps to park-like scenery in which scattered birch-trees and clumps of rhododendrons are often conspicuous. Here and there from the valley road glimpses may be caught of the peaks and perpetual snows of the great ranges, and from more than one place on the road above Sultanpur the white cone of the Gephan or Gye-phang (19,259 feet) in Lahul can be seen over the rampart of the Pir Panjal range at the head of the valley. It is not until Manali, forty-six miles from Larji, is left behind that grand mountain scenery begins to take the place of the soft wooded slopes.

The scenery of the Parbati valley and its numerous branches is grander and wilder than that of the Beas. The valley is narrow and frequently shut in by great cliffs, and in the lower part, especially, the forests are surmounted by rocky peaks and crags. But there are many beautiful wooded and cultivated spots where the ground is more favourable; they do much to soften the general ruggedness of the country and are in strong contrast to the towering precipices and gorge-like side nullahs which are so frequent in this valley. In the upper reaches, that is from above Pulga, the scenery is of a more generous nature, and those who are prepared to go beyond the beaten track will be well rewarded for their labours when they find themselves in some glorious alpine pasture, high above forest and precipice.

Before the coming of mechanically propelled transport to Kulu, the traveller from the plains usually entered the valley on foot by way of either the Bhabu or the Dulchi, two low passes over the Dhauladhar range, from Mandi State¹; now the quickest way is to take the Kangra Valley Light Railway from Pathankot (N.W.R.) and then motor from the railhead to Sultanpur, a short two-days' journey from most parts of north-western India. From Simla, ten easy stages, by Narkanda and across the Sutlej valley, bring one to Larji, and two miles farther on the Simla road joins the motor road which enters the valley by way of Mandi State. The next stage,

¹ The Goralotinu pass (13,578 feet) between Chota Bangahal and Kulu is much used by shepherds and is easy; so also is the Kali Hain ('black ice') pass (15,700 feet). The passes at the heads of the Manalsu and Solang nullahs (16,000 feet odd and 16,890 feet, respectively) are difficult. The last three lie between Bara Bangahal and Kulu.

Bajaura, 3,000 feet, is twelve miles from Larji; there is nothing here of interest except a fine old Hindu temple of the orthodox type. Ten miles on is Sultanpur, the *tahsil* head-quarters. There is a bazaar of considerable size here and most stores and provisions are obtainable. The *maidan* here is a fine level stretch of grass of considerable size; it is the scene of the celebration of the Hindu feast of *Dasehra* when all the gods of Kulu and Saraj meet, two or three hundred in number, each with its own band, to hold high revel for several days. Above Sultanpur (4,000 feet) there are roads up the valley on both sides of the river, but that on the right bank is the better, and is motorable under normal conditions as far as Manali, another 24 miles.

The next stage beyond Sultanpur is Katrain (4,800 feet) where the bungalow is pleasantly situated on a high terrace overlooking the river. From here a road crosses the Beas valley and passes up through a steep shady lane for two miles to Nagar, the ancient capital of Kulu. Nagar (5,780 feet) is beautifully situated on a spur and commands a wide view both up and down the valley. The old castle, now converted into the court-house and civil rest-house, is a fine building of age-darkened timber and stone; it is believed to have been the seat of the Rajahs of Kulu for over sixty reigns before A.D. 1660, when the capital was transferred to Sultanpur. In 1857 the building was reconstructed and taken over by the British as the head-quarters of the subdivision. There are eight Hindu temples at Nagar, some of great age; one of them, a little above the village, in the forest, has a pagoda-like roof; this style of roof is also found in Kashmir and Nepal, but there are only three others in Kulu; at Dhungri, near Manali; at Dyar, on the left bank of the Beas, opposite Bajaura; and in Sundar forest, not far from Kaisdhar forest rest-house. The commonest type of hill-temple, found in every village, is a simple rectangular building of wood and stone with a pent roof of slates or shingles; there is generally a veranda and a certain amount of carving and ornamentation. These temples are associated with *Nag* and *Devi* worship and are often very ancient. There is a remarkable hill-temple, that of Bijli Mahadev, which stands on the head of the bluff overlooking Bhuin; the temple building is interesting, but the special feature is a tall staff, some sixty feet in height, which stands close to the building and is visible from Sultanpur. This pole is supposed to attract the blessings of heaven in the form of lightning and is probably a survival of the Buddhism which existed everywhere in the valley in the seventh century A.D. The temple is within easy reach of Borsu forest rest-house, opposite Sultanpur.

There are several European residences in Nagar, including those of the Assistant Commissioner and Forest Officer. It is twelve miles

on to Manali; from Katrain the road follows close along the river through beautiful scenery, while the road from Nagar, on the left bank, passes for the greater part of the way through villages and terraced rice-fields. Manali (6,200 feet) is perhaps the prettiest spot in Kulu. The soil is rich and fertile; rice-fields border on some of the finest fruit orchards in Kulu, where almost every kind of English fruit does well. All around are splendid plantations of deodars, in one of which is situated the Dhungri temple, the best example of the pagoda type in Kulu; the temple is surrounded by a grove of magnificent deodars of great height and age. Manali is a suitable starting-point for shooting trips up the Solang, Manalsu, and Hamta nullahs, but travellers who intend to cross the Hamta pass are advised to take coolies from Jagatsukh, a large village on the left bank of the Beas; from this village, also, one starts for the Jagatsukh nullah, where fair sport is to be obtained. These four nullahs are well known to sportsmen, but the Solang is undoubtedly the most picturesque, the forest and mountain scenery being glorious; at the end of the valley stands a towering cliff which culminates in a sharp, snowy peak (19,450 feet), which has been compared by General Bruce to the Weisshorn.

Six miles above Manali is Kothi civil rest-house (8,500 feet) and two miles farther on, at the foot of the Rohtang pass, there is a small Public Works rest-house called Rahla. The Rohtang pass (13,050 feet) is the point where the Kulu-Leh road crosses the Pir Panjal range and enters Lahul; the ascent is extremely easy, and from Kothi or Rahla it is well worth while making a day's excursion to the top and back. From the top of the pass a splendid view of the peaks of Lahul across the valley of the Chandra river (upper reaches of the Chenab) may be obtained. Here, at last, is to be seen the grand mountain scenery of the Great Himalayan range, a wild and awe-inspiring country when compared with the wooded slopes of Kulu lying immediately behind one. The Beas river rises on this pass and tumbles down through broad alpine pastures and forest-girt gorges of some depth, the fall being 6,000 feet in the first nine miles. Below Kothi the river plunges into a chasm the walls of which are often not more than twenty feet apart and the depth as much as a hundred feet; for a great distance it races through this almost subterranean passage until it is joined by the Solang stream coming in from the west.

There are dak-bungalows or civil rest-houses at all stages up the Beas valley, and at Manali there is also a forest rest-house; permission to occupy the first two classes is obtained from the Assistant Commissioner, Kulu, and the third from the Divisional Forest Officer, Kulu.

The route up the Parbati valley begins at Bhuin, three miles above Bajaura, where the Beas is crossed by a large suspension bridge. At Bhuin, as at all other stages up the Parbati, the rest-house belongs to the Forest Department. The first stage is Jari (about 5,000 feet), thirteen miles from Bhuin. Across the valley are great quartzite cliffs, scarred with many landslips, which guard the entrance to the wild Malana nullah. A path from Jari leads to Malana, a distance of eight miles, through great gorges and over many a boulder-bed, finishing up with a 2,000-foot climb up a steep rocky ridge on the top of which the village is situated in a wide stretch of cultivation overlooking the river. The upper part of the valley contains some of the finest alpine pastures in Kulu and is a pleasing spot in June when the ground is carpeted with pink and mauve primulas. At the head of the valley is a great glacier which falls in a sweeping curve from the southern flank of the Deo Tibba. The people of Malana are not of the same race as the Kulu people; they speak a different tongue, have their own customs, and keep entirely to themselves; several theories have been put forward as to their origin, but there is good reason to believe that in times past they came over from Kanawar, a part of Bashahr State, in the Sutlej valley. There is an all-powerful deity, Jamlu, in this valley and it is advisable to get on good terms with him if one wants help from the villagers. Malana may also be reached from Nagar by a foot-path which crosses the Beas-Parbati watershed behind Nagar by the Chandra Khanni pass (11,617 feet). The path above Nagar leads through forest to open park-like country, and from the summit almost the whole of the mountain scenery of Kulu is spread before one in a single panorama. It is worth while camping near Phulinga village on the way up, and in the autumn excellent pheasant-shooting is to be had here. From Malana village one can either drop down the nullah by the path described above to Jari or cross the stream and the ridge facing the village and so down by Rashol into the Parbati valley, ending up at Kasol rest-house. This stage is only six miles direct from Jari, by the road which follows the river closely and passes through forests of deodar and pine. Looking up the valley from the Kasol bungalow the eye is at once caught by a great wall of grey rock on which are set several fine *aiguilles*, the highest just over 18,000 feet, which look as if they would provide excellent climbing; the best line of approach would probably be from behind, up the Tos Nal. The Garahan Nal joins the Beas at Kasol; the nullah is a long one but is uninteresting and not much good for sport. Pulga, the next stage, is eleven miles from Kasol; the road passes through Manikaran, famous for its hot springs and baths; many devotees of the Hindu religion come here from the plains to find in

the water a cure for their ills; unfortunately the water has practically no medicinal qualities. The hottest spring has a temperature of 201° F., the boiling-point for the altitude, and the natives cook rice in it. A mile or two farther on, below Uchich village, the road passes just above the open shaft of an old silver-mine. In the past several silver-mines were worked in the Parbati valley, and on account of the presence of this metal the whole of this part of Kulu was called *Rupi*, a name still in common use. Most of the mine-shafts were filled in and hidden at the time of the Sikh invasion, about 1810, and have never been reopened. Kulu, and more particularly *Rupi*, is believed to be potentially rich in minerals; minute quantities of gold have been washed out of the Parbati sand, and in addition to the silver, veins of copper, lead, manganese, antimony, and iron ores have been discovered, but the country is too isolated and the labour difficulty too great to make their working possible. Pulga (7,000 feet) is the last bungalow in the main valley; here also the mule-road ends, but a branch road suitable for mules runs up the Tos Nal for nine miles to Buda Ban where there is a little one-roomed rest-house. There are some fine views to be had round Pulga, and behind the bungalow, some 2,000 feet up, there is a wonderful amphitheatre of alpine pasture, backed by high peaks, called Swagani Maidan. For the mountaineer before proceeding farther, it would be a good plan to climb the prominent point opposite the bungalow over the road on the right bank; from here at a height of some 11,000 feet a good view of many of the Parbati peaks and a general idea of the country can be obtained. The main valley continues for another thirty miles or so and terminates in the Pin-Parbati pass which leads over to the Pin river in Spiti. The path goes by Nadaun village on the right bank then recrosses to the left bank and passes the hot spring of Khirganga situated in a grassy opening in the forest, an ideal camping-ground. Nowhere is the path difficult, and above the tree-line the path follows the bottom of the nullah until Man Talai, at the foot of the pass, is reached.

The Pin-Parbati pass has not often been crossed by Europeans; it is not difficult in fine weather but it involves tramping over miles of glacier and camping on it for a night. The height of the pass is 15,754 feet according to the Survey of India map. Beyond it the route down the Pin river into the Spiti valley can be followed or, as an alternative, one can cross over the Bhabeh pass and drop down into the Sutlej valley, to the Hindustan-Tibet road. The passage of the Pin-Parbati requires careful planning and it would not be easy to get coolies; the Barsheni villagers are more enterprising than those of Pulga and would be more willing to come, but they would have to be well paid.

The Tos Nal, some twenty miles in length, is worth exploring. There is fine forest and mountain scenery for the first twelve miles; the path is easy all the way, and at the end lies the Sara Umga pass, leading over by way of the Bara Shigri glacier to the Chandra valley in Lahul. Little is known of this pass as it is not used now; it cannot be less than 16,000 feet and is said to be difficult. The ancient trade-route from Ladakh to Rampur-Bashahr in the Sutlej valley almost certainly crossed this pass, coming from Phuti Runi in the Chandra valley, thence down the Tos Nal to Pulga and across the upper reaches of the Hurla, Sainj, Tirthan, and Kurpan rivers to Rampur. In the angle formed by the Tos and Parbati rivers is a great mass of unexplored peaks, at least four of which are over 21,000 feet, the highest being shown as 21,760 feet, the loftiest point in Kulu.

South of the Parbati is the Hurla Nal, a wild and rocky glen with extensive virgin forest, difficult of approach, in its upper reaches. There is a forest rest-house at Garsa, eight miles from Bhuin. This nullah gives excellent pheasant-shooting and is said to be good for butterflies, which is not unlikely since it exhibits a great variety of vegetation.

The climate of Kulu is delightful, especially in the spring and autumn. In June the lower end of the valley can be hot, but there is always a good breeze. Heavy showers may be expected in April, especially in side nullahs. It is unfortunate that Kulu is not beyond the reach of the monsoon which lasts roughly from the middle of July to the middle of September. Snowfall is heavy; light falls may be experienced at high elevations in late October, but heavy falls are unusual before December. On northern aspects snow may lie as low as 8,000 feet in April. At Nagar the average annual rainfall is 49.4 inches, but at Manali it is rather higher.

There is excellent trout-fishing to be had in the Beas and several of its tributaries. Ever since the first stocking in 1909 the number of fish has rapidly increased and there has been a tendency towards over-stocking. Below Bhuin only mahseer of small size are found, and trout-fishing is not really good between that village and Sultanpur, though there are some good pools, since netting is permitted over a stretch of about two miles at and above Sultanpur. It improves higher up, and good sport can be had from three miles above Sultanpur up to Manali. Above the Nagar bridge there is a tendency for fish to be larger in size but rather fewer in number. There are many good camping-sites along the right bank of the river, and those who intend to spend some time fishing are advised to bring tents, as accommodation in the rest-houses is limited. The best months for fishing are March, April, and May, and from mid-September to the end of October, but in March the weather is often

unpleasant for camping, while towards the end of May the water is liable to become too thick for fly-fishing as the snow begins to melt rapidly at high elevations; when the water is too heavy in the main river it is worth trying the side nullahs, such as the Phojal, Sujoin, and Chakki. There are few trout in the Parbati; the water is colder and less clear than that of the Beas since it has its source in great glaciers and ice-fields, but trout have been taken as far up as Kasol. Fishing licences are obtained from the Assistant Commissioner, Kulu.

Shooting in Kulu is carried on under very pleasant conditions, but big heads cannot be expected. There are ibex in most of the nullahs towards the north of the Beas valley, but heads of forty inches and over are very rare. Bharal are scarce except in the main Parbati valley, but here even the heads run very small, and anything over twenty-two inches would be exceptional. Tahr are fairly plentiful and are to be found in all side nullahs of the Beas, Parbati, and Hurla valleys where there are rocky cliffs. Gooral abound everywhere. Red bear can generally be found but are more rare than they were; black bear and leopard are common, and can be shot without a game licence. Serow are more difficult to find here than in the Kumaun and Garhwal hills as they keep to the densest forest in remote side nullahs. Snow-leopards are occasionally heard of, especially in the upper reaches of the Parbati valley. Small game shooting is good; the best chukor country is in the Parbati valley, and pheasants—*monal*, *koklas*, *kalij*, *chir*, and *tragopan*—are to be found wherever the country is suitable, but the two latter species are not common. Duck and woodcock are sometimes seen during the winter in the Beas and Parbati valleys. Snowcock, or *ramchukor*, are common at high elevations, but snow-partridge are rare.

Shooting licences are obtained from the Divisional Forest Officer, Kulu. April, May, and June are the best months for big-game shooting; during the monsoon nothing can be done, but October is quite a good month.

Kulu cannot boast any giant peaks, but the mountains afford endless scope for the trained climber and there is much unexplored country. Only one high peak is known to have been climbed, the Solang 'Weisshorn', which was conquered by General (then Major) Bruce's Swiss guide, Führer, in 1912. General Bruce also attempted Deo Tibba, but he unluckily met with an accident and the attempt was given up; this mountain and the neighbouring peak Indra Killah, a peculiar rock pinnacle, near the head of the Hamta pass are still virgin peaks. South and east lies a great mass of glaciers and peaks waiting to be explored and climbed; the main lines of approach are easy, and it would be difficult to find as good climbing anywhere else within such easy reach of the plains. Kulu men,

though excellent on rock, are not used to snow and ice, and the climber will have to rely entirely on his own skill and experience when tackling high peaks. The best season for climbing is before the rains; in September and October it is quite possible, but conditions are less pleasant. During the rains any one lucky enough to have the time to spare should go on into Lahul where conditions for climbing are even finer than in Kulu, for the monsoon does not penetrate into Lahul.

One need not be a mountaineer or a shikari to enjoy a trip to Kulu. Those in search of a quiet holiday will find all they want to satisfy their interests. Lovers of nature can find no pleasanter country for their pursuits; bird-life is well represented and there is a great range of species. It is not necessary to be an expert in botany to enjoy the beauty of the flowers; it is enough if one has seen the upland pastures at the end of June or July when the ground is bright with primulas and irises of many shades of purple and blue, with anemones, gentians, potentillas, and in a few places, such as the Rohtang pass, the beautiful blue poppy.

The artist and the photographer will find a wealth of subjects for their skill alike in the scenery and in the villages and the people themselves. It is not easy to say whether spring or autumn is the more beautiful season: in the spring the lights are softer, there is the fresh green of the alders in the valley and of the wild pear, apricot, walnut, and elm trees round the villages, while the snow gives a greater contrast, showing up the forest and the valley. But the autumn colouring is more brilliant; field and forest show wonderful tints of brown and gold and the browning grassland relieves the monotonous effect of the green of the rains. In the fields the wonderful rose-madder of the ripe *sariara* (amaranthus) crops may make a beautiful picture against the dark deodar forest, backed by early snow on the high ranges; while the roofs of all the houses are bright with the amber of the Indian corn spread out to dry in the sunshine.

There are those who say that Kulu is spoilt by the coming of the motor; they are surely wrong. Nature is still supreme, the forests, the mountains, the rivers are there just as they were centuries ago, and those who know how to appreciate the beauty of the hills will have eyes for nothing else.

THROUGH KULU-SARAJ

R. MACLAGAN GORRIE

THE Saraj *tahsil* of Kulu extends from the Beas valley in the north-west to the Sutlej valley in the south and south-east; it is bounded on its north by Kulu proper, and on its west by Mandi and Suket States. Through it runs the Simla–Leh road, which crosses the Sutlej at the Luhri bridge, fifty-three miles from Simla, climbs up to the Jalori pass, and eventually reaches the Beas Valley Motor road at Oot Behari (or ‘Out’, as the local people prefer it) at mile 104 from Simla. The *tahsil* is divided into two more or less equal halves by a spur of the Sri-kand-dhar which gradually dwindles from 18,000 to 10,000 feet as it runs south-westwards; the Beas side of this spur is known as Inner Saraj and the Sutlej side as Outer Saraj. Across this ridge the two main passes are the Jalori at 10,286 feet and the Bashleo at 10,750 feet, the latter being the route followed by a rougher track connecting Kulu with Rampur-Bashahr on the Sutlej.

Although Saraj is neither so popular nor so civilized as the main Kulu valley it is a most interesting country with a charm of its own. The marches nearest to the adjoining main valleys pass through hot, bare, and unprepossessing tracts at about 3,000 feet, but above this there is a pleasant mingling of terraced fields with patches of pine and deodar between 4,000 and 8,000 feet, beyond which there are vast stretches of rather gloomy fir and brown *kharsu* oak running up to the alpine pasture-lands of the hill-tops. Saraj lacks the grandeur of the eternal snows, for most of it is clear of snow in normal winters by April, and it is only towards the heads of the Tirthan and Sainj nullahs in the higher ground of the Sri-kand-dhar, where the great snow peaks are near neighbours, that snow lies late. To compensate for this there are many fine vistas to be had of the snow ranges of Lahul, Spiti, and Bashahr.

The people are a friendly but indolent lot, inevitably in debt to the local *bania* and with little interest beyond their flocks and fields, and an occasional ‘beano’ at their local fairs. Their religion is a crude animism; each village has its *debtā*, often of quite handsomely carved deodar-wood, while each nullah and hill-top has some sort of spook inhabitant called a *jogni*. One of the features found in most villages is the magnificent old deodar group around the *debtā*’s temple, many of the trees being four or five hundred years old. Although such groves are not actually in the keeping of the Forest Department,

every effort is made by the forest officers to preserve them, and in some cases these old giants are now standing knee-deep in a sea of young forest which has come up in the restocking of felled areas.

In spite of many official efforts to encourage fruit-growing and the creation of some very successful government orchards, it is curious how indifferent the local people are on this subject, for apart from the very inferior semi-wild apricot, very little fruit is grown by the villagers. Unfortunately for the commercial development of fruit-growing, the recent increase in postal rates has completely killed any chance of a postal export trade in fruit, and it is presumably for this reason that the Salvation Army Fruit Farm at Ani has recently been sold to a local landowner for a ridiculously small sum; a sad end to thirty years of devoted labour in this out-of-the-way spot.

With a rainfall of about forty-five inches, half in monsoon rain and half as winter snowfall, the climate is an exceedingly pleasant one with a less persistent monsoon and a more bracing cold weather than in the outer foot-hills. Snow lies heavily above 6,000 feet from December to February, the Jalori usually being passable early in March, though in 1932 the snowfall was so scanty that neither the Jalori nor the Bashleo were closed at all. From March to April and from October to November are undoubtedly the most pleasant periods for touring, although the whole summer until the break of the monsoon rains is also very good.

The game list includes bharal, tahr, gooral, serow, barking-deer, musk-deer, black and brown bear, and panther. The bharal are of the smaller Cis-Himalayan type, and no head over twenty-two inches can be expected. Gooral, with horns up to seven inches, are common, but tahr are getting scarce from continuous poaching. The serow is also difficult to get except when it can be run into deep snow-drifts. The birds include the five Himalayan pheasants—the kalij being the commonest—black and hill partridges, chukor and an occasional snowcock. The bird-shooting is of course confined to the winter months, and any form of shooting in these hills is strenuous and entails a lot of really hard work. The fishing is rather less strenuous and more suitable for those who can get away only during the early summer. The Tirthan and the Sainj both contain brown trout and barbel for some ten or twelve miles above their junction at Larji, and the Beas at Oot also has small mahseer. The Saraj trout are much smaller than those in the larger Kulu streams but give very fair sport in May and June after the larger glacier-fed rivers have become too muddy for fly-fishing. Fishing and shooting licences are issued by the Civil Sub-divisional Officer, Kulu, at



The Bashleo pass, with the bridle-path climbing from Alpine meadow through 'Kharsu' oak



Bahu ridge from Blajdhar, Saraj. Note the intimate mixture of forest-land and terraced cultivation from 6,000 to 8,000 feet

Sultanpur, and cost Rs. 20 per month for fishing, Rs. 5 for small game, and Rs. 30 for big game.

The quickest approach to Saraj is by the Beas valley road, either by motoring direct from Pathankot or by the Kangra narrow-gauge railway which takes the traveller some eighty miles farther through the foot-hill country to Baijnath. In either case a night's halt at Baijnath is generally necessary, continuing by road next day through the picturesque town of Mandi and up the rocky defile of the Beas. The road transport through Mandi State is unfortunately a monopoly, and like most monopolies it is, as Mr. Sellars would say, 'A bad thing'. We were warned that the journey by motor-bus was 'one of the best cures known for a sluggish liver but apt to make a weak heart still weaker'. This we found to be strictly true but our informant had said nothing of the awful weals and bruises we contracted from the unkind and uncushioned framework of our particular chariot!

Beyond the motor-road the traveller is dependent on mule transport as there is no stage-to-stage organization for providing coolies. Mules can best be obtained through the *tahsildar* at Sultanpur, the current rates being Rs. 1-4 per day, with half-rates for halts; a warning may not be out of place that the Kulu pack-ponies usually provided do not carry nearly as much as the Simla mules, and only two maunds per animal should be reckoned on. The main roads are well supplied with bungalows, but as the ownership of these is divided between various authorities a schedule of ownership may be useful to prospective travellers:

Jalori Pass Route

Stage	Distance	Rest-house	Permission from
Luhri	13 m. (Narkanda)	Civil	D.C., Simla
Ani	12 m.	"	" Kangra
Khanag	10 m.	"	" "
Shoja	7 m.	"	" "
Jibi	5 m.	Forest	D.F.O., Saraj, Kulu
Banjar	5 m.	P.W.D.	S.D.O., P.W.D., Kulu
Larji	12 m.	Civil	D.C., Kangra
Oot	2 m.	State	Dewan, Mandi State

Bashleo Pass Route

Rampur	30 m. (Narkanda)	State	Dewan, Bashahr State
Arsu	7 m.	P.W.D.	S.D.O., P.W.D., Kulu
Saharan	8 m.	Civil	D.C., Kangra
Bathad	8 m.	P.W.D.	S.D.O., P.W.D., Kulu
Bandal	6 m.	Forest	D.F.O., Saraj, Kulu
Banjar	6 m.	P.W.D.	S.D.O., P.W.D., Kulu

There are also two other good bridle-path routes from Khanag:

Khanag to Ani

Stage	Distance	Rest-house	Permission from
Takrasi	9 m. (Khanag)	Forest	D.F.O., Saraj
Paneo	9 m.	"	" "
Ani	9 m.	Civil	D.C., Kangra

Khanag to Luhri

Chawai	10 m. (Khanag) or 5 m. (Ani)	Civil	D.C., Kangra
Dalash	8 m.	*	—
Luhri	7 m.	Civil	D.C., Simla

* Old Dak Bungalow now used as a school.

Of these bungalows possibly the most inviting is Jibi, which is at 6,100 feet and perched on a little knoll in the Jibi Nala bottom, entirely surrounded by fine stretches of forest. For some miles above Jibi this nullah is one of the most delightful little glens I have met outside the Perthshire Highlands, and is certainly one of the gems of the outer Himalaya. Shoja at 8,500 feet is another charming spot, slightly marred by a squad of bugs which descend from the roof timbers as soon as they smell a human traveller! Ani, Larji, and Banjar are all pleasant spots in the cool of the year, but are not places to linger in overlong when it is really hot, though in the summer season they are no worse off for house-flies and the thrice accursed *potu* fly than are the cooler bungalows and camping-grounds of the higher forest belts. For the guidance of those who have not made his acquaintance, the *potu* specializes on raising black and exceedingly 'itchy' pimples on one's knuckles and knees. Paraffin smeared on the skin keeps him off for a little, and I am told that the country *sarson ka tel* (mustard oil) also helps, but the ordinary run of anti-fly oils is quite useless against this venomous little grey devil.

To the geologist Saraj is interesting in showing all the gradations from the shales of the outer Kangra hills to the solid granites of the Sri-kand, with the intermediate stages of schists and quartzites, and a little limestone in the Sainj valley. To the botanist the various altitudinal belts contain much of interest, culminating in a wealth of alpiners in the higher meadows, which are at their best from late June till August. I have seldom seen such carpets of the blue *Iris nepalensis* as fill every glade in the damper pine and deodar forests from six to eight thousand feet, and we made several excellent meals off wild strawberries, blackberries, and yellow raspas in June. Saraj is the meeting-place of many botanical species from east and west, for the drier hills of the Punjab and North-west Frontier have many

plants which do not occur farther east, while the eastern Himalayan zone of Nepal and Sikkim with its wealth of shrub rhododendrons, and orchids has representatives which penetrate only as far west as the Sutlej watershed.

Of the many beautiful flowering shrubs to be found here the fragrant white *Jasminum officinale*, several pink *Indigoferas*, and yellow barberries are ubiquitous; the yellow of the 'strawberry tree' (*Cornus capitata*) and the pale pink feathery bloom of *Albizzia Julibrissin* are both at their best in the wild gorge of the Tirthan beyond Bandal; and the heavily scented cream-coloured *Syringa Emodi*, and the pale purple *Rhododendron campanulatum* flourish near the Bashleo pass. The herbs in the woods and pastures are legion, but a few stand out in retrospect as highlights; the handsome white *Paeonia Emodi* and the yellow-green orchid *Liparis paradoxa* of the damper spruce and deodar woods; the *Gypsophila* and purple clover of the glades in forest plantation areas; the *Geraniums* and *Anemones* of the lush meadows; and the tawny *Lathyrus luteus* and purple *Thermopsis* of the higher pasture-lands.

From the forester's point of view Saraj is a happy hunting-ground, for in spite of the widespread damage caused by the non-co-operators' incendiary fires of 1921 which ruined many square miles of fine blue pine and deodar forest, these woods are as well stocked and as efficiently managed as many of the well-known demonstration forests of Europe. The villagers of Saraj are well supplied with wood for all their household needs, but over and above this there is a large export trade in railway sleepers which are sawn up where the trees are felled in the forest, carried down to the nearest stream by hand or by ropeway, and floated down the side-streams often with the aid of elaborately carpentered slides, and thence by the main river to the sales depots away in the Punjab plains.

To the keen climber many of the Saraj hills will be found rather tame, but the Beas-Sutlej watershed at the head of the Sainj, Tirthan, and Girchi valleys contains some magnificent rock and snow peaks. Where the sources of these streams adjoin those of the Parbati and Pin flowing northwards and of the Bashahr-Pandrabis nullahs of Kandrads, Ganwi, and Kut going south to the Sutlej, there are still some interesting glaciers to explore.

A PROPHET OF OLD

CAPTAIN G. C. CLARK

AWAY up in the north of India, almost on the boundary between Hunza and the Afghan Wakhan, there is, in the barren valley of the Chapursan, a small walled-in enclosure containing the relics of a man who must have been the equal of Elijah in his powers of calling down destruction from Heaven on any one who incurred his displeasure.

When it was that he marched up and down the valley spreading destruction in his wake is unknown. The story is shrouded in the mists of time, but it is still so living a force that the local people will never forget his name, and still look on his tomb as one of the most venerated places in the little mountain state of Hunza.

The Chapursan valley runs approximately east and west close to the boundary of Hunza. To its north a range of hills separates it from the narrow strip of the Afghan Wakhan, and at its head the Irshad pass affords a line of communication between the two countries. Sometime, before perhaps dates were invented, there appeared at the top of this pass a weird man. Descending into the valley, which then boasted several large and flourishing villages, he sat himself down at the first hamlet he came to. To the crowd of interested people who soon surrounded him he refused, however, to give his name and merely stated that he came from a village called Ghundi, over towards Badakshan. Unable to get any other information the locals finally christened him Babaghundi—a name which in a short time was to fill the valley with terror.

Now in those days the Chapursan was a hotbed of vice. To the inhabitants of that valley the people of Sodom and Gomorrah would have appeared early Victorian, and when the novelty of Babaghundi had worn off they returned to their amusements and left the old man to look after himself. But he was not used to being treated so casually and, girding up his loins, he set off to find some place where he would be treated as he deserved. The farther down the valley he went, however, the more he was appalled by the evil ways of the villagers. Finally he gave it up in disgust and turned, with the intention of retracing his footsteps and finding a land more worthy of his holy self.

To show the inhabitants what they had lost in refusing to accept him he now started leaving signs on the rocks as he went along. At a place, now called Panjai Shah, a mile or so below the Riship-

jerab nullah, he struck a rock with his open hand and left imprinted the marks of his fingers and palm. At the Rishipjerab nullah he removed the saddle cloth from his horse, and with it smote a large rock on which was left the pattern of the cloth. Finally, near a village called Reshit, he left on a rock the outline of his horse's hoof and also the actual saddle he was then using. All these things can still be seen and are pointed out with great pride by the Hunza people.

Eventually he arrived at a large village called Sipenj. It was evening and he was tired; but none of the villagers would give him food and a night's lodging until an old woman took pity on him, allowing him to shelter in her small hovel and giving him some milk, all she possessed, to drink.

Old Babaghundi was furious. Resting for a little, while he hatched his plans, he finally told the old dame to collect all her belongings and to be sure that she did not move out of her house till she had seen what she should see. He then disappeared till the morning, when, as dawn broke, he was seen standing at the mouth of the small tributary nullah on whose banks the village was built. As the sun rose he lifted his arms and cursed the village. Immediately one of the strange phenomena of these hills, a mud-avalanche, swirled down the nullah and blotted out the village under masses of colossal boulders and debris. Out of the whole place the sole survivor was the old woman whose house and land remained untouched owing to a large rock coming to rest in such a position that the little cottage was shielded from the flood. This old lady's nerve must have been marvellous for, untroubled by the appalling catastrophe she had just witnessed, she went up to Babaghundi and said that the night before a villager had refused to return a sieve of hers which he had borrowed and would Babaghundi get it back for her now. Apparently the success of his schemes had put him in a good temper for, stretching out his hand, he summoned the sieve to appear and straightway it floated up out of the mass of boulders and mud, and the old lady was able to rejoice over all her belongings once more.

The fame of this deed spread through the land. Babaghundi now found himself, perhaps naturally, treated with the utmost respect. He was finally persuaded to abandon his idea of leaving the valley and consented to settle permanently at the place, now called Ziarat, where, after many years spent in the odour of sanctity, he eventually expired—and the local people heaved a sigh of relief as they covered in his grave.

After such an experience it might be thought that the villagers would have learnt their lesson. Perhaps the older people did behave themselves, but there grew up in time a generation which knew not Babaghundi and which reverted to the bad old ways of their forefathers.

Below Ziarat there used to be a large village called Ishkuk whose inhabitants were greatly troubled by a monster which lived in a lake about a mile away. In order to keep it quiet they used to provide food for it once a week in the shape of a human being—the victim being chosen by lot. One day the lot fell on a young girl. Sitting by the side of the lake, waiting for the monster to come and devour her, she suddenly found herself accosted by a stranger, who asked her what was troubling her. On hearing the tale he told her to return to her people and that he would settle the account with the animal. After some argument she agreed to do this, but when she got back to the village every one was horrified and, in spite of her story, she was hustled back to the lake. There, however, they found the stranger and, lying at his feet, the body of the beast which had so long preyed on the village and which was now dead.

Every one was overjoyed and they all wanted to take the stranger back to Ishkuk and do him honour. He would not allow this, however, and finally made himself known as the prophet Babaghundi who had returned to earth for the sole purpose of freeing the villagers. He then warned every one that the people of the Chapursan were returning to their evil habits and that the fate of Sipenj should not be forgotten. He then disappeared.

For some time this reincarnation made the people mend their ways, but once more their children's children forgot Babaghundi and the Chapursan again turned to evil ways. But the old Pir slept lightly. In his tomb at Ziarat he learnt of the old sins revived and, arising in his wrath, he swept down the valley and blotted out the erring valley of Ishkuk under a second mud-flood so that there is now nothing to mark its site but a few dead thorn trees standing in a waste of boulders.

The people of the Chapursan had now, at the cost of the lives of 600 families, learnt their lesson, and Babaghundi has not had any further cause to vent his wrath on more of the villages. That he is not a spent force, however, two small parties, one from Wakhan and one from the Pamirs, have learnt to their cost. Both of these parties were foolish enough to loot the Pir's tomb. The men of Wakhan got as far as the top of the Irshad pass, the Khirgiz as far as the Mintaka. Then, however, Babaghundi caught them up and in both cases the pilferers were overwhelmed by avalanches.

Old Babaghundi now lies peacefully in his lonely tomb up at Ziarat. Thanks to his activities there are no villages within miles of his resting-place, but his grave, a place of great veneration, is tended by an old *chaukidar* who, from his looks, might be quite capable himself of taking up the prophet's mantle and wearing it most successfully. Perhaps, some day, he will.

Note by the Editor

There are several variations of this interesting folk-tale in Hunza. Perhaps the version most commonly told is that given by Colonel Lorimer. In this account the Ishkuk incident happened before the destruction of Sipenj. The Ishkuk dragon had to be appeased by a male yak, a maund of *ghi*, and a human being; one day when the lot fell on a certain man, first his wife and then his daughter offered to take his place, the latter saying that her parents could raise up other daughters in her place. Babaghundi slew the dragon, and, according to Colonel Lorimer's account, appeared to the Ishkuk people in a dream, saying: 'I am the person that slew the dragon. If any difficulty comes to you, call on me. My name is Baba Ghundi.' The people, not believing this, decided to put it to the test; they howled and lamented and called upon Babaghundi's name. Presently Babaghundi appeared and rode down the whole length of the Chapursan. Finding nothing the matter, he disappeared. The Ishkuk people thought this rather funny and tried again. Once more Babaghundi appeared, and again he rode through the valley and disappeared. They tried a third time; and now Babaghundi appeared as a footsore and weary old man. According to some accounts the people recognized him; others say that they mistook him for a beggar. At any rate they stoned him and refused him shelter. He went on down the valley and met with the same reception everywhere until he found an old woman who took pity on him and gave him all the milk she possessed. He cursed the valley and blessed the old woman, and the next morning the mud-avalanche duly occurred, as Captain Clark tells above. The house of the old lady is still pointed out and is known as *Kampire Dior*, 'the house of the old woman'.

Another somewhat different account is given by Captain C. J. Morris in the *Geographical Journal*, vol. lxxi, p. 526, where Ishkuk—*Yashkuk* in Captain Morris's story—is destroyed by a huge wave which descended from the mountain. This account closes as follows: 'Everyone 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.'

Both mud-avalanches and floods (or 'waves') are not uncommon happenings in Hunza. Lord Conway was perhaps the first to observe and record a mud-avalanche in 1892; the 'waves' are generally caused by the bursting of glacier obstructions. Such natural occurrences are regarded as supernatural by simple-minded hill-people.

AN ATTEMPT ON CHOMIOMO

G. A. R. SPENCE

ANY one possessing some acquaintance with the literature of mountaineering as a sport must be struck with the great advance in achievements since the days of *Peaks, Passes, and Glaciers*. I refer not only to the great pioneering ascents and deeds of individual brilliance, but also to the attitude of mind of the average climber and small fry generally who follow in the wake of the giants. The latter have raised the standard of what is humanly possible—that is their great value—to their weaker brethren—and all the way down to the weakest we benefit by a corresponding gain in confidence.

So it came about last October that Mr. John Hale and myself found ourselves bound for Chomiomo, with three weeks' leave, small experience of real climbing, and a fund of enthusiasm for the project which went some distance towards filling the gap. For porters we were fortunate in having Lewa, whose feet had already sufficiently recovered for him to take part in such a trip, and Nima Dorje, in addition to three other Sherpas each with at least one big expedition to his credit. The history of the peak, which is 22,430 feet above sea-level, is soon told. It was climbed in 1910 by Dr. A. M. Kellas, who ascended by the North-west Ridge and descended by one of the eastern ridges, exactly which one is not clear from his brief and over-modest account of the climb. I am not aware of any serious attempt to climb it since, though many parties bound for the Donkya La must have cast longing eyes on its shapely mass. In company with Kangchenjhau it dominates the whole of the upper reaches of the Lachen river, which flows between them, forming a magnificent portal.

From the fact that Kellas descended on the eastern, or north-eastern side, a study of photographs from various sources, and a small reconnaissance made by Mr. G. B. Gourlay and myself in 1931, we had decided that an approach from the east offered a good chance of gaining the main mountain massif, in the shortest possible time. Eleven miles or so beyond Thangu, the Lachen valley broadens and deploys on to the plain-like continuation characteristic of its remaining stretch to Lake Cholamo at the northern foot of the Donkya La. About here a conical hill, over 18,000 feet in height, and terminating the Eastern Ridge of Chomiomo, comes into prominence on the left. Our choice of route lay round this to the North-east glacier. Not till later did we discover that the conical peak was

connected to the Eastern Ridge of Chomiomo by an easy scree col about 18,000 feet high, the use of which brings a perfect base-camp site within two reasonable marches from Thangu on the way up, and one descending. The distance from the bungalow to this site is about $14\frac{1}{2}$ miles; it is $2\frac{1}{2}$ miles longer round the hill, and if the transport includes yaks or mules their owners will probably insist on going round.

The tents were pitched on a sandy patch of moraine about 200 yards short of the snout of the North-east glacier (18,200 feet), partly masked by a pile of frontal debris. Surmounting this one gets a footing on the gently inclined lower portion of the glacier which here is quite free of any serious crevasses. It is bounded on the northern side by the high North-east Ridge connected with the main peak by a col reminiscent in outline of pictures of the North Col on Mount Everest, while the (true) right side abuts on the lower East Ridge, through a fascinating col on which views of the fantastic south-eastern ridge of Chomiomo and the elephantine mass of Kangchenjhou may be seen as one moves up the glacier. There are some splendid examples of the curiosity known as 'glacier tables', particularly on the northern fringe of the ice-stream, which is obviously bombarded with ice and stone avalanches during the summer. High up on the eastern slope of the peak, the *névé* is broken off to form 'hanging' ice of menacing aspect perched over a precipice of considerable height; an ominous bulge on the opposite side of the glacier below betokens the grave of many a spring avalanche from this source.

This first venture on the glacier took us to a height of 19,000 feet¹ on the ninth morning after leaving Siliguri. The comparatively rapid rate of progress to this elevation had not permitted any degree of acclimatization, and when Lewa confidently asserted that October's cold had bound and made the ice perfectly safe, we permitted ourselves, rather against our wills, to run the gauntlet of the hanging glacier. I have already said we lacked experience, and this is particularly true of Himalayan ice in October. However, no ice broke off during the time we spent on the mountain and its glaciers.

Hale and I were easily outdistanced by the porters, who were without loads on this occasion, and we potted about on the glacier photographing any view that took our fancy, while Lewa and his men established the fact that the 'North Col' of the high North-east Ridge was easily accessible by a scree wall, arduous but devoid of technical difficulty.


The weather had for two days shown signs of changing, and next day produced the threatened snowstorm. Although we learnt


¹ All heights are aneroid readings with estimated corrections based on comparisons at known altitudes.

subsequently that extremely wet weather had been experienced for two days down at Lachen, at our Base there was only a light dusting of snow after the storm had ended, and during most of the time Chomiomo was visible through a thin veil of snow, sufficient testimony to the comparatively sheltered conditions prevailing on the lee side of the peak.

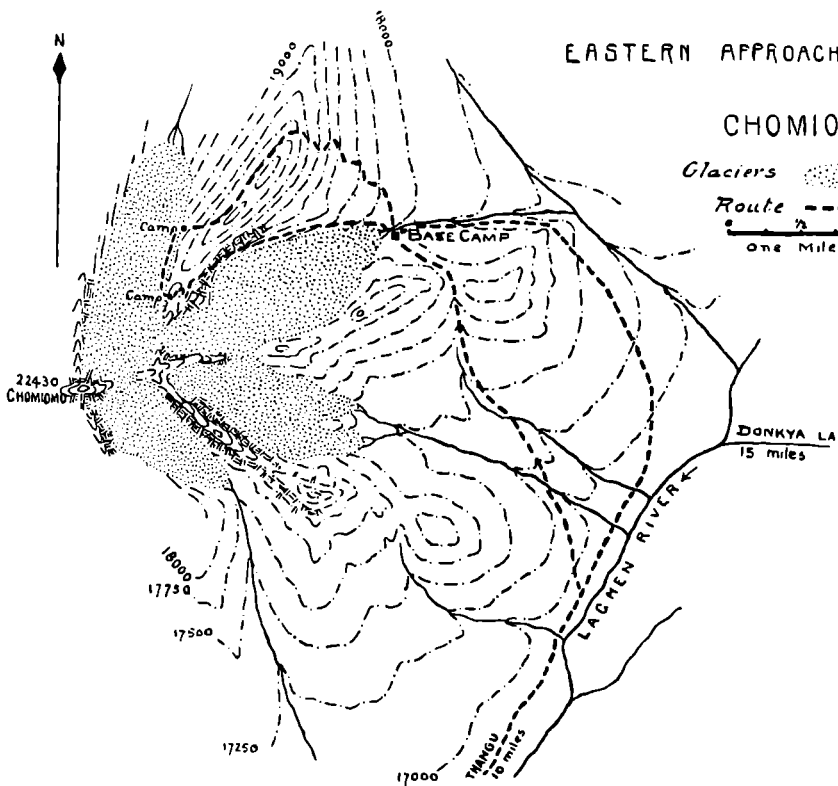
The enforced day's rest at the Base did not seem to aid our acclimatization to any degree, but it did convince us that we ought to avoid that hanging ice if at all possible. The decision was accordingly taken when the weather improved to traverse the North-east Ridge at its highest point. As far as we could see it was a scree climb, and the small ice cap on its brow could easily be turned. As height was gained with painful slowness, Kangchenjhaul seemed to increase in bulk, and Chombu, on the other side of the Sebo La, disclosed a shape strongly suggesting the Schreckhorn, as seen from the Wetter-sattel. On the broad stony top of the ridge, a cheerless-looking piece of ground that reminded me with absurd persistence of the summit of Ben Macdhui much enlarged, we encountered a bitter head wind; we were too far away from the main bulk of Chomiomo to enjoy its friendly protection from the chilling blast; it was, however, the only occasion when wind troubled us much. The view into Tibet was extensive, stretching as far round as the Everest group. We could discover no easy way down to our objective, the col, for though the vertical distance was small, there was some steep rock of a rottenness I have seen equalled only in the Pyrenees, so a descent had to be made to the northern glacier, again by a loose scree slope, where we pitched our little camp. This northern glacier is considerably higher than the north-eastern, and skirting its edge southwards next morning to a point opposite our col, we had only a few feet to climb to gain the ridge. True, but these few feet consisted of rock ready to peel off in large flakes with the slightest encouragement, and we were both definitely unwell. It was accomplished, however, and we thankfully deposited ourselves in the tent Lewa had ready for us. The altitude was 20,600 feet. The porters Kitar and Ung Tsering had already cut steps some distance up the ridge towards the eastern summit, and next morning the same two men, relieved at times by Galay and Nima Dorje, continued the good work. The snow was very hard, requiring as many as twenty blows to fashion a satisfying step. By this time it was getting obvious that we should not go much farther. Apart from the Sahib's illness, the porters were poorly shod in their own boots, those we had supplied having unfortunately succumbed to the roughness of the screes below. A rib of rock that would have provided a substantial advance without the labour of step-cutting was temptingly near; the ascent by the eastern

EASTERN APPROACHES
TO
CHOMIOMO

Glaciers 

Route 

One Mile



summit and along the summit ridge appeared quite straightforward, and the weather was ideal, so it was with great reluctance that the order to retreat was given. The height was put at 21,000 feet; the date was the 27th October. We descended to the camp on the col, and rested in the marvellously still air for an hour while we enjoyed the view eastwards to Chomolhari, spying another peak far north of the latter group. Such was our distaste for the horrors of the scree ascent over the North-east Ridge that we returned straight to the Base along the northern edge of the North-east Glacier, thus again running the gauntlet of the ice above. There is no doubt, however, that a fit party could return from the col by the safe route over the North-east Ridge in half a day, to the Base Camp.

Hale was fit enough to make Thangu on foot by the 18,000-foot col, but I had to resort to a yak, and go the long way round, with one of the porters who had a bad foot. The necessity of frequently dismounting to rest (I defy any one unaccustomed to the saddle to ride seventeen miles downhill on the back of a yak with an improvised saddle and stirrups without wanting to rest frequently) provided an acceptable variation, while excitement rose to heights on occasion, as when, for instance, my mount suddenly conceived a strong dislike for the tail of the animal in front, or when, shying at a shadow, it bolted, leaving me to fall gracefully into the arms of the ever-ready Namkang, an excellent porter from Lachen village. A mile from Thangu, when it was almost dark, there was a mild stampede, caused by Galay's white trousers, but no one was unseated, though Galay and Namkang both felt the weight of a yak's hoof.

Our appetites returned at Thangu, the luxury of the bungalow tempting us to put in a day's rest there. We had sufficiently recovered to enjoy to the full the beauty of form and autumnal colouring of the Lachen valley below Thangu. Interesting vistas of rock and glacier were seen on the left (east) between miles 55 and 56 from Gangtok; in particular a fine rock pyramid which looked high and rivalled the Matterhorn in apparent steepness. These constitute, of course, the southward continuation of the Kangchenjhou-Chombu range and seem to promise a good field for future expeditions. Gangtok was reached on 2nd November, nineteen days after leaving Siliguri; and, as we had both secured an extra two-day's leave in the fourth week, we utilized the remaining time by trekking to Darjeeling by Song, Temi, and Namchi, a ridge and valley route of surpassing beauty.

Although we had not succeeded in climbing Chomiomo, we believe the attempt may help to encourage parties of equally modest attainments to further ventures, and so do its mite towards spreading the cult of short climbing holidays in the Himalaya. It is in this hope that the account has been written.

THE CHONG KUMDAN GLACIER 1932

LIEUT.-COLONEL KENNETH MASON

ON the 12th July 1932 the upper Shyok glaciers once more attained notoriety in the world press; but only for a day! and before the type was set the danger was over. The Chong Kumdan glacier behaved very much as had been anticipated, and the dam did not survive till August.¹ During the 9th July the waters scoured a tunnel under the ice which had become weakened by degeneration, and the ice continued to collapse throughout that day and the next. The lake appears to have taken nearly three days to escape, and no great damage was done.

Captain Gregory, whose interesting account of the glacier's condition appeared in the *Himalayan Journal* last year, was in Ladakh during the summer of 1932 and has sent me notes which he made after a conversation with Mr. T. Durgi, the Public Works sub-overseer in charge at Leh, together with a photograph of the glacier from downstream taken after the waters had escaped. Mr. Durgi was sent up to report on the condition of the ice towards the end of June. He first visited the snout from downstream, but was unable to climb on to the glacier. He therefore wisely made the detour by the Depsang Plains, and camped at the northern edge of the lake, where from observations to Mr. Gunn's cairns he calculated that the lake-level was 37 feet below the high level of 1929.² On returning by Murgo to the Shyok valley, Mr. Durgi found that the water was abnormally high in the tributary three miles from Saser Brangsa on the evening of the 9th July, and he camped on a ledge above the water-level. Early the next morning he reached the Shyok river at Saser Brangsa and found it 'very high'; he does not say how high, but he records that it was only with the greatest difficulty and with the assistance of the trained ford-guards that he was able to cross the river at about 10 a.m. The guards said that the water had begun to rise early in the morning, but it is probable from Mr. Durgi's experiences in the tributary that active percolation through the glacier had begun the day before.

Mr. Durgi then made his way up the Shyok valley and reached Aktash at 2 p.m., where he ascertained that the barrier must have

¹ For recent papers dealing with the upper Shyok glaciers see *Himalayan Journal*, vol. i, pp. 4-29; vol. ii, pp. 35-47; vol. iii, pp. 155-7; vol. iv, pp. 67-74. For a map of the region see *Himalayan Journal*, vol. i, p. 5.

² Mr. Durgi appears to have told Captain Gregory that the level of the lake was 29 feet below the 1929 level. In his official telegram he states 37 feet.

already broken. He records that the highest flood-level appeared to be at 11.30 a.m. on the 10th July, that the water remained at that level until 2 p.m. on the 11th, that is, for over 26 hours, and that the level during that period was about 12 feet, as far as he could judge, below the highest level of 1929.

These figures are somewhat difficult to reconcile with those received from the authorities at Khalsar, Skardu, and Bunji, and an attempt is made below to discuss them. Mr. Durgi was lucky to cross the Shyok at Saser Brangsa at 10 a.m. on the 10th. At the end of June or in early July, when the dam is intact, there is only about a foot of water at the deepest part of the Brangsa ford, but the crossing is liable to be difficult owing to the formation of quicksands; the ford-guards are stationed here for the express purpose of reconnoitring the best line and assisting caravans. The river is wide at this point, but a rise of four feet would have rendered it unfordable to man or beast. It seems to me certain that though percolation through the glacier was now going on rapidly, nothing in the nature of a catastrophic burst had occurred; at the time of crossing Mr. Durgi was uncertain whether the dam had broken or not.

Later Mr. Durgi made his way as close as possible to the Chong Kumdan glacier, but owing to the formation of a large lake below it he could not get very close. He could, however, observe that the lake had emptied through percolation under the ice and not by a clear-cut channel as in 1929. The tunnel was about 450 feet wide, and from his photograph it is obvious that it occurred approximately at the same spot where the burst occurred in 1929; on that occasion the breadth of the channel was estimated by Mr. Gunn at 400 feet. Unfortunately Mr. Durgi's photograph was not taken from the same spot as Mr. Gunn's, so it is not possible to say definitely whether the line of weakness has moved forward between 1929 and 1932; but it is clear that the surface and downstream side of the glacier has undergone considerable deterioration since 1931. Mr. Durgi records that before he left 'the lake was empty and the waters of the Rimo glacier and the Chip Chap river were passing down the centre of the bed of the old Shyok lake and under the ice of the glacier'.

As soon as Mr. Durgi discovered that the lake was escaping he dispatched coolies post-haste to warn Khalsar, 135 miles by river below the dam. These men covered the difficult cross-country journey of about eighty miles in 28 hours and reached Khalsar about 7 p.m. on the 11th. They were, however, beaten by the flood, which appears to have reached its peak at that place at 3 a.m. that morning, 16 hours before them. At Khalsar there is a gauge and a telephone line to Leh. The Tahsildar at Leh telegraphed on the

morning of the 11th as follows: 'Shyok dam reported burst on 11th July at 3 a.m. when water reached 50 feet above zero. It fell down to 40 feet at 4 a.m. and to 35 feet at 5 a.m. and came to 31 feet at 5.30 a.m.'

The Wazir at Skardu, 310 miles from the dam, where the next gauge is fixed, however wired the same afternoon as follows: 'Morning gauge at Skardu 14 feet. At 1420 hours water seen rising. At 1800 hours gauge reads 32.2. Tahsildar Leh wired just now Khalsar gauge reader reports Shyok dam burst at 3 a.m. to-day: Flood coming.'

It is obvious that the Khalsar gauge-reader could not know at what time the Shyok dam gave way until the dispatch coolies sent down by Mr. Durgi reached that place at 7 p.m.; and at the time he reported to Leh and Skardu he could only record what had occurred at Khalsar. It seems to me almost certain that the Khalsar gauge-reader's evidence is that the high flood was reached at that place about 3 a.m. The peak may have been reached actually before that hour for the readings of the gauge after 3 a.m. indicate that the river level *fell* 10 feet during the next hour.

Assuming that 3 a.m. is the time of the passing of the peak by Khalsar it is interesting to compare the passage of the flood in 1932 with that of 1929.

Place	Miles from dam	Time of peak passage	Date	Interval hours	Rate m.p.h.
Aktash	—	1130	10.7	—	—
Khalsar	135	0300	11.7	15.5	8.7
Skardu	310	2000	11.7	17	10.1
Bunji (Pertab Pul)	447	1200	12.7	16	8.6

If the peak reached Khalsar before 0300 hours on the 11th as suggested above, the figure 8.7 above would be too low, and 10.1 too high. The rates of the passage of the peak of the 1929 flood between Khalsar and Skardu, and between Skardu and Bunji were 12.5 and 13.7, an indication of the more violent nature of that burst.

The approximate rises of the water at these places are also interesting to compare. At Khalsar the river only rose 45 feet against 63 in 1929; at Skardu 18 (1932) against 25 (1929); at Bunji 30 (1932) against 35 (1929).

The time taken for the river to rise to peak level at Khalsar is not known, for the river apparently began to rise during the night when no one was on duty at the gauge. At Skardu it took about 5½ hours and at Bunji about 16 hours to reach peak level; these figures may be compared with 3½ and 8 hours in 1929. All these comparisons

taken together make up a mass of evidence to prove the comparative gentleness of the 1932 flood.

Captain Gregory reports that the only loss of life he heard of was at Khalsar, where an old ferry boat was launched too soon and before the flood had subsided. The boat was carried down on to the rocks and smashed to bits, the six occupants being drowned. The suggestion made in certain engineering circles to tunnel by-passes for the waters upstream through the solid rock against which the Chong Kumdan glacier impinges, in order to prevent the formation of the glacier lake, is an interesting theoretical consideration of no practicable application. The cost of such an undertaking would be more than that required to move all the inhabitants from all the possible danger zones down the course of the river and to maintain them elsewhere in plenty and comfort.

From a study of all the evidence available it does not seem probable that the dam will heal again during the winter of 1932-3; at the time of going to press we have received no recent reports. This statement does not mean that the caravan route along the valley will immediately become practicable; it will probably take a few years before there is a clear passage down the valley, and it is then possible that the Kichik Kumdan glacier will have advanced sufficiently to block the way, though not the valley. It appears to me that all through the remainder of July last year and the whole of August, the intense ablation at the snout, assisted by erosion from the flood waters of the melting Rimo glacier, will have widened the tunnel and caused the surface to fall in; and if there is any regularity in the snout movement of this glacier, as there seems most certainly to be, there can be no factor which would tend to heal the glacier.

In this connexion it seems relevant to call attention once more to the constant error made by continental observers of Karakoram and Himalayan glaciers. Glaciers in the Alps have been studied now for some years, and it is said, and apparently accepted, that the seasonal advance of most glaciers there is more rapid in the summer than in the winter months. It may be so, though I am personally not convinced of the truth of this assertion. The actual flow in the glacier is faster in summer than in winter; but this is a very different thing from seasonal snout variation, which is dependent also on ablation at the snout. That factor of snout ablation is a variable quantity. In the Alps it may be negligible as some of the continental records seem to imply; but in the Karakoram and Himalaya it is the dominant factor. There is not the slightest doubt that in the Karakoram any tendency for seasonal summer advance, caused by the increased velocity of the ice-stream in summer, is entirely overwhelmed by the intense ablation that occurs at the snout of all glaciers of any

size in that region; and it is only when such a glacier is actively in periodic advance that it can overcome the intense ablation factors and hence the seasonal summer tendency to *retreat*. In August and September, therefore, when this intense ablation has been operating for some time we must expect to observe signs of retreat, and we must interpret those signs as normal seasonal phenomena and not as evidence of something strange. Similarly in winter, when there is no ablation whatever, the normal flow of the glacier-stream, however much retarded by the cold, must tend to promote active winter advance of the snout, and unless the glacier is in periodic retreat, it will show an upstanding active front. This is the simple explanation why glaciers in the Karakoram form their blocks in the winter and early spring, and burst as a rule during the late summer and early autumn months; and it accounts for the tendency to heal again in the winter succeeding a summer burst. But if a glacier bursts in early summer or before the period of intensive ablation has set in, say the end of July, then it is possible, and even probable, that the ablation will so deteriorate the ice that the winter will not heal it.

Continental observers coming to the Karakoram in August express surprise and frequently note that 'all the glaciers are retreating'; in the winter they are apt to be as much surprised because so many glaciers appear to be advancing.¹ I maintain that there is nothing whatever to be surprised at in the Karakoram, where the seasonal factors are so pronounced as to overcome completely the comparatively small difference between the winter and summer velocities of the ice-stream, and to smother in many cases the periodic factors of advance and retreat.²

¹ See review on p. 136. See also *Notes on the Study of Glaciers* by J. B. Auden, Geological Survey of India (1932), a very useful little pamphlet, but one in which the continental view has been adopted on p. 7: 'In spring and summer the glaciers should be in a condition most favourable for advance. If at this time the snouts are flattened and full of englacial moraine, this is an indication of retreat.' This is contrary to observed phenomena in the Karakoram and Himalaya. Subsequent correspondence from the author of this pamphlet, which has reached me while the proofs were in the press, indicates that he agrees with the views as stated above. Mr. Auden also points out that he has himself recently applied the above arguments in a study of the Arwa glaciers, British Garhwal. This most interesting contribution to Himalayan glaciology appears in *Records of the Geological Survey of India*, vol. lxvi, 1932, pp. 388-404.

² While this paper was in the press further details of gauge readings during the flood were received. These are published in the Notes on page pp. 128-30.

EXPEDITIONS

MESSRS. F. WILLIAMSON AND F. LUDLOW IN WESTERN TIBET

TIBET is still a forbidden land to most members of the Himalayan Club. Fortunate indeed are those whose official duties enable them to visit the country with the consent of the Tibetan authorities. Messrs. Williamson and Ludlow left Almora on the 14th August 1932 for western Tibet. Travelling by Askote and the Kali river, close to the boundary between Kumaun and Nepal, they entered Tibet by the Lipu Lekh pass (16,750 feet) on the 2nd September and reached Taklakot (or Purang) the same day. Proceeding northwards from Purang, they visited the tomb of Zorawar Singh,¹ skirted the western base of Gurla Mandhata,² and passed along the narrow neck of land which separates the Manasarowar Lake from Rakas Tal.

On the 7th September running water was found in the channel connecting the two lakes. At the point where Manasarowar was emptying into the channel, they found a stream 30 feet wide, 9 inches deep, and flowing at an approximate rate of 2 miles an hour. Near the Ghiu (or Jiu) monastery, a few hundred yards below the exit of the lake, was a deep pool full of fish weighing up to 2 lb.³

Still travelling northwards, they reached the little hamlet of Darchen at the foot of sacred Kailas (Kang Rinpoche), where a halt was made. Williamson and Ludlow then spent two days in performing the circuit of the holy mountain.⁴

¹ Zorawar Singh was the Dogra Wazir and commander-in-chief who conquered Ladakh from the Tibetans in 1834-5, and Baltistan in 1840. In 1841 he assembled an army at Leh with the intention of invading and plundering Lhasa. Rudok was occupied and the upper Indus monasteries looted. The Tibetans avoided battle till mid-winter when at 15,000 feet above sea-level the Dogra general was slain in a snowstorm. The Indians were routed and, owing to the intense cold, very few survived.

² A reconnaissance climb was made on Gurla Mandhata by Dr. T. G. Longstaff in July 1905; see *Alpine Journal*, vol. xxiii, pp. 202-26. Gurla Mandhata and Manasarowar are shown on Survey of India Map 62 F, scale 1 inch to 4 miles.

³ For the previous history of this connecting channel between Manasarowar and Rakas Tal see *Himalayan Journal*, vol. ii, p. 103, footnote. In September 1929 Mr. E. B. Wakefield found the stream 'deep and fast-flowing after recent rain'. For a summary of observations in 1924, 1925, 1926, and 1928 see 'Some Geographical Observations in Western Tibet, by Mr. S. R. Kashyap, in the *Journal and Proceedings, Asiatic Society of Bengal* (new series), vol. xxv (1929), p. 225. Mr. Kashyap concludes that it is certainly correct to include the lake-basin of Manasarowar in the catchment area of the Sutlej, as proposed by Sir Sidney Burrard.

⁴ The circumambulation of Kailas is an act of great merit for both Hindus and Buddhists. Mr. Kashyap in his paper mentioned in the previous footnote remarks

The circumambulation of Kailas having been completed, they turned north-west, crossed the Jerko La, and reached Gartok on the 20th September, where the annual fair was in progress. During the four days spent here they were hospitably entertained by the Garpön and other leading officials of western Tibet.

From Gartok the easiest and most frequented route to India crosses the Shipki pass and follows the well-known Hindustan-Tibet road to Simla. Avoiding this, Williamson and Ludlow turned south and crossed the little-used pass known as the Sazi La,¹ which lies a few miles to the south-east of the better-known Ayi La. Near the summit of the pass a herd of 35 wild yak were encountered. Passing through Dankhar, they threaded their way through a maze of stupendous clay ravines—a characteristic feature of the upper Sutlej country—and reached the little monastic town of Tuling (or Toling-math) on the left bank of the Sutlej river on the 28th September.

A short march of seven miles along the left bank of the river brought them to Tsaparang (Chabrang), a place of considerable historical interest. Early in the seventeenth century Jesuit Fathers made it the head-quarters of their mission to Tibet. For a space the Jesuits prospered and the 'King' of Guge was almost persuaded to become a Christian. A church and mission house were erected, and a branch of the mission was established at Rudok. Then evil days came and the mission was abandoned about the year 1640.²

Since the time of the Jesuits the little town of Tsaparang has seldom been visited by European travellers. Twenty years ago, however, the place was visited by one of our members, Mr. Mackworth Young. He diligently searched for any traces of the ancient

that there was a man staying at Darchen, at the foot of the mountain, when he was there, who was in the act of completing twelve circuits, which would take about a month. Pilgrims of course go barefooted and take about two and a half days over a single circuit. 'Some *sadhus* make the circuit measuring the length throughout with their bodies, lying prostrate, and, as the path is very rough and stony, it is an exceedingly austere performance.' The circuit is about 29 miles, according to Mr. Kashyap, who gives many interesting details of the pilgrimage which he has studied on more than one occasion; he corrects the description given by Sven Hedin in some important particulars. Sven Hedin apparently did not make the circuit and wrote from hearsay; as far as I can ascertain, Mr. Hugh Rutledge is the only European who completed the circuit prior to Williamson and Ludlow.

¹ Mr. E. B. Wakefield in August 1929 was probably the first European to cross the Sazi La. He gives the height as about 19,200 feet (*Himalayan Journal*, vol. ii, p. 102). Gartok and the Sazi La are shown on Survey of India Map 62 A, Tuling (Tolingmath) and Tsaparang (Chabrang) on Map 53 M.

² For a full description of this Mission see C. J. Wessels, s.j.: *Early Jesuit Travellers in Central Asia, 1603-1721* (The Hague: Martinus Nijhoff, 1924). A brief summary will be found in *Himalayan Journal*, vol. iv, p. 170.



Photo: F. Ludlow

The dead city of Tsaparang



Photo: F. Ludlow

Channel connecting Manasarowar and Rakas Tal.

Ghiu monastery in background

mission, but found nothing save a weather-beaten cross lying on the top of a large 'chorten' opposite the Dzongpön's house.

Williamson and Ludlow were equally unsuccessful in their investigations last year. Neither the Dzongpön nor any of the local inhabitants had ever heard of the Mission. Not a sign of the church or mission-house could be traced, and, more unfortunate still, the wooden cross which Mackworth Young saw in 1912 had vanished.¹

Leaving Tsaparang on the 1st October, Williamson and Ludlow crossed the Zanskar range by the Nilang pass (Sang Kyog La) and descended the Jadhganga river to its junction with the Baghirathi. Here they were on the pilgrim route from Gangotri, whence they descended through Tehri Garhwal and reached the plains of India near Dehra Dun on the 26th. Ludlow made a study of the avifauna of western Tibet and brought back a collection of skins which will doubtless prove to be of considerable interest, as no collection has hitherto been made in that portion of Tibet through which he passed.

THE ACCIDENT NEAR PANJTARNI, KASHMIR, AUGUST 1932

The following account of the fatal accident near Panjtarni in Kashmir has been compiled by Captain E. Gueterbock from notes supplied by Major Kenneth Hadow, Major R. V. M. Garry, and Mrs. Burn. It differs in a few particulars from the accounts which appeared in the press at the time owing to a fuller appreciation of certain factors which were not then available.

Lt.-Col. C. F. Stoehr, R.E., had been travelling and climbing in Kashmir for three weeks, when he joined Lieut. D. McK. Burn and his wife at Pahlgam. After a two-days' march, the party spent the night of the 11th/12th August about two miles north of the camping-ground of Vaojan.² It was decided that Mrs. Burn should take the camp by the path over the Vaojan Pantsal pass northwards to near Dardkut, while Stoehr, Burn, the *shikari* (Asad Mir), and the tiffin coolie were to traverse Point 17,243 (34° 8' 12" N., 75° 32' 29" E.), and to descend to the glacier which runs in a north-westerly direction towards Dardkut.

¹ In the illustration of Tsaparang accompanying this note, the 'chorten', on which the wooden cross was seen by Mr. Mackworth Young, is the large one immediately below the Dzongpön's house, which is the white building with four windows. To the right of the large 'chorten' are nine smaller ones. Mr. Ludlow informs me that Tsaparang is a dead city nowadays. All the buildings and cave-dwellings seen in the illustration are deserted, and even the Dzongpön himself no longer resides there, though he retains the title of Dzongpön of Tsaparang. About half a dozen families still hang on to the place and live below and to the right of the dzong (outside the illustration).

² The scene of the accident is shown on Survey of India Map 43 N/12, scale 1 inch to a mile.

Asad Mir used to be a good climbing *shikari*, but was ill in 1931 and is now getting on in years.¹ Stoehr, realizing Asad Mir's age and other limitations, engaged him more for the running of the camp and transport than as a climber. The tiffin coolie was a complete novice as a climber when Stoehr took him on three weeks before.

The four men left camp (12,800 feet) at 5.30 a.m. and were seen by Mrs. Burn before nine o'clock mounting the snow slope south-west of a point marked 17,243 on the Survey of India map. What happened after this is not certain. Asad Mir was somewhat inconsistent in his various reports, but certain facts are known, and from these and Asad Mir's story the following appears to be the truth as near as we are ever likely to get.

Stoehr and Burn reached the ridge, at about 16,500 feet, running west from Point 17,243 shortly before 10 a.m. Though the climb was not difficult, the two Kashmiris, who had only grass shoes on their bare feet, could not tackle the top few hundred feet of rock. They must have dropped behind, for a long-distance conversation ensued between the two officers shouting from the ridge and the Kashmiris below. Stoehr and Burn were not carrying rucksacks, so their spare woollies, cameras, food, and first-aid outfits were all with the *shikari* and tiffin coolie, but the latter could not be persuaded to come up farther.

The usual midday clouds now began to envelop the neighbouring peaks. Without food the ascent of Point 17,243 must have been out of the question, but it appears that the climbers discovered a possible route down the north face of the ridge, to the glacier 1,500 feet below. Such a descent would enable them to reach Dardkut in a couple of hours.

Stoehr usually carried a slab of chocolate in his pocket, and this would suffice until they reached camp. If they went down to the Kashmiris, took breakfast there, and collected their rucksacks, the weather would probably get worse and not permit them to cross the ridge so much later in the day. If they went back at all they might as well go round by the path, and over the Vaojan pass. They therefore decided to send the Kashmiris by the path to Dardkut and, roping up, attempted to descend the north face by them-

¹ Asad Mir was with Dr. Ernest Neve and myself on the first ascent of Kolahoi in 1912. He climbed with the late Major J. B. Corry, R.E., Lieut. R. D. Squires, of the Sherwood Foresters, both of the Alpine Club, and with Dr. Neve and myself in 1911; and he had been on previous attempts on Kolahoi and other climbs with Dr. Neve in 1910 and previously. Twenty years ago he was a good, steady rock-climber, ready to go anywhere his sahib led. In 1932 Dr. Neve recommended him to Stoehr solely as a camp servant and tiffin carrier, not as a *shikari* or guide, on the grounds that he was too old and not physically fit.—Ed.

selves. This must have been about ten o'clock. Every day for the past few days there had been rain and clouds at midday, and they probably expected nothing worse; unfortunately on this occasion a terrific storm burst shortly before noon. The two found what shelter they could on that inhospitable face, and were no doubt wet, hungry, and cold when the weather improved slightly about two o'clock.

At about 2.40 p.m. the accident occurred.¹ The two men were caught in an avalanche when a large wedge-shaped patch of snow 300 feet long (down the slope) and 100 to 200 feet broad (horizontally) broke away from the smooth rock on which it lay about 500 feet below the ridge, and fell 1,000 feet to the glacier below.

This face of the mountain is steep and devoid of any marked ribs. Below the pass are two short rock walls, and below them a large snow slope ran in a steep but even gradient down to the glacier. There are only a few rock outcrops, and the avalanche fell more or less down the middle of this snow slope. Major Hadow reports that the general dip of the rock strata was down the slope² and that the snow which avalanched was not more than about a foot deep. There were no signs of previous avalanches in the vicinity.

The warmth of an August afternoon at that height, the severe storm and heavy rain, the dip of the underlying strata of smooth rock, and the thinness of the crust of snow all contributed to the danger of an avalanche. Of these the last two conditions were probably unknown to the climbers. Stoehr had had considerable experience of snow at all seasons in the Alps and Kashmir, and Burn had also done a good deal of snow mountaineering in Chitral and Kashmir. They are likely to have recognized obviously dangerous snow and to have tried to avoid it.

The bodies were found in the bergschrund at the edge of the glacier. They had the full rope out (about 80 feet) when they fell. Their heads were completely smashed and death must have been mercifully instantaneous.

Major Hadow considers that they were both on the snow-patch which avalanched as the result of their passage. But in this case it is hard to account for the little progress they made after ten o'clock. If the technical difficulties of descent were so great, they must surely have retraced their steps and gone round by the path, for they were not temperamentally foolhardy. Such a course would also have been indicated if, as has been suggested, an accident had already occurred

¹ Stoehr's watch had stopped at about this time as far as could be judged by the hour-hand; the minute-hand was broken off.

² This is well seen in Captain Gregory's photograph, which was taken some days after the accident.

to Stoehr's foot, for one of his boots was found by itself near the bergschrund; this, however, is hardly evidence of such a mishap (cf. the relics in Zermatt Museum). Where the climbers were when the avalanche occurred must remain unknown.

As the climbers had not returned by 6 p.m. when the *shikari* and tiffin coolie reached camp, Mrs. Burn sent these two out as a search-party. But it was too dark and dangerous for the Kashmiris to go far. Fearing an accident, Mrs. Burn sent a coolie to Pahlgam and another to Sonamarg. The latter had to traverse the difficult gorge to Baltal. When the messages arrived help was speedily forthcoming.

Major Hadow deserves great credit for his energy. A telegram was sent from Srinagar at noon on Sunday the 14th August to Major Hadow at Gulmarg. He left that place at 2.30 p.m. It is 2,000 feet downhill by a foot-path and then 93 miles by motor-road to Pahlgam, yet by 7.30 p.m. he had left the latter place. Picking up a local man on the way, he reached Panjtarni at 4 a.m. after a 30-mile night-march involving an ascent of 7,000 feet. Before 6 a.m. he had organized a rescue party and left Mrs. Burn's camp. Meanwhile the *shikari* had located the bodies 3,000 feet above the camp and over $2\frac{1}{2}$ miles up the glacier. Major Hadow reached camp with the bodies at half-past ten, within 20 hours of leaving Gulmarg.

Great praise is also due to the work of the *shikari* and coolies, to the assistance given by H.H. the Maharaja of Kashmir, the State officials concerned, and many Europeans, to the courtesy, kindness, and sympathy shown by the pilgrims who passed the cortège on its way to Pahlgam, and, not least, to the courage shown by Mrs. Burn.

Brief memoirs of Col. Stoehr and Lieut. Burn appear on pages 110-11.

NORTHERN SIKKIM, 1932

Captain G. H. Osmaston, R.E., organized a short expedition to northern Sikkim during October 1932. The other members of the party were Messrs. F. C. Osmaston, Indian Forest Service, A. B. Stobart, and J. Latimer, the last two being members of the Himalayan Club.

The usual route by the Tista valley was followed from Gangtok as far as Thangu (12,600 feet). Lhonak was reached from here over the Lungnak La (16,300 feet), and a base camp was established at the farther (western) end of the valley, four miles north-east of the Langpo peak, two days later.¹

During the next five days an unsuccessful attempt was made to climb the 'Fluted peak' (19,881 feet), the climbing party reaching

¹ The only good map of any use to climbers in these parts (Lhonak) is Marcel Kurz's 'Kangchendzönga', scale 1 : 100,000, published in 1931.

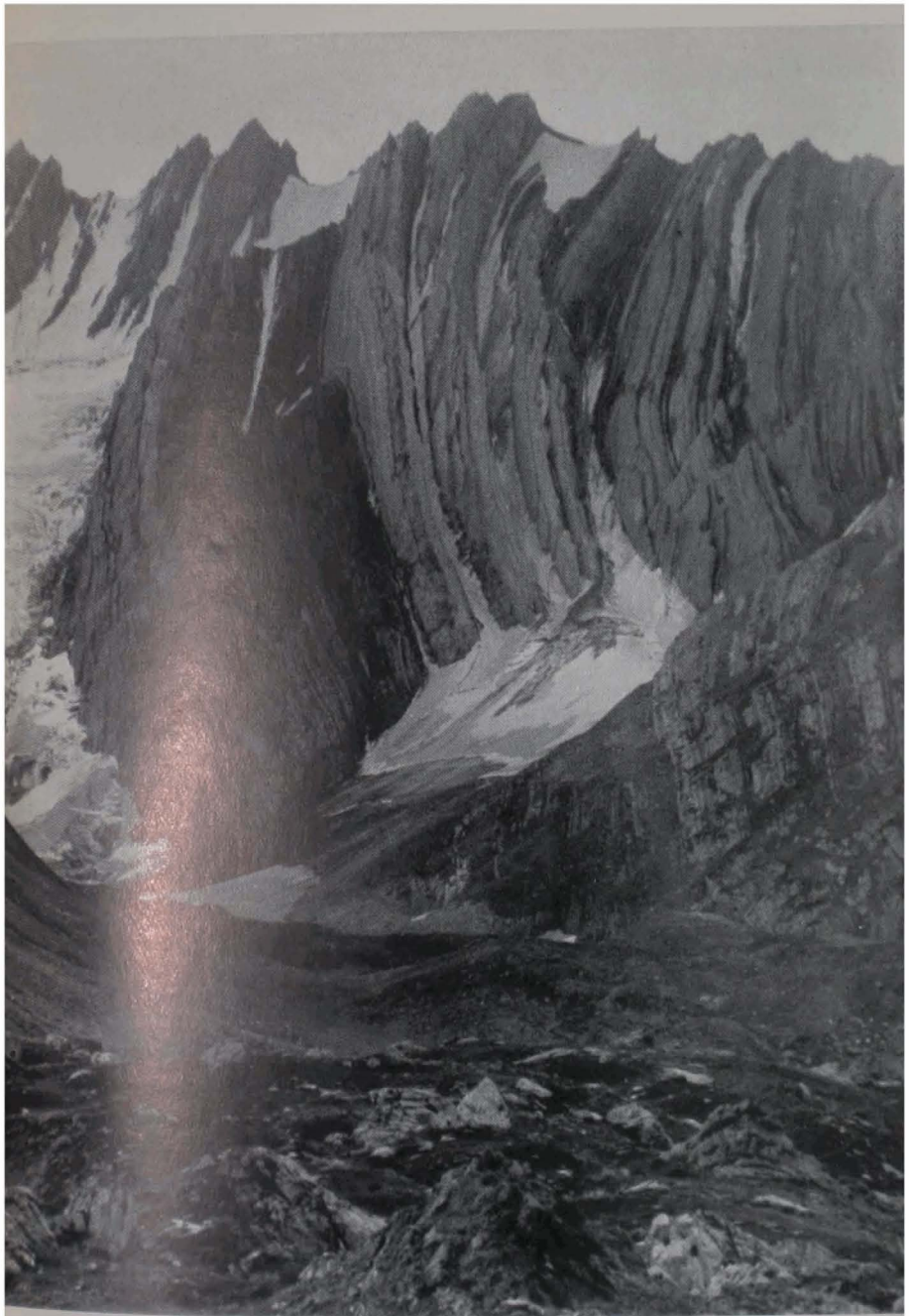


Photo. Capt. C. E. C. Gregory

Northern face of Panjtarni, the scene of the accident on 12 August 1932

a point 200 feet below the summit on the East Ridge, but too late in the day to negotiate with safety the remaining knife-edge of soft corniced snow.

The party then visited the Choten Nyima La and accurately determined its height, 19,037 feet, which is about 500 feet higher than previous estimates. The position of the 'Sentinel peak', climbed by Dr. Kellas in 1910, was also fixed and its height found to be 21,233 feet.

On the return journey Captain Osmaston and his cousin, with eighteen porters, crossed southwards into the Zemu valley by a snow gap (19,429 feet), four miles east of 'Tent peak' and corresponding with the 'Lhonak pass' of Kellas. The descent on the southern side was unsuitable for any kind of transport, as in one place an ice-fall, 500 feet high, stretched right across the glacier and the cliffs at the side were almost impassable. Captain Osmaston reports that they found Marcel Kurz's new map ('Das Massiv des Kangchendzönga', scale 1:100,000) most accurate and useful.

The Zemu valley was followed as far as Yaktang, from where Captain Osmaston proceeded alone over the Kishong La to the Tulung monastery,¹ and thence down the Ringpi Chu and Talung valley to Mangen, where he rejoined the main party. The route forms an interesting alternative to the main one by the Tista valley, but the small path is both steep and rough and only passable for lightly laden coolies.

The expedition arrived back in Gangtok on the 25th October and reached Calcutta on the following day, just 3½ weeks after starting. Excellent weather was met with as soon as Lhonak was reached, and a fine series of photographs of the whole area was obtained, some of which it is hoped to publish in the next volume. This expedition as well as other recent ones to northern Sikkim, emphasizes how accessible the Lhonak district really is, and how much interesting mountaineering can be accomplished in a single month's holiday from Calcutta.

¹ Maps show the path as passing over the Yumtso La, but this route is now abandoned and overgrown. Colonel Tobin, who took this route in 1929, gives the distance between the Kishong La and the Yumtso La as three miles. He gives further details of the route, with slightly different spellings of the names (*Himalayan Journal*, vol. ii, p. 113).

IN MEMORIAM

CHARLES FELIX STOEHR

1886-1932

THE accident on Panjtarni has deprived the Himalayan Club of two keen and active mountaineers.

Charles Felix Stoehr was born on the 13th January 1886. After being educated at Repton and the Royal Military Academy, Woolwich, where he was an Under Officer, he was commissioned in the Corps of Royal Engineers at the age of eighteen. He came to India early in his career, and served in the Military Works Services, and later in the 3rd Bombay Sappers and Miners. While with the latter corps he took part in the Mishmi operations in 1912.

When war broke out in 1914 he was in England on leave, and on his return to the East was posted to Aden. Shortly afterwards his wife was drowned on her way out to join him, when the *Persia* was torpedoed. When the Turks had been driven back from Aden, Stoehr returned to India and raised again the 19th Field Company (Bombay Sappers and Miners) which had been broken up to find drafts for other units. He took his company to Mesopotamia, where it joined the 15th Division on the Euphrates. He was twice wounded. After the war was over, this company went to north-west Persia, and Stoehr became C.R.E. to 'Norperforce'. It was a time when the prodigality of war finance was allowed to run riot in the free atmosphere of peace. Stoehr steadfastly set his face against waste, regardless of public opinion. His single-minded honesty about government expenditure shone brightly in a rather irresponsible world.

Though handicapped by lack of books and other means of study in this out-of-the-way district, he worked successfully for the Staff College, and obtained a vacancy at Quetta. After leaving the Staff College Stoehr served in Waziristan, where he was mentioned in dispatches and received the O.B.E. For a short time he held a Staff appointment at the War Office; this was followed by another in Malaya, after which he was appointed C.R.E. at Delhi. He was on leave from Delhi when he was killed on 12th August 1932.

Stoehr's chief hobbies were climbing and ski-ing. He was a born climber, who had improved his form by careful study. Though he could get but little practice, his courage, agility, and neatness of action, especially on rock, could not fail to impress his fellow mountaineers. But he never vaunted his skill or thrust himself into the lead unasked. His powers of endurance were very great, and he

never seemed to suffer from 'off-days'. He took his ski-ing seriously and would do a 'course' of racing to improve his style, just as a keen rider to hounds schools his hunter at the beginning of the season. An indication of his ability at ski-ing was given by his fine performance in the gruelling 'Inferno' race at Mürren in 1929.

The mountains which formed his favourite playground have now demanded his life. He was involved in an avalanche near Panjtarni, Kashmir, while climbing with Lieutenant D. McK. Burn. His widow (his second wife), three children, and his mother were in England at the time of his death, and the greatest sympathy is felt for them.

Felix Stoehr died a keen soldier and a fine mountaineer. Let this be remembered of him, that there was only one man in the world who was allowed to tell off his subordinates, and that was Stoehr himself. May all commanders be as loyal to their subordinates as he was.

E. GUETERBOCK.

DONALD MCKAY BURN

1902-1932

DONALD BURN, who lost his life in the accident on Panjtarni with Lieut.-Colonel Stoehr, was born on the 5th September 1902. He won a scholarship at Wellington College, and became a college prefect before he left, in 1920, to enter the 'Shop'. He passed out of Woolwich third, winning the prize for Science, and was commissioned as a Second Lieutenant in the Royal Engineers on the 31st August 1922. He was promoted to Lieutenant two years later and came back to India in 1925.

On the 17th December 1926 he joined the Survey of India at Dehra Dun and afterwards served with both Frontier Survey Companies at Quetta and Rawalpindi. At that time the company at Rawalpindi had both a summer and a winter field season, so that Burn spent most of his time in camp on the frontier. In the summers of 1928 and 1929 he was triangulating and inspecting surveyors in Chitral, where he carried out some difficult mountain surveys in the Tirich Mir Group. In 1929, with Major Dutton and Captains Culverwell and Coldstream, he made a reconnaissance of Istor-onal (24,271 feet), a northern outlier of Tirich Mir, and climbed to a height of about 20,200 feet on its western arête.¹ Towards the end of the year Donald Burn served under me for a short time at Rawalpindi, where I had an opportunity of following out some of his climbs and surveys on his map. There is little doubt that had he remained in the Survey of India, he would have become one of our most capable mountain surveyors, for he was devoted to the work.

¹ See *Himalayan Journal*, vol. ii, p. 68.

Soon afterwards he was transferred to Dehra Dun, and, to the regret of all who knew him well in the Department and appreciated his work, he was compelled to leave the Survey of India on his marriage. He joined the Military Engineer Services and was Garrison Engineer at Meerut at the time of his death.

Donald Burn was a first-class revolver shot, a good oarsman, and a keen and energetic mountain surveyor. The Survey of India was the poorer when he left. The sympathy of his brother officers will be extended to his widow.

KENNETH MASON.

H.H. MAHARAJA SIR BHIM SHAMSHER JUNG BAHADUR RANA,
G.C.S.I., G.C.M.G., K.C.V.O.

Prime Minister and Marshal of Nepal

1865-1932

MAHARAJA SIR BHIM SHAMSHER, who died on the 1st September 1932 at the age of sixty-seven, had been Prime Minister and Supreme Commander-in-Chief of Nepal for only three years, but he came to that office equipped in a remarkable degree. For over twenty-eight years previously he had been Commander-in-Chief and Chief Officer of the state administration during the rule of his brother, Sir Chandra Shamsheer, and few rulers can have had an apprenticeship so complete to the task they had to discharge. Although Sir Bhim was already an old man when he became Prime Minister, his period of office, brief though it was, was marked by constant consideration for the welfare and advance of his people, and his name will be long remembered by all who had the privilege of his friendship. In many ways the very antithesis of his more famous brother, Sir Bhim was yet a forceful personality; but it was perhaps the extreme kindness of his nature that was his most outstanding characteristic. No matter, if it had to do with his subjects, was too trivial for his personal consideration, and it was this perhaps that led him to be regarded with a quite special veneration by the people of Nepal. The Maharaja is succeeded by his last surviving brother, Sir Judha Shamsheer Jung Bahadur Rana, K.C.I.E. He, too, has had much administrative experience, and for the last three years has been Commander-in-chief of the Nepalese army. Unlike the late Maharaja he has travelled much, and on one occasion visited Europe in company with Sir Chandra Shamsheer.

C. J. MORRIS.

NOTES

THE FOURTH MOUNT EVEREST EXPEDITION, 1933

MEMBERS of the Himalayan Club must have been delighted when they heard that permission had been received from the Tibetan authorities to make another assault on Mount Everest. The Himalayan Club was invited to appoint a representative to the Mount Everest Committee, and Sir Geoffrey Corbett accepted the invitation to represent the Himalayan Club on that Committee.

The Expedition is being led by Mr. Hugh Ruttledge, who has had considerable Himalayan experience while in the Indian Civil Service; he is a Fellow of the Royal Geographical Society and a member of both the Alpine and Himalayan Clubs, the three bodies represented on the Mount Everest Committee. The other members of the Expedition are: Captain E. St. J. Birnie, of Sam Browne's Cavalry, Major Hugh Boustead, of the Sudan Camel Corps, Mr. T. A. Brocklebank, Mr. C. G. Crawford, Dr. C. Raymond Greene, Mr. J. L. Longland, Dr. W. W. McLean, and Messrs. E. O. Shebbeare, E. E. Shipton, F. S. Smythe, L. R. Wager, G. Wood-Johnson, and P. Wyn-Harris.

Of these, Mr. Ruttledge, Captain Birnie, Dr. Greene, and Messrs. Shebbeare, Smythe, and Wood-Johnson are members of the Himalayan Club. Messrs. Crawford and Shebbeare were members of the Mount Everest Expeditions in 1922 and 1924 respectively; Messrs. Smythe and Shipton, Captain Birnie, and Dr. Greene were members of the successful expedition to the summit of Kamet in 1931; Messrs. Smythe and Wood-Johnson were members of the Dyhrenfurth Expedition to Kangchenjunga in 1930; while Major Boustead and Mr. Crawford have climbed on spurs of Kangchenjunga. The others are visiting the Himalaya for the first time, but have records in the Alps, Greenland, or on Mount Kenya to their credit. It is a very powerful party.

Soon after the announcement was made that a fourth expedition would take place, the Chairman of the Mount Everest Committee received from the Keeper of the Privy Purse the following letter:

The King read with much interest of the characteristically British decision of the Mount Everest Committee, composed of the Royal Geographical Society, the Alpine Club, and the Himalayan Club, not to be content with the achievements of men like Mallory and Irvine, who lost their lives in their attempt to reach the summit of Mount Everest, and of Norton and Somervell who so nearly succeeded, but to equip and send out yet another

expedition next year. The experiences of Colonel Howard Bury, General Bruce, and Colonel Norton should, His Majesty feels, be of great assistance to the members of this fresh expedition, and enable them to overcome the appalling difficulties which have hitherto proved insurmountable.

It was with great satisfaction that the King heard that Mr. Hugh Rutledge had been appointed Commander of the expedition, as his knowledge of mountaineering and intimate acquaintance with the Himalayan people and Tibetans renders him eminently fitted for the post. His Majesty wishes him and the party of twelve who will accompany him every success, and will follow their movements with the keenest interest.

The King knows that expeditions of this nature require careful and costly preparation, and desires me to send you the enclosed cheque for £100, which he wishes to give towards the expenses.

By the time this volume is published, the expedition will be well on the way and will probably have reached the old base camp, and may even be struggling with the difficulties of the North Col.

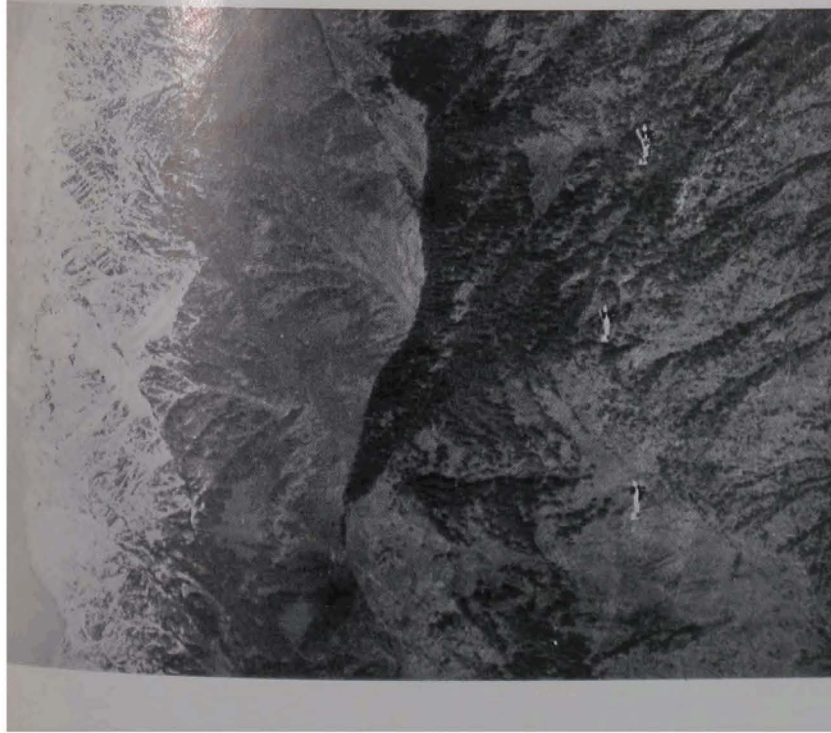
The leader has studied the problem from every conceivable point of view, but it must be remembered that ice conditions vary very greatly from year to year; the ascent of the North Col may be more difficult than formerly; nine years is a long time, and it would be surprising if the local ice topography is similar to that of 1924. The conquest of the mountain is not merely a question of luck with the weather as has been assumed in some quarters. The lessons of recent expeditions on Kangchenjunga, Kamet, and Nanga Parbat have been studied with the greatest thoroughness, and every detail of the equipment has been perfected as far as possible. We wish the expedition every success.

ROYAL AIR FORCE FLIGHT FROM RISALPUR TO GILGIT, 1932

On the 17th October 1932 a flight of 5 R.A.F. Hart aeroplanes under Flight Lieutenant Isaac flew from Risalpur to Gilgit, the distance of 286 miles being covered in 2 hours 20 minutes. The route taken was up the Indus valley over Shang, Jalkot, Bardazasin, Chilas, and Bunji, the general height of the flight being at about 10,000 feet.

On arrival at Gilgit the airmen were met by the Political Resident, Major G. V. B. Gillan, and the Mir of Nagar, a considerable number of whose followers were among the large and enthusiastic crowd who were assembled on the landing-ground.

On the 18th the officers took part in a chukor drive, and on the 19th demonstration flights were carried out over the Hunza, Nagar, and Punial districts. During these flights a number of photographs were taken, among the most interesting being those of Rakaposhi



Crown Copyright

*Over Jalkot in the Indus valley (35° 17' 30" N.
73° 19' 00" E.). Indus Kohistan in background*



Crown Copyright

*Over the Indus valley by Shatial
(35° 33' 00" N. 73° 33' 00" E.)*

(25,500 feet) and Nanga Parbat (26,620 feet) in height. Great enthusiasm was shown by the inhabitants of these inaccessible valleys, many of whom had never seen an aeroplane, whilst many had believed that aeroplanes were a myth.

The return flight was carried out without incident on the morning of the 20th October, when the distance of 286 miles was covered in 2 hours 5 minutes.

One of the not least remarkable points of this flight was the fact that it took the aeroplanes little over two hours to fly from Risalpur to Gilgit, a journey which could not have been done in less than a fortnight by road. The photographs taken are of the greatest interest, those of Rakaposhi and Nanga Parbat being particularly beautiful.

This is the third time that Service aeroplanes have made the flight from Risalpur to Gilgit. The first occasion was on the 28th March 1929 when four Wapiti planes flew to Gilgit in four hours, including a halt of an hour and twenty minutes at Chakdara to refuel. A brief account of this flight was given in the *Himalayan Journal*, vol. ii, p. 134. On this first flight the course was over the Kotkai pass and the great gorge of the Indus. The second flight, which commenced from Risalpur at 7 a.m. on the 30th March 1931, took a different course, the five Wapitis, under the command of Squadron-Leader S. B. Harris, passing up the Kagan valley and over the Batogah pass to reach the Indus valley over Chilas. The distance to Gilgit, by this route, 205 miles, was covered in 2 hours 15 minutes, and the return flight on the 1st April by the Indus valley route, a distance of 248 miles, was accomplished in 2 hours 30 minutes.¹ On the latest flight, in 1932, the Indus valley was followed throughout; the distance is lengthened to 286 miles, but the duration of the flight has been reduced by the Hart machines to 2 hours 20 minutes for the outward flight and still further to 2 hours 5 minutes for the return.

By the courtesy of the Air Officer Commanding in India, we are privileged to publish some of the magnificent photographs taken on the flight. The frontispiece shows a Hart plane on the flank of Rakaposhi, the great mountain on the southern border of Nagar State, known up there as Dumani, 'the Mistmaker'.

Flying over the Himalaya is becoming a not uncommon occurrence, and it is well to record the names and exploits of these men who are pioneering these early long distance Himalayan flights. In this connexion Colonel B. E. M. Gurdon, whose interesting 'Memories' are published in this *Journal*, has written to me to say that on the 22nd February he received in England a letter from H.H. the Mehtar

¹ *Himalayan Journal*, vol. iv, p. 184.

of Chitral (Shuja-ul-Mulk) by air mail, dated the 5th February. The letter had only taken seventeen days in transit from Chitral to London, while in 1895 it took seven days for the news of Nizam-ul-Mulk's murder to reach Gilgit from Chitral! In his letter His Highness described his journey by air from India to Chitral and his arrival at the Drosh aerodrome!

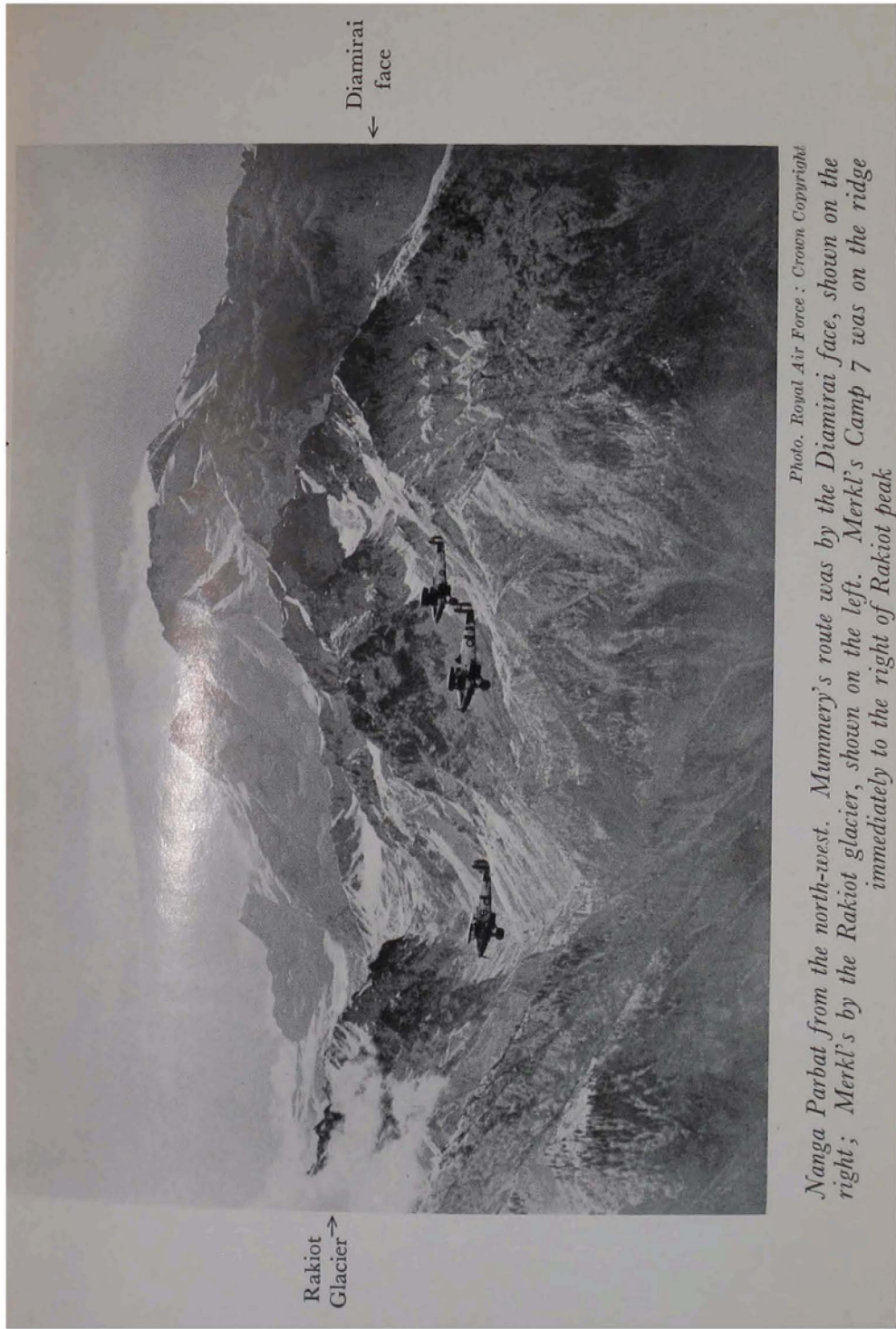
MOUNT EVEREST FLIGHT, 1933

These magnificent early flights have taken place with a minimum of publicity on the part of those concerned. By the time this *Journal* is published it is probable that the two Westland planes, which have been specially built in England for the purpose, will have successfully completed their flight over Mount Everest. This adventure has been made possible by the generosity of Lady Houston, and many columns have appeared in the press concerning it. At the time of writing this note (1st March), the programme is that the planes shall take off from Purnea in northern Bihar on about the 25th March. It should be remembered that the distance from Purnea to Mount Everest is only about 160 miles, and ordinary Service planes have flown for distances of nearly 300 miles over the western Himalaya. The present altitude record for aeroplanes is about 45,000 feet, while the Mount Everest planes made test flights in England at about 35,000 feet. The problem is one of mechanical design, not of physical endurance, though high winds may cause delay.

It is perhaps unfortunate that in issuing official information to the press regarding the flight, no mention was made of the pioneer flights over the Himalaya, while it is not a little unfair on the Survey of India when the Chairman of the Flight Committee issues a long statement for publication in which occur the words:

The aeroplanes chosen for the forthcoming flight over Everest may be expected to reach the summit in less than an hour and a half. But in the course of that climb they will pass over what is virtually unknown country. No surveying party has ever attempted to map it.

In actual fact we have a very fair map of the whole country to be flown over. In 1924 H.H. Maharaja Sir Chandra Shamsher Jung Bahadur, the enlightened Prime Minister of Nepal, asked for the co-operation of the Survey of India for the survey of his country. Work was begun in November that year. Field work was completed in March 1927. The area surveyed in those three years, amounting to some 55,000 square miles, covers the whole of Nepal except three small gaps: 60 square miles north of Manang Bhot near the axis of the Great Himalaya, where the surveyors were driven back by con-



Rakiot
Glacier →

←
Diamirai
face

Photo, Royal Air Force : Crown Copyright

Nanga Parbat from the north-west. Mummy's route was by the Diamirai face, shown on the right; Merkl's by the Rakiot glacier, shown on the left. Merkl's Camp 7 was on the ridge immediately to the right of Rakiot peak

tinuous blizzards; 150 square miles north of Jagdol Lekh, which were sketched very roughly owing to bad visibility and bad weather; and a small area by Rasua Garhi on the Tibet border, invisible from the Nepal side and only accessible from Tibetan territory which could not be entered.

The whole survey was carried out by men trained by the Survey of India; it was under the immediate control of Indian officers of the Department, directed by Colonel M. O'C. Tandy, D.S.O., R.E., of the Survey of India, and completed with the cordial co-operation of Lieutenant-Colonel Ganesh Bahadur Chattri and Captain Ganj Bahadur Karki of the Nepalese Army. The scale of the survey was four miles to an inch. In the report of the work it is stated that none of the triangulation is likely to be as much as 100 feet out in position or 20 feet in height.¹

It is very possible that the flight may be able to improve the map of the higher glaciated regions. Every succeeding surveyor can, if he makes intelligent use of his predecessor's work, improve on it. But the proposed flight can only advance our geographical and topographical knowledge of Nepal if it makes use of existing work. In the air photography of mountainous country there is so much distortion in the vertical scale that there is at present no method of accurately plotting the photographs that are to be taken, without the aid of the careful framework of the ground surveyor, whose efforts have been ignored in the preliminary advertisement of the proposed flight.

The various official accounts of the preparations that appeared in *The Times* led a correspondent to break into song and to quote Dante as a prophet and advocate of wings to assist in the conquest of high mountains. He concluded by quoting:

But here a man had need to fly, I mean
With the swift wing and plumes of high desire.

To many mountaineers Dante is an inspiration. Perhaps we may be forgiven if we ask whom Dante had in mind when he wrote:

Now needs thy best of man, so spake my guide:
For not on downy plumes nor under shade
Of canopy reposing, Fame is won:
Without which whosoe'er consumes his days
Leaveth such vestige of himself on earth
As smoke in air or foam upon the wave.
Thou therefore rise. Conquer thy weariness
By the mind's effort in each struggle formed
To vanquish, if she suffer not the weight
Of her corporeal frame to crush her down.

¹ *General Report, Survey of India, 1926-7.*

Surely he was thinking of the exhausted earth-bound mountaineer struggling upward to conquer a great summit—the summit to which he could fix himself ‘like a bark arrived at land’: the actual summit—not a point a thousand feet above it or below it. The mountaineer is to the airman as the oarsman to the man in a motor launch. He may perhaps admit flying to his technique when the airman can land on the summit of a mountain, wait a short space in ‘that new round’, turn to his pilot and ask

. . . Loved Sir,

Declare what guilt is on this circle purged,

then climb into his machine again, and fly back to his downy-plumed palace in the plains.

KHARA-KHOTO, MARCO POLO’S ‘CITY OF ETSINA’

In the *Deutsche Allgemeine Zeitung* for the 30th September 1932 appears an article, entitled ‘Rätsel der Schwarzen Stadt’ by Sven Hedin, in which reference is made to ‘rivers which Sir Aurel Stein is alleged to have found’ east of Khara-khoto on the Etsin-gol and which Dr. F. Bergmann, an archaeologist working under Sven Hedin, ‘has proved not to exist’. Owing to Sir Aurel Stein’s absence in Persia it is not possible for him to correct a statement which attributes to him a geographical inaccuracy of which he is not guilty.

I have carefully looked up the account given by Sir Aurel Stein in his great work, *Innermost Asia*, vol. i, pp. 453–62, and I can find no reference whatever to any rivers east of the old bed on which Khara-khoto (Etsina) itself stood. Sir Aurel Stein found no rivers or river-beds in the region east of Khara-khoto. What he did note, after a careful exploration of the whole area, were traces of the ancient canals that evidently carried water from the river of Khara-khoto to the agricultural settlements existing at a distance of six miles east of the town down to late medieval times. Had there been ‘rivers’ in this area there would have been no need for canals taking off from the Etsin-gol. Sir Aurel indeed suggests that it was this dependence of the agricultural settlements on the water supply of the Etsin-gol that brought about their abandonment when that river changed its course to the westward. He writes (p. 459):

But it is quite certain that the shifting of the river from the old bed passing Khara-khoto to the bed now followed by the Ikhe-gol would inevitably cut off irrigation from the once cultivated area, which lies on an average fully six miles to the east of Khara-khoto, and fourteen miles from the nearest point of the present river channel; for it is clear that the canals upon which its cultivation depended must have been taken off from the Etsin-gol branch,

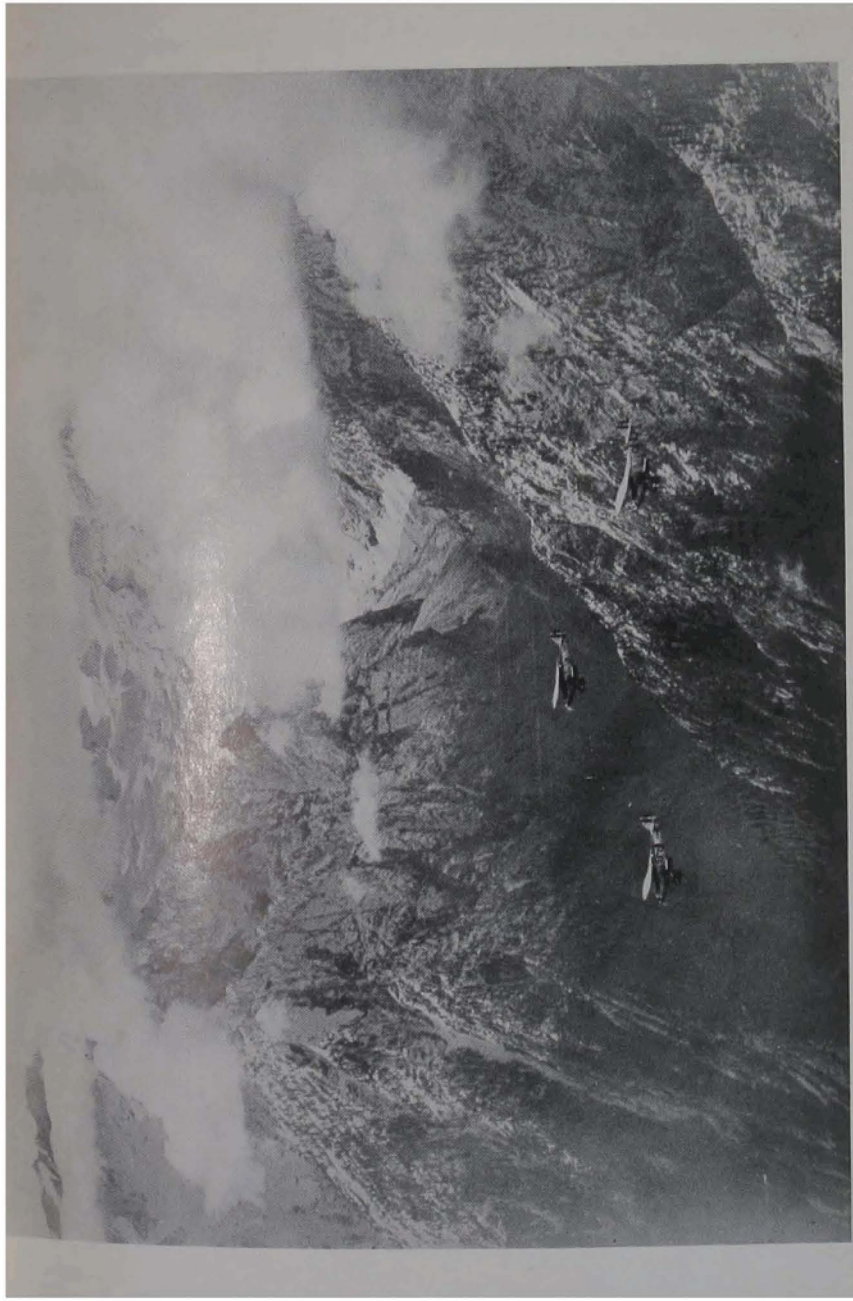


Photo. Royal Air Force; Crown Copyright

*Looking south towards Nanga Parbat over the Indus valley at Rakiot.
Rakiot glacier in the background*

which is still clearly visible at Khara-khoto and which was traced by Lal Singh for more than five miles farther to the south-west.

I have also examined Sir Aurel Stein's map (*Chinese Turkistan and Kansu*, Serial No. 45, Etsin-gol). There is no indication whatever of any rivers east of the one on which Khara-khoto stood.

There are other inaccuracies and omissions in this paper, possibly due to journalistic haste, which do not do justice to the work of Sir Aurel Stein. For instance, no mention whatever is made of the continuation of the ancient Han *Limes* to the east of the Etsin-gol having been definitely indicated by Sir Aurel when dealing with his survey of that region in 1914. It was only the excessive heat of the season then that prevented him from following the line farther. The detailed observations of Sir Aurel Stein on this ancient wall are described in Chapter XI of *Innermost Asia*.

INFRA-RED PHOTOGRAPHY IN THE HIMALAYA

Captain C. E. C. Gregory sends the following note on some experiments with Infra-red Photography in the Himalaya, together with a number of photographs taken by the method, of which three are reproduced.

'Most people whom I have met appear to think that the use of infra-red plates and filters is only possible with the most elaborate apparatus. From my own limited experience this is not so, and I believe that the method may prove to be of very great value in the Himalaya for the purpose of recording details of distant mountains.

'The camera and lenses used by me in my experiments were all made before the War. The camera was a double-extension Shaw Reflex camera, which I bought for fifty rupees, and had done up in England. Later I broke the front of it and had a new front made in the Srinagar bazaar. I used two lenses: a Zeiss adjustable telephoto lens (138 mm.) with three negatives (75 mm., 58 mm., 27 mm.) and a Zeiss Teletessar of fixed focal length 32 cm. Both lenses were bought second-hand in England for £10 and £15 respectively. The first two negatives were excellent, but with the third the colour correction was not good enough for enlarging.

'It would be better to have the lens adjusted in the camera for infra-red light, for when the filter is fitted it is impossible to see through it; another method of surmounting this difficulty is to focus with a tri-colour red filter. In my experiments I focused without any filter and stopped down as small as possible; on the whole I obtained quite sharp negatives, fit for enlargement, by using a focal length between eighty and a hundred inches and a stop varying between f 90 and f 128.

'Using the filter the infra-red plate has a speed in sunlight of approximately H and D 10. I found that for a distant view of the snows, at say sixty miles, the correct exposure was from two and a half to three minutes when using a stop of f 90, and six minutes with a stop of f 128; but the exposure has to be varied according to the amount of shadow on the distant face of the mountain.

'I found no more difficulty in handling the plates than if they had been panchromatic. I used a changing-box and a tank for development. A fairly bright green safety light of the correct composition may be used, but personally I prefer to do all the work in the darkness of the changing-box. For development I found Azol, diluted to one in sixty, satisfactory. Infra-red plates, I consider, should be placed in category 'D' of the Azol list, when exposed for very long-distance telephotography, but the time of development should be cut down for closer views. Both the exposure and development should, of course, be ample in order to obtain all possible detail.

'It should be remembered that owing to the low speed of the combination of infra-red plate, filter, and telephotography, very much longer exposures than usual are necessary, and therefore in the Himalaya, where there is often a considerable wind, a small camera on a very secure tripod should be employed in order to avoid vibration.

'I may perhaps mention that the plate is useless without the filter unless the object to be photographed is illuminated with infra-red light. The plate also tends to lose its speed with time, and it should therefore be used as soon as possible. I should add, however, that those used by me were imported into India in July and showed no deterioration after being kept in the hills for nearly six months. But I would add a word of warning: Don't expect the impossible. Photographs taken from the foothills into the dust and haze of the plains can show no more detail than can be seen through good binoculars, though considerably more than will be registered on a panchromatic plate used in conjunction with a 'G' filter.'

THE HUNZA VALLEY GLACIERS, 1932

The Hasanabad, Sasaini, Pasu, and Batura glaciers were visited and examined during May 1932 by Major W. R. F. Trevelyan and Captain M. H. Berkeley and the Minapin glacier in June by Captain L. W. Wooldridge.

The Hasanabad glacier was visited on the 23rd May. Major Trevelyan reports that the appearance near the snout has been altered by a big landslide on the right bank, said to have occurred about July 1931. Although ice is now visible at a point forward of the ice-cave

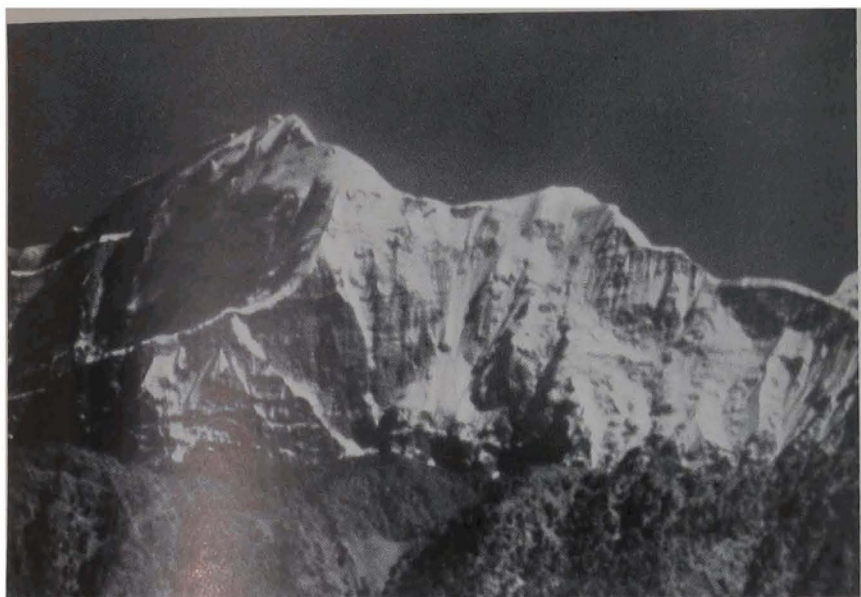


Photo. C. E. C. Gregory

*Trisul, 23,360 feet, in the morning. Infra-red photograph
from a distance of 72 miles*

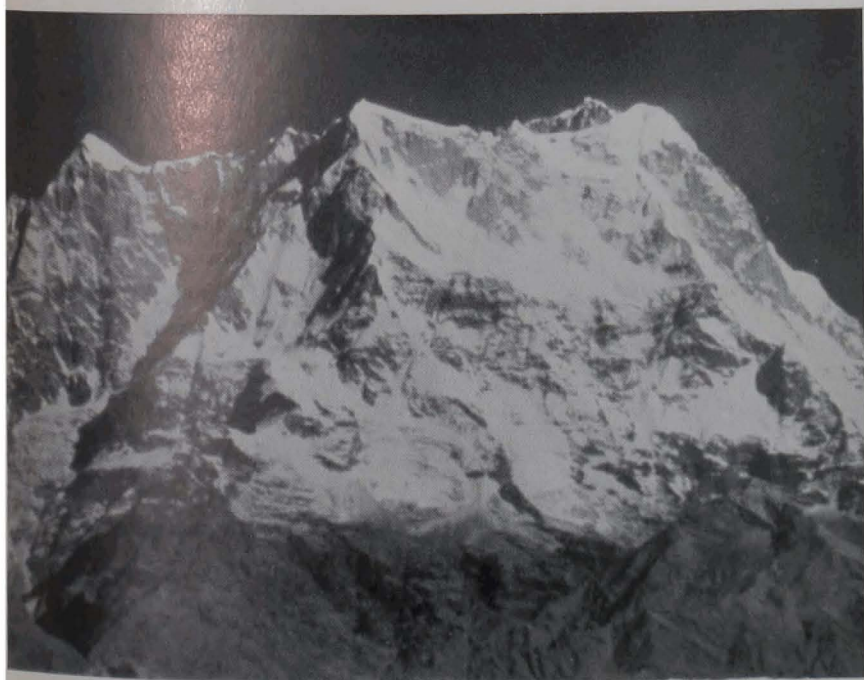


Photo. C. E. C. Gregory

*Badrinath (or Chaukhamba), 22,880 feet. Infra-red photograph
from a distance of 69 miles*

(reported by Mr. H. J. Todd in 1930 to be level with the Choshe Bar Nala, and the source of the stream) Major Trevelyan considers that the glacier is in periodic retreat.

'This ice,' he writes, 'about 150 yards forward of the ice-cave and 250 yards back from the terminal moraine mentioned by Mr. Todd, is close against the left bank and may easily represent a narrow tongue of the glacier so hidden by rubble and debris as to have been mistaken previously for lateral moraine. Or it may be a strip of ice forced forward on the left bank by the upheaval on the right. The source of the stream is actually from an ice-cave 150 yards farther back from the cave of 1929 and 1930, and 300 yards back from the foremost ice at the present time. Summer seasonal conditions had commenced, but I do not think these and the accidental variation caused by the landslip could account for the attenuated state of the glacier and the disintegration of the ice near the snout.'¹

Major Trevelyan considered that erosion by the Choshe Bar Nala would confine the glacier near its snout towards the left bank of the Hasanabad stream-bed, where it would be concealed under debris until it definitely retired north of the mouth of the Choshe Bar.

The Sasaini glacier is an unsatisfactory glacier to observe owing to its spread. It was examined on the 27th May. The stream was found to issue from the glacier in two nullah-beds at least half a mile apart. At the southern end there was very much more water than at the northern, and the glacier front was smooth, steep, and about 250 feet high. The ice at the northern end showed some signs of disintegration and slight traces of apparently fresh terminal moraine, though little water was issuing from it. In spite of the contrast between the two ends of the snout it maintains a very even front, approximately a thousand yards from the left bank of the Hunza river, and appears to have undergone little variation since 1925.

The Pasu glacier was visited on the 27th May. The cairn erected in 1930 was intact and the magnetic bearing from it to the snout exactly the same (356°). The glacier appeared healthy, clean white ice falling to within 500 yards of the snout. Thence, however, it diminished rapidly in volume, the actual snout almost merging into the rubble of the stream-bed, as reported by Mr. Visser in 1925.

The Batura glacier was crossed on the 28th May and again on the 6th June. The path across the glacier was slightly below that of 1930. The local inhabitants reported that the glacier is deteriorating;

¹ Mr. Todd visited the Hasanabad glacier on the 18th April 1929. The end was then hidden under debris and the stream issued from a dirty ice-cave about 400 yards upstream of the line joining Hayden's marks. The snout was level with the Choshe Bar Nala. The local people reported that the glacier was shrinking year by year. (*Records, Geological Survey of India*, vol. lxiii, p. 234.)

Major Trevelyan considered this statement to be correct. The snout reached the bed of the Hunza river as before.

The *Minapin glacier* was visited by Captain Wooldridge on the 28th June. The snout was only from 5 to 10 yards farther back from the position of the cairn erected in 1930. The tongue was smaller than in 1930 and the actual snout was a small block of ice almost severed from the main glacier.

This glacier was at its last maximum advance about 1913 and has been steadily retreating ever since. It appears to be nearly at its position of maximum periodic retreat and may be expected to commence advancing within the next few years.¹

THE YALE UNIVERSITY EXPEDITION TO THE HIMALAYA

In another part of this volume Dr. de Terra gives a brief account of the observations made in Ladakh during the summer of 1932. Dr. de Terra has now carried out detailed geomorphological investigations over a very large area east of the upper Shyok river, for prior to his expedition in 1932 he had accompanied the late Dr. Emil Trinkler in 1927-8.²

Dr. de Terra's conclusions regarding the extensions of the various ranges of the Karakoram east of the upper Shyok are of very great interest. Without any doubt the main range of the Karakoram, the Muztagh, is cut through *south* of the Changchenmo confluence by the Shyok, and is to be found between the Changchenmo and the Pang-gong basin. In this region it changes direction from south-east to east and, for a considerable distance farther east exists only as great isolated massifs rising up from the eroded plateau of eastern Ladakh and western Tibet. Dr. de Terra's observations on the Karakoram range to the south of the Muztagh, which used to be known as 'the Kailas range', are also of great interest. This range, which de Terra calls the Kailas-Karakoram at present for want of a better name, is shown by him to be prominent between the Tang-yar (Map 52 F, *Tayar*) valley and the Shyok valley between longitudes 77° 50' and

¹ See *Himalayan Journal*, vol. iii, pp. 111, 112; also *Records, Geological Survey of India*, vol. lxiii, pp. 230, 232, 235, 236, 239.

² A brief account of Dr. Trinkler's expedition appeared in *Himalayan Journal*, vol. iii, p. 42. Some notes commenting on Dr. de Terra's observations will be found in the same journal, p. 143, and a review of Dr. Trinkler's general account of the journey in vol. iv, p. 194. The scientific accounts are published in two large volumes entitled *Wissenschaftliche Ergebnisse der Dr. Trinkler'schen Zentralasien-Expedition*. Berlin: Dietrich Reimer and Ernst Vohsen, 1932. Vol. i, by Dr. Trinkler, deals with the geography, and vol. ii, by Dr. de Terra, deals with the geology. A comprehensive review of the two volumes appeared in the *Geographical Journal*, vol. lxxxi, p. 156.

78° 12' E. His full account will be eagerly awaited by those interested in the complicated topography of this region.

Dr. de Terra also spent some time in the Punjab Salt Range and in the Kashmir valley. In the latter he made the important discovery of the tusk of an elephant of extinct species—very possibly a mammoth—together with stone implements of Middle Palaeolithic type. The tusk was, I understand, found in the 'karewa' deposits and was carefully excavated.

Dr. de Terra was accompanied throughout his investigations in Ladakh by Khan Sahib Mian Afraz Gul Khan, of the Survey of India, and speaks very highly of the Khan Sahib's capabilities.

THE ACCURACY OF HIMALAYAN MAPS

Some mountaineers, like other human beings, are inclined to be illogical. They like to have good maps of the mountains they wander over and at the same time to experience the thrill of pioneer discovery, to set foot or gaze on a country that has never yet felt the tread of a human foot or the gaze of a human eye. At a meeting of the Royal Geographical Society held on the 2nd November 1931 some of the members of the Kamet expedition showed this rather illogical attitude.

Dr. T. G. Longstaff was present and able, owing to his great experience of our Himalayan maps, to make a very effective and vigorous reply. It expressed so well the views of some of us who have travelled in the high Himalaya that it is well worth repeating here. Dr. Longstaff said:

Now what I am going to say is not a reflection on anything that the speakers have said, but I want to point out that the conditions now are different from what they used to be. The criticism of the Survey of India map is due to a misunderstanding: that survey was made in the 'seventies. It cannot be compared to the work done by the Indian Survey at the present time. I very carefully read up before I went to that part of the world the literature of the country from 1800 onwards, and I looked up the old Survey Reports. I found that the surveyors were definitely ordered not to waste time on uninhabited districts. They were to map the inhabited valleys and the villages. The old triangulation is reliable, but this map is not a topographical survey at all. It was a question of expense. They were definitely told that in uninhabited country they were to spend as little time as possible, and they were simply to sketch in what they could quickly see, without visiting the glacier regions. So those maps are really not comparable in any way with modern work; and they never claimed to be topographical surveys in the modern sense of the word.

Then there is one other thing I wish to say: that our predecessors in those

countries, like Sir Richard and Henry Strachey in the 'fifties and 'sixties, Edmund Smythe, Drummond, and Webber of the Forest Department, and so on, even to later expeditions than that, found that the local men had the greatest terror of going into those snow regions inhabited by gods and demons. You have to go very slow with those people. If the earlier explorers had tried to force them to go with them up on to the glaciers, there would have been difficulties for subsequent travellers. Bruce, Slingsby, Meade, Kellas, and others did not, as a matter of fact, force the local people; they were particularly careful when taking natives into any place of real difficulty or danger. That policy is now bearing fruit and that policy has rendered it easier for explorers who have come afterwards to get the local men to accompany them. Fear and distrust have gradually worn off: conditions are certainly a little different now as compared with twenty-five years ago.¹

No map is perfect. And no map can ever hope to please every one who may use it. Sportsmen travelling in the Himalaya have been known to prefer the old type of Himalayan map which showed the hill features by hachures. The old Atlas sheets certainly attained a high standard of draughtsmanship and were frequently most artistic. But they are certainly not up to the standard of modern requirements, either for administration or scientific purposes. Much better maps are required, especially for the populated parts and therefore for the unpopulated parts as well, for it is not possible to change radically the system of hill representation in different parts of a map. Also there are other people to be catered for besides the 'sportsman'. The Himalaya are now in process of being explored scientifically, and for geological and geomorphological purposes a much more accurate map is required than one merely fit for valley travel or sportsmen. A good modern, scientifically constructed map should show not merely the general topography of the ground, but it should indicate also the nature of the climate that has made the ground what it is, the economic possibilities of the ground, the difficulties that the inhabitants have to contend with on the ground, and possible solutions of those difficulties. An accurate, scientifically constructed map shows these things by reason of the symbols the surveyor has used to show water features, vegetation, and other facts of geography. Our old maps did not show these things any more than did their contemporaries in Europe. Where the modern survey of the Himalaya has been carried out, as in Kashmir, this information may now be read from the map; and when our administrators are sufficiently geographically minded to realize the value of that information, and when the necessary money is available, doubtless the modern survey will be carried over the rest of the Himalaya.

A great deal of private exploration in the Himalaya has been

¹ *Geographical Journal*, vol. lxxix, p. 14.



Photo. C. E. C. Gregory

Kedarnath, 22,770 feet. Infra-red photograph from a distance of 69 miles

carried out during the last thirty years. Travellers have criticized the Survey of India for not having incorporated all this material on our maps. The difficulty is to know whose work to accept. We have known travellers who have pointed out 'errors' on a map, and who themselves have been proved wrong by subsequent travellers. See, for instance, the controversy on the Nun Kun topography in the *Geographical Journal*, vol. lvi, p. 124. Compare also the maps of the Hispar glacier by Lord Conway and the Workmans, where in many respects the earlier map of Lord Conway is better than the later one; or compare the maps of the upper Baltoro by Dr. J. J. Guillardmod who corrected the Survey of India map, and the Duke of the Abruzzi, who corrected Dr. Guillardmod's. These are but instances of common experience. It is not easy for a small department to publish new editions of the 500 maps on the quarter-inch scale and the 8,000 maps on the one-inch scale that cover India, whenever new material, covering perhaps only a small portion of a sheet, happens to be available.

'Accuracy' on a map, after all, is not an absolute quantity: it is a relative quality. In little-known parts of the Himalaya a modern mountaineer must expect to find that surveys executed perhaps seventy years ago are not up to modern standards. As time goes on surveys become more correct and maps improve. Switzerland is now being completely resurveyed by the most modern and most accurate method, stereo-photogrammetry. Travellers in that country will become accustomed to a map of very high accuracy, where every small fold in the ground is recognizable. It must be very many years before such a magnificent series of maps is available for the Himalaya, and mountaineers will therefore be all the more grateful for the splendid maps of the Kangchenjunga region which have resulted from the recent private expeditions of Professor Dyhrenfurth and Paul Bauer.

SHOOTING-GROUNDS ON THE SPITI BORDER

Lieutenant G. S. Thompson, R.H.A., sends the following notes of two visits he made, in 1929 and 1932, to the strip of Bashahr State east of the Spiti river.¹ Bharal (*ovis nahura*) is the only game animal obtainable there, but they are numerous and there are some good heads. On the outward and return journeys ibex, gooral, and black bear are obtainable. The shooting-grounds are off the beaten track and rarely shot over. The double journey from Simla and back is about 500 miles, but not expensive, and if two subalterns go together, they can manage a two-months' holiday and sport on two months' pay.

¹ Survey of India Maps 53 I and 52 L, scale 1 inch = 4 miles.

The following are some details of the route. The Hindustan-Tibet road is followed from Simla as far as the crossing of the Thanam river below Shaso, about 180 miles from Simla ($31^{\circ}45' N.$, $78^{\circ}31' E.$, Map 53 I). From this point there are two routes, by the Hangrang pass and by the Sutlej valley. Thompson took the first in 1929 and the second in 1932.

After crossing the Hangrang pass, the northern route descends to the Spiti river and crosses it by a *jhula* (a single-wire rope-bridge with slings) connecting the hamlets of Leo and Naku. The Sutlej valley route follows the Hindustan-Tibet road to its termination at Poo. Here the Sutlej river has to be crossed to the left bank, which is followed to Namgea, beyond the junction of the Spiti and Sutlej rivers. From Namgea there is a poor but practicable path across the Sutlej by a bridge below the village and a very steep climb to the hamlet of Tashigang on the south-western slopes of Leo Pargial, whence a fairly level track winds round the spur to Naku. This second route, which Thompson considers the better, is not marked on the map, which is from surveys about seventy years old. The disadvantages of the first route are that, having climbed for five hours to the top of the Hangrang pass (14,530 feet), one has to descend almost the same distance to cross the Spiti river. Also the transport of kit by the *jhula* across the river is a long and tedious performance.

There is good 'bharal ground' all along the slopes of the Leo Pargial massif from Naku northwards to the frontier of Tibet. Thompson considers the best ground to be near the borders of Tibet about 8 miles north of Chango. These are only about 25 or 30 miles from the Hanle border of Ladakh, but there is a narrow strip of Tibet intervening (Map 52 L).

Mules are the best form of transport from Simla to Poo, and, if on only two-months' leave, it is advisable to arrange beforehand to keep them for the return journey. From Poo onwards coolie transport must be used; sufficient men are usually available at each stage, but if there is difficulty in obtaining enough, a certain number are always willing to carry for several marches. *Atta* can be obtained at each stage as far as Poo, and in bulk at the latter place for the onward journey. Eggs, chickens, and milk can frequently be procured on the Hindustan-Tibet road, but in general supplies should be taken from Simla.

An 'Inner Line pass' is necessary since all the country lying east of the Spiti river in these parts is beyond the 'Inner Line'. The actual frontier of Tibet is not demarcated on the ground nor shown on the map. It is, however, well known locally and runs from a nullah some four miles north-east of Namgea on the left bank of the Sutlej, across that river to Leo Pargial, thence along the crest-line of the massif to



Photo. C. E. C. Gregory

A family party of Bharal (Ovis Nahura)

about latitude 32°N. From here it runs down to the Pare Chu just above the junction of this tributary with the Spiti river.

Lieutenant Thompson asks me to say that he will be very willing to give further information to any member who wishes to visit the country.

SHORT NOTES ON SOME 'AMMON BLOCKS' IN LADAKH

Captain C. E. C. Gregory sends the following brief notes on the *Ovis Ammon* blocks Nos. 7, 9, 10, 11, and 12. They are all situated south and south-east of Leh on the left bank of the Indus.¹

No. 7 (*Polakonka*). Captain Gregory considers this a good Ammon block for the second half of the year. The ammon from Zara and the neighbourhood of the Tagalaung pass move up into the cooler hills, known as Puthar Takta, immediately to the north of and about twenty miles from the Kar lake as well as to the vicinity of the Tsang La. Gazelle may be found round the Kar lake, but were very scarce in 1932. Excellent bharal are to be found on the hills to the west of the Kar lake and above the Polakonka pass.

No. 9 (*Gya*). This is a good summer and early spring block for ammon; in the first half of the year they may be found within five or ten miles of Gya village, and in the last half on the hills overlooking the Kiameri La, at the head of the nullah of that name. There is a spring with an excellent plot of grass on the right bank about two miles from the pass which attracts the ammon. There are also bharal on the left bank of this nullah, but Captain Gregory saw no good heads. Gazelle are absent.

No. 10 (*Zara*). Good ammon are reported in the extreme south of this block; but there is a greater likelihood of sport early in the year than later. Gregory considers it better ground for bharal than for ammon. From June to September there are large herds of *Changpa* sheep being grazed in the nullah, which drive the game elsewhere. Gazelle are occasionally found in the Zara and Rukchen nullahs, and used to be plentiful at Pongo Nago (Kar lake region). Gregory saw several good bucks there in 1929, but only one in 1932. The hills between Rukchen and the Kar lake contain very large bharal, the horns of one picked up by Gregory measuring 30½ inches.

No. 11 (*Markha*). The Markha nullah has very steep rock sides, and though possibly in a very severe winter an occasional ammon might move to the bottom of it, there is no chance of finding one in this block after the 1st April.

No. 12 (*Karnak* or *Khurna*). This block is very similar to No. 11.

¹ See Survey of India Maps 52 G and K.

It is possible that ammon come over in the middle of winter at the extreme head of the nullah, but before the season opens they have left. Neither of these last two blocks contain gazelle, and bharal are small and scarce.

THE KOHALA BRIDGE

In July 1931 traffic was interrupted on the Jhelum valley road at Kohala where the abutment of the bridge was destroyed by a landslip on the right or British side of the Jhelum. For some years anxiety had been felt owing to the formation of the rock. The destruction of the abutment caused the collapse of the first span.

A new bridge was constructed in 1932 and opened on the 1st August. The work was carried out by the bridge engineers of the North-Western Railway, in conjunction with the Public Works Department of the Punjab, and was, according to reports, completed in under four months. The bridge is designed to suit the difficult river conditions at Kohala, where landslides are of not infrequent occurrence on the right bank. A cantilever extension from the central span projects to within a few feet of that bank. Between the trestle forming the support on that bank and the extremity of the cantilever a light suspended span has been arranged, so that, in the event of displacement of the support by landslip, only the small span will be affected. This can be rapidly set right at trifling cost, thus obviating any serious dislocation of traffic.

THE CHONG KUMDAN GLACIER, 1932

I am indebted to Mr. J. P. Gunn, Executive Engineer of the Punjab Irrigation Department, for the gauge readings published below. They were received after my paper on the Chong Kumdan glacier had gone to press, but confirm the remarks made on p. 100. It is interesting to compare these readings with those of 1929.

Khalsar, 1932

<i>Date</i>	<i>Hour</i>	<i>Gauge</i>	<i>Date</i>	<i>Hour</i>	<i>Gauge</i>
9.7.32	morning	4.9	11.7.32	7 a.m.	22.0
	evening	4.9		8 "	19.0
10.7.32	(no readings)			10 "	12.0
11.7.32	3 a.m.	50.0		noon	6.0
	4 "	40.0		6 p.m.	2.3
	5 "	35.0		midnight	0.9
	6 "	26.0	12.7.32	4 a.m.	0.0

In 1929 the flood reached Khalsar about 8 a.m. on 16th August

when the gauge registered 8 feet. It rose 45 feet in about half an hour, remained at that height till 10 a.m. and then suddenly rose another 18 feet where it remained till 3 p.m. The total rise was 63 feet. It then dropped 50 feet in an hour to a gauge reading of 21 feet and continued to fall steadily till, by the morning of the 17th, the water was $9\frac{1}{2}$ feet below its original low level on the 16th.

It is unfortunate that no readings were taken on the 10th August 1932, but the rise appears to have been fairly rapid. There was, however, no sudden fall of 50 feet as in 1929, a fact which indicates a more leisurely flood passage; but on both occasions the level after the flood fell considerably below the previous low level, probably due to flood scour.

Skardu, 1932

Date	Time	Gauge	Date	Time	Gauge
9.7.32	morning	12.2	11.7.32	morning	14.5
	evening	12.4		evening	32.4
10.7.32	morning	12.8	12.7.32	morning	16.0
	evening	13.4		evening	16.5

To these figures may be added the remarks of the Tahsildar of Skardu, quoted on p. 100: 'At 14.20 hours [2.20 p.m. on 11th] water seen rising. At 18.00 hours [6 p.m.] gauge reads 32.2.' The rise was thus 17.9 feet in about 3 hours 40 minutes. In 1929 the flood reached Skardu at 8.30 p.m. on the 16th August, the gauge having registered 17 feet two hours previously. By 9 p.m. the river had risen 8 feet to a reading of 25 feet. The highest reading was 42 feet at midnight, a total rise of 25 feet in $3\frac{1}{2}$ hours. The water remained at this level for 3 hours but still stood at 35 feet at 7 a.m. on the 17th. It was thus still 18 feet above normal seven hours after attaining its maximum.

Attock

Date	Time	Gauge	Date	Time	Gauge
12.7.32	10 p.m.	902.0	13.7.32	midday	918.5
	11 "	902.0		5 p.m.	918.25
	midnight	904.5		7 "	917.6
13.7.32	1 a.m.	906.0		midnight	915.2
	2 "	907.7	14.7.32	6 a.m.	912.0
	3 "	909.5		midday	908.3
	4 "	911.5		6 p.m.	906.2
	6 "	916.0	15.7.32	6 a.m.	904.0
	8 "	917.0		8 "	903.9
	10 "	918.0		6 p.m.	903.9

In 1929 the level began to rise at 2.15 a.m. on the 18th August. It rose 16.5 feet in the first 6 hours, a further 6 feet in the next 3 hours, and another 4.5 feet by 2 p.m. The peak of 56 feet was reached at 6 p.m. the same day, giving a total rise of 28.5 feet in about 16 hours. In 1932 the peak, 918.75 was reached at 12.30 p.m. on the 13th July, giving a rise of $16\frac{3}{4}$ feet in $13\frac{1}{2}$ hours. On both occasions the fall was very gradual but regular.

[*Postscript.*]

MOUNT EVEREST FLIGHT, 1933

We offer our heartiest congratulations to the members of the Mount Everest Flight, which successfully accomplished the flight from Purnea over Nepal to Mount Everest on the 3rd April.

A selection of magnificent photographs taken by the expedition appeared in *The Times* of the 24th April and in the *Illustrated London News* of the 29th April, while there has been a good deal of Press thunder about 'the conquest of Mount Everest' and 'Nature's Last Terrestrial Secret Revealed'.

That these two statements are somewhat wide of the mark (apart from the fact that the summit is as yet still untrodden) is shown by the published photographs themselves and by comparison with existing ground surveys. As will no doubt be realized before this note is printed, 'the awe-inspiring summit of Everest as seen slightly from the north-west', shown as the first full-page picture in *The Times* supplement, is actually a view along the north-west *arête* of Makalu (27,790 ft.), some thirteen miles south-east of Mount Everest; while the illustration showing 'the amazing cliffs of black rock and terrific ice-slopes' of the 'north-east slopes of Everest, looking along the climbers' path', almost certainly shows a considerably lower mountain, possibly about 22,500 feet, between Makalu and Pethangtse, and standing at the head of the Parichokarma tributary of the Imja Khola, in which lies the Dingboche Monastery, visited by the Survey of India during the Survey of Nepal in 1926. There is no shadow of doubt that neither of these two mountains is Mount Everest, nor one and the same. The snow plume of Everest is absent and the local topography and mountain-structure are not Everest's.

The problems of identification when surveying on foot or in the air are very great, and the error of identification that has been made is perfectly intelligible under the circumstances. Fortunately a second flight was made, and it is to be hoped that when the second batch of photographs are examined they will enable us to improve the existing maps. But once more it must be asserted that until the foot of man is placed on the actual summit of Mount Everest, the problem that man has set out to solve has *not* been solved.

REVIEWS

AN ACCOUNT OF TIBET: THE TRAVELS OF IPPOLITO DESIDERI OF PISTOIA, S.J., 1712-27. Edited by FILIPPO DE FILIPPI. Introduction by C. WESSELS, S.J. *London: The Broadway Travellers: G. Routledge, 1932. 8 $\frac{3}{4}$ × 6 $\frac{3}{4}$ inches; xviii + 475 pages; photographic illustrations; general and Tibetan indexes; bibliography; notes; map. 25s.*

No less than fifty years ago Sir Clements Markham, in his *Narrative of the Mission of G. Bogle to Tibet*, announced the fact that the lost manuscript of the Jesuit missionary, Ippolito Desideri, had been rediscovered, and would probably be published before long. As a matter of fact it was not until some twenty-nine years later that the manuscript was first published, by Professor Puini, in a special limited edition for the members of the Italian Geographical Society; and until the publication by Father Wessels of his *Early Jesuit Travellers in Central Asia, 1603-1721*, in 1924, in which some seventy pages are devoted to Desideri, little was known in England of this remarkable man.

Leaving Delhi in the company of Father Emmanuel Freyre on the 24th September 1714 Father Desideri set off for Tibet. The first objective was Kashmir, whence the travellers traversed Baltistan to Ladakh. Leh was reached on the 26th June in the following year, and after a stay of two months the two men continued their arduous journey across the Tibetan uplands, finally reaching Lhasa in March 1716. This journey itself, of which here only the barest outlines can be given, if it were possible to carry it out at the present day, would be a very considerable undertaking. Carried out as it was in the early days of the eighteenth century, it entitles Desideri to an honourable place in the ranks of Himalayan explorers, although he himself would probably have been the last to make any such claim.

But this book is far more than a mere record of travel through what was at that time a difficult and dangerous country. Father Desideri spent altogether some five years in Tibet; and during this time several long periods were passed in residence in various monasteries, where he was given the unique privilege of the use of the libraries, and was permitted frequently to converse with the most learned Lamas. Such was the knowledge of the Tibetan language that he acquired that he was able to compose a book in Tibetan refuting what he considered the errors of the Lamaistic doctrine and a defence of the Catholic

religion; and it argues much for the broad-mindedness of the Tibetan clergy that his book was received with the greatest interest. 'My house', writes Desideri, 'suddenly became the scene of incessant comings and goings by all sorts of people, chiefly learned men and professors, who came from the monasteries and Universities, especially from those of Sera and Breebung, the principal ones, to apply for permission to see and read the book.'

In the meantime it had been decided in Rome that the Tibetan mission-field should be handed over to the Capucins, and Desideri accordingly left Tibet in April 1721. He travelled by the Kuti road to Nepal, reaching Kathmandu in December of the same year. After a brief stay in the valley of Nepal the journey was continued to Patna and onward through India to Madras, whence the weary traveller set sail for Europe. He died in Rome on the 14th April 1733 at the early age of 48 years.

In assessing the merits of this book it should be remembered that the author was first and foremost a religious missionary. These early Jesuit travellers were as a rule not equipped with any geographical or other scientific training for their arduous undertakings. 'Thus', writes Father Wessels, 'they must not be looked upon as geographical specialists, but as honest, level-headed men, writing of their experiences in a land of bewildering strangeness; their writings should not be perused by the light of the exacting canons of the specialist who reports for a geographical magazine or a learned society. . . . Their written accounts are often insignificant, abounding in generalities and hopelessly lacking in those points which a scientific training would have made them pick up as of first-rate importance. But even so they have their merits as every pioneer has.'

Father Desideri was a pioneer in every sense of the word. In addition to being one of the first Europeans to set foot in Tibet, he is almost certainly the first, if not the only one, to have written a book in the language of that country. He is often provokingly silent on the details of his journey, the hardships of which must have been considerable at times; but as a picture of contemporary Tibetan life his account can hardly be bettered. The description of Nepal, which is, I think, the earliest yet discovered, is unfortunately brief, more particularly so as Desideri was present in the Valley at what was probably its most interesting historical period, that is, a little before the Gurkha conquest; but here again he brings the life of the times vividly before our eyes.

A special word of praise is due to the translator of this book. I am not, of course, acquainted with the original Italian, but the English translation has been carried out in such a way that not only is one never conscious of reading a translation, but without any

trace of pedantry the spirit of early eighteenth-century English has been caught in a remarkable way.

We have had to wait fifty years for this edition of Desideri, but the delay has enabled the present editor to collate all the various manuscripts, some of which have only recently been discovered. The illustrations are excellent, as are also the bibliography and the two indexes; the notes, which are very full, are scholarly and detailed and clear up all doubtful points in the narrative. The map is quite adequate, and the whole book beautifully produced. Students of Tibetan and Nepalese affairs will find it of the very greatest interest, and members of the Himalayan Club in particular owe a debt of gratitude to Sir Filippo De Filippi for at last making this absorbing work available for English readers. It is much to be hoped that its publication will now secure for Father Desideri, whose name is barely mentioned in most English books on Tibet, the recognition his work so clearly deserves.

C. J. MORRIS.

HIMALAYA, KARAKORAM, AND EASTERN TURKISTAN (1913-14). By FILIPPO DE FILIPPI. *London: Edward Arnold & Co., 1932.* 10×8 inches; 528 pages; coloured plates and maps and numerous panoramas and other illustrations. 50s.

This sumptuous volume gives a full account, without detailed scientific results, of Sir Filippo De Filippi's expedition to Baltistan, the Karakoram, and Central Asia from August 1913 to December 1914. It was first published in Italian in 1923. The book has been most ably translated by Mrs. H. T. Lowe-Porter, and the interval has enabled Sir Filippo to add details regarding more recent post-War exploration and to include a brief chapter on his scientific results. The latter is all too short, for few Englishmen in India have a sufficient knowledge of the Italian language or sufficient leisure to study the thirteen volumes (*Relazioni Scientifiche*) containing the detailed conclusions. The main part of the book under review is written by Sir Filippo himself, but most interesting chapters are contributed by Professor Giotto Dainelli and Mr. J. A. Spranger.

The expedition contained eleven Europeans: Sir Filippo De Filippi (leader); Commander (Professor) Alberto Alessio, of the Royal Italian Navy, and Professor Giorgio Abetti (geodesists); Professor Giotto Dainelli and Olinto Marinelli (geographers and geologists); Dr. Camillo Alessandri and Marchese Venturi Ginori (meteorologists); Major Henry Wood, R.E., Survey of India, and Mr. John Alfred Spranger (geographical surveyors); Lieut. Cesare Antilli (photographer); and Giuseppe Petigax, the famous guide.

The leader, Alessio, Abetti, Dainelli, Antilli, and Petigax left Italy in 1913, landed at Bombay on August 22 and left Srinagar for Baltistan about a month later. The Zoji La was crossed on the 26th September, and Skardu, the capital of Baltistan, was reached on the 25th October, halts having been made at Dras and Tolti for geophysical and other scientific operations (Chapter II). The winter was spent with Skardu as head-quarters, two geophysical stations being made at Skardu and at Wazul Hadur, in the hills to the south, 1,800 feet below the Burji La, on the route leading to the Deosai plateau. Careful studies were also made of the Skardu basin during the winter; Ginori undertook the meteorological observations while Dainelli carried out excursions up the Shigar, Braldoh, and Basha valleys, the lower and middle Shyok, the Saltoro, and the Kondus. Few of these valleys had been visited previously by Europeans in the winter, so that Dainelli's account bristles with interest. He made a complete study of the population of the whole area, physiognomically and anthropometrically, of their origins, of the types and forms of their dwellings, and of their methods of agriculture (Chapters III and IV).

Meanwhile De Filippi was laying the foundations of the coming campaign in the Karakoram. On the 16th February the party left Skardu for Leh, which place was reached by the main caravan on the 2nd March. While this took the usual route by the Dras-Suru river and Kargil, Dainelli followed the savage gorge of the Indus, inhabited by Dards, between Tarkutta and the Chiktan valley. It is probable that much of the ground in the immediate neighbourhood of the valley had never before been traversed by Europeans, since in places it is quite impracticable in summer. At Leh the expedition was reinforced from India by the arrival of Wood, Spranger, Marinelli, and Alessandri, with two topographers of the Survey of India, Jamna Prasad and Shib Lal. Some two months were spent here reorganizing the caravan, carrying out various scientific operations, such as geophysical and meteorological observations and survey. Once more Dainelli made a series of excursions, visiting the Rupshu plateau, the upper Indus gorge, and the Panggong lake, and studying every geographical aspect of the districts visited (Chapters V to VIII).

The expedition left Leh on the 15th May, crossed the Chang La, and passed up the newly constructed road through the upper Shyok valley to the Depsang plains, on which the base depot was formed on the 2nd June at a height of 17,600 feet above sea-level. A route-survey was carried out from Leh to the Depsang where the regular survey work was commenced, a base being measured and astronomical observations made. The triangulation was connected to points

previously fixed by Survey of India observers. Alessio established another geophysical station at the depot for gravimetric purposes, and Alessandri and Ginori maintained a meteorological observatory here for two and a half months (Chapters IX, X).

De Filippi himself now led the exploration of the whole Rimo glacier and its basin, while Wood and Spranger with Shib Lal explored the head waters of the Yarkand river, and Dainelli with Marinelli explored the Depsang eastwards, crossed the head waters of the Karakash, and reached Taldat on the Lingzi-tang. They then explored the snouts of the upper Shyok glaciers, the Kumdans, and the Aktash, visited the Rimo, mainly for geological observations, crossed the main watershed into the head waters of the Yarkand river by the glacier source discovered a few days previously by both Wood's and De Filippi's parties, and returned to the depot by the main Karakoram trade-route. It is typical of the thoroughness of the expedition's work that all three parties made the important discovery of this source of the Yarkand river independently within a few days of each other, each unconscious of the other's discovery. De Filippi's party made a complete survey of all three branches of the great Rimo glacier, while Wood's, besides surveying the source of the Yarkand river mentioned above, also surveyed a large part of the main watershed (Chapters XI to XIV).

The whole expedition had been reunited at the Depsang depot for three days when, on the 16th August, the news of the outbreak of the Great War was received: 'Austria has declared war on Serbia, Russia on Austria, Germany on France and Russia; England and Italy not yet involved.' So ran the telegram; Major Wood at the same time received definite instructions to remain with the expedition, but Alessio, Antilli, and Alessandri felt it their duty to return to Europe forthwith and left for Italy the following morning. The remainder endeavoured to carry out the rest of the programme.

The party now divided up again, exploring and surveying the whole trade-route from the Karakoram pass over the Suget Dawan to Suget. Here another geophysical station was established, after which Dainelli and Marinelli left for Italy by Karghalik and Kashgar. The rest turned westwards over the Kokart Dawan to Kirghiz Jangal whence Wood followed up the gorge of the Yarkand river to complete his survey of the western tributaries, with Spranger, Petigax, and Shib Lal. Having accomplished this, Wood led his party to Kokyar and Yarkand by way of the Yangi Dawan. Meanwhile De Filippi followed down the Yarkand river, here known as the Raskam, but was prevented by the flooded state of it at this time of the year to cross and explore the Surukwat valley, Aghil pass, and Shaksgam, as had been intended. This party then made its way to

Yarkand by the Takhtakoram Dawan and Kokyar. Observations for latitude, longitude, and gravity were made at both Yarkand and Kashgar before the party finally left the latter place on the 27th October to take the caravan route by the Kizil Su and Terek Dawan to Osh and Andijan, the railhead, which was reached on the 6th November. Three days later, at the Geodetic Institute at Tashkent, the geophysical work was concluded and the party left for Europe by way of Orenburg, Samara, and Odessa (Chapters XV to XVII).

This brief summary cannot hope to do justice to the importance of the work carried out by De Filippi and his colleagues. There is not a shadow of doubt that a better organized or more comprehensively scientific expedition has never explored the Indian borderland. De Filippi alludes to the support he received from H.M. the King of Italy, from 'various private Maecenases', and from scientific academies and societies, who together contributed the sum required, about £10,000. The Government of India and the Survey of India gave their direct support by making a substantial contribution, £1,000, to general expenses and by paying all costs connected with Major Wood's detachment. Scientists may well sigh for the generosity and broad-minded outlook of pre-War days! De Filippi himself bestows unstinted praise upon his porters and upon that faithful old 'servant of Sahibs', Ghulam Rasul, 'the ablest, most upright, and companionable *caravanbashi* that ever was'. But the complete success of the enterprise was due to De Filippi's own amazing capacity for organization; every detail was thought out beforehand, every point of the programme fitted into the whole scheme, every eventuality, except the outbreak of the Great War, was allowed for.

It is only possible to remark a few points in the account given by De Filippi. The geophysical work and Dainelli's anthropometrical results have already been alluded to. The transition stage from Changpa to settled Ladakhi is extremely well described on p. 264, while the differences between the traits of Dard, Balti, Brokpa, and Ladakhi, and their detailed ethnology, are of great interest.

Dainelli expresses some surprise at the results of his winter observations of glacier snouts. At the bottom of p. 97, for instance, we read: 'I descended the Saltoro glacier and went up the Kondus to the Sherpigang glacier. Curiously enough it, too, like the Baltoro and the Chogo Lungma, was all swollen at its huge snout, as though some great force were pushing forward the gigantic stream of ice. They are all in a progressive phase.' Such activity of a great glacier snout must surely be normal in winter in these regions. Ablation in any of its many forms is almost entirely non-existent, and the 'progressive phase' noted by Dainelli, is very probably nothing more than normal seasonal winter activity. In the Karakoram region a glacier

which shows a bold swollen front in winter may exhibit great seasonal degeneration in August, owing to the intense ablation during that month. It cannot be too strongly impressed upon observers accustomed to glaciers of Alpine dimensions and in Alpine latitudes that seasonal rejuvenation and degeneration of the snout are far more marked in the Karakoram than in Europe, and that observations of a degenerate tongue in winter or of an active front in the period from mid-July to mid-September alone may be regarded as signs of periodic 'retreat' or 'advance'. The converse is not true, and many of the superficial records of observers in the past are of little value owing to the fact that the importance of seasonal variation has been insufficiently realized.

Dainelli gives a most interesting account of the construction of artificial glaciers by the Baltis, p. 256: 'When there is a delta which cannot be cultivated for lack of permanent water supply, they study the topographical conditions of the side valley, and if these are favourable, they will labour patiently for many years to construct, quite high up and in a sheltered spot, a huge system of refrigeration, by means of which the winter snows do not melt rapidly in the spring, but only by degrees during the summer and autumn up to the next snowfall. I have known of several of these artificial glaciers which have been working for the past forty years.' Here the Balti is greatly assisted by his climate. The winter snowfalls on the higher hills are late and often occur well into April and even May, after which a period of extremely dry weather with very cold nights prevents any considerable thaw until July; spring and autumn are almost absent and their places are taken by an extension of winter, not of summer, so that the period of storing and refrigeration may last eight or nine months of the year.

On p. 279 De Filippi, after discussing the merits of the various alternatives for the route between Leh and the Karakoram pass, remarks that the Government of India in 1909 decided to construct the new road by the Chang La and upper Shyok to take the place of the old one by the Saser; on p. 294 in a footnote he alludes to various travellers having taken the Saser route since the War. The reason for this is, of course, because the Shyok route was not a success and was abandoned owing to the preference shown both by the traders themselves and the Nubra population for the Nubra-Saser-La route. A new alignment of this route has been made since the War in certain places and is now regularly taken by all summer caravans. The upper Shyok valley bed is taken in winter, but the road travelled by De Filippi has now been completely destroyed by the Chong Kumdan floods of recent years.

De Filippi thus describes the view from the Depsang, p. 308: 'The

panorama is divided into two distinct parts, one quite different from the other. On the north and east there is an arc of bare hills and mountains almost entirely without snow, dull-coloured, reddish or black, with a few towering conical peaks. These give place abruptly on the south to glacier-laden massifs, followed on the west by lofty ranges dazzling with snow and glaciers.' On p. 352 Dainelli describes his first view from the Depsang: 'We stood about 17,500 feet above the sea, on a level plain of sand and small pebbles. A few crests of bare rock rose up eastwards, in the direction of the great Tibetan plateaux. Towards the west we saw great snowy peaks, the beginning of the Karakoram range. We were on the border between two different worlds.' And further, on p. 356, when crossing the Chip-chap watershed, east of the Karakoram pass: 'At a certain point we saw water bubbling up among the pebbles, flowing in the direction in which we were going. In other words, we had crossed the watershed; we had passed from one hydrographical basin into another. And this is, indeed, characteristic of the chief valleys of these Tibetan plateaux that they do not have their origin in a mountain crest, a saddle, or a rocky pass, but in an alluvial plain. . . . How many times afterwards did we stop and discuss whether we had, or had not, crossed a watershed!'

De Filippi refers to the alignment of the main Karakoram range on p. 417 and footnote, wherein he states that the Karakoram pass lies on an eastern prolongation of the Aghil range. The above quotations indicate the abrupt change in structure, climatic régime, topography, and every other physical feature beyond the Saser pass. In view of such definite views and observations, it surely is no longer possible to maintain the old ideas of the axis of the Karakoram range across these plateaux, and it would be in the interests of geographical science if geographers would accept the fact noted by all recent observers that the main axis of the Karakoram system (the Muztagh range) follows the Nubra-Shyok watershed.

On p. 392 De Filippi adds a footnote suggesting a connexion between the relics found in 1914 by Wood's party in Valley 'J', and the corpse found by Captain Cave and Major Clifford of my expedition in 1926. Any such connexion is ruled out by the fact that the Balti we found must have died subsequent to 1918, as proved by the date of a rupee found on his person.

On p. 445 De Filippi thus describes the junction of the Surukwat valley with the Raskam Darya (Yarkand river), near Bazar Dara: 'More than 3,000 feet below us the Raskam Daria glittered at the bottom of a deep abyss between tremendous cliffs of black rock. But our attention was at once drawn to the Aghil range, vast, impressive, glacier-covered. Certainly it showed us few of its peaks,

and those not the highest, which were wrapped in storm-clouds. At its base two spurs embrace a wide opening on which two valleys converge, the Surkwat, which comes down from the east, and another facing it, which leads to the Aghil pass. The two join here for a short stretch, before flowing into the Raskam Daria.' There is still a most interesting piece of exploration and survey to be carried out here. When we reached our lowest point, about 13,200 feet above sea-level, in the Zug-Shaksgam in 1926, it appeared that the valley we were in was bending westwards, and for various reasons I believed that it eventually joined the Shaksgam below the Durbin Jangal of Sir Francis Younghusband (1889). From the height shown on Major Wood's map, 12,550 feet, of the junction alluded to by Sir Filippo and from the form-lines shown to indicate the lie of the country, it seems that this conclusion is correct. But it is just conceivable that our Zug-Shaksgam *may* turn north into a nearly level trough to join the Raskam by the Surukwat. This exploration should not be impossible to carry out from Yarkand in winter with careful preparation.

The whole account is worthy of the undertaking and is of intense interest especially to all who have travelled in Baltistan and Ladakh. De Filippi has collected a mass of valuable material with scholarly precision not only on the spot but from every available historical source. The bibliographical index at the end is wonderfully complete and the acknowledgements are more than generous. The chapters contributed by Dainelli are of outstanding interest, and the beautiful coloured plates and panoramas show the brilliance of the atmosphere and the dazzling whiteness of the landscape. It is, however, a great pity that so many half-tone illustrations have been included in the text. Unless the text is printed on the finest art paper throughout, it is almost impossible to reproduce half-tone illustrations satisfactorily, and such expensive paper would undoubtedly have added greatly to the cost. As it is, these text illustrations, though valuable, do not give a true impression of the country; to mention two examples, the 'Upper Circus of the Rimu Glacier' and the 'Saddle leading to the Siachen', on pp. 342 and 343, look more like a disgusting thaw in a London fog than the high reaches of a virgin glacier. The truth may be seen if these are compared with the panoramas in the pocket at the end of the volume. Our whole sympathies are with Antilli, whose magnificent photographs deserved a better fate. It only remains to add that this record bears witness to the wise expenditure of the funds entrusted to Sir Filippo, and to acknowledge once more the debt that subsequent expeditions to the Karakoram owe to his thoroughness.

KAMET CONQUERED. By F. S. SMYTHE. London: Victor Gollancz, 1932. 9×6 inches; 419 pages; 48 plates; maps. 16s.

It is easy to say that siege warfare has superseded rush tactics in high Himalayan climbing and revolutionized our methods of attack, for the statement is already a platitude. It is not so easy to put the new theory into practice, but this is what Mr. Smythe has done, and this book is a fine record of a very complete achievement by him and his party. What his modesty has omitted to stress is that to organize siege operations on a big Himalayan peak is more difficult than to make the old-fashioned dashing raid upon a mountain. Modern procedure is different now that the Everest expeditions have shown the way. To be successful in the modern way requires a bigger commissariat with a bigger force of human transport to carry and consume the loads. This involves more elaborate and careful organization, and the whole programme is more difficult to execute. Moreover, although the rush tactics may put a more violent strain on the human frame, the wear and tear of siege methods is more trying to powers of endurance. Mr. Smythe and his party are to be congratulated on their success in carrying out the new principles, and the expedition described in this book might well serve as a model, for it went without a hitch, the organization was perfect, and even the weather seemed willing to co-operate.

Yet the author of *Kamet Conquered* is not merely an organizer and climber, for he realized that he must approach his great objective with the humility of a pilgrim. He says of the Himalaya: 'Respect their beauty, their majesty, and their power and they will treat you as you deserve; approach them ignorantly or in a spirit of bravado and they will destroy you. Other mountains forgive mistakes, but not the Himalaya.' As he writes later, 'he has felt that strange exaltation and mystification that comes to some in the presence of great mountains', and in the sublime Hindu text which he quotes there is a mystical answer for those who seek to learn the essential secret in the enchantment of the hills. Perhaps it can hardly be quoted too often: 'He who thinks of Himachal, though he should not behold him, is greater than he who performs all worship in Kashi [Benares]. And he who thinks of Himachal shall have pardon for all sins, and all things that die on Himachal and all things that in dying think of his snows are freed from sin. In a hundred ages of the Gods I could not tell thee of the glories of Himachal where Siva lived and where the Ganges falls from the foot of Vishnu like the slender thread of the lotus flower.'

Not the least remarkable of the achievements of the Smythe expedition is the fact that, although consisting of six Europeans well equipped

for high climbing, they managed to get along with only seventy coolies. This must have been due to the excellence of their Dotial porters each of whom carried 80 lb., a quite exceptional weight, for normally with fast travelling the average load should not be much more than 40 lb. For the work at altitudes Darjeeling men were employed, but Mr. Smythe also formed a high opinion of the local Bhotias of Niti and Mana. He says of them: 'Given the same opportunities as Darjeeling men they would . . . develop into even finer mountaineers, finer at all events in that they would not be cursed on a mountain with unnecessary superstition.'

A curious feature of the early attacks on Kamet from the west and north was the failure of the assailants to realize what Pocock of the Indian Survey pointed out, namely that the immense peak of Eastern Ibi Gamin cut them off from their goal. An interesting account of all these previous attempts on Kamet is given at the beginning of the book.

The climatic conditions of British Garhwal are different from those of Everest; the climber meets with other friends and other enemies. On Kamet the wind seems to be rarely if ever formidable, while the sun can be overwhelmingly oppressive. Yet the temperature has been known to fall at night to 20 degrees below zero inside the tents, so that it is well that the air should generally be calm. Evaporation, too, is not so great as on Everest, and the climber on Kamet may have to wade through soft snow and at great altitudes nothing is more exhausting than this.

As the attack on the great mountain developed, the climbers began to fear that the fine weather might fail them and so they rightly yielded to the temptation of pressing on the final stages of the attack, but in so doing they cut short the process of acclimatization which had been working so satisfactorily. This speeding up of the programme probably aggravated their sufferings during the last phase of the siege. Mr. Smythe writes: 'Even the effort of rising to our feet served like the touch of a foot on the sensitive throttle of a powerful racing-car, to set the machinery of heart and lungs pounding furiously.' The last 1,500 feet were accomplished at the rate of 200 feet an hour, perhaps eight times as slowly as one walks uphill in England, but abominable snow conditions had been partly the cause of this slow progress. The tremendous moment of the view from the top could only be enjoyed with faculties clouded by exhaustion and harassed by the cruel necessity of manipulating the camera. An interesting speculation is whether it was possible, as some of the party suggested, that the mountains on the far north-west horizon were the Karakoram, distant more than 250 miles. I believe that Kilimanjaro was once sighted from a ship at sea, when 300 miles off,

but this startling vision is said to have been due to reflection by mirage. It would be interesting to know whether any part of the earth's surface has ever been identified at anything like such an enormous distance.

It must have been almost a relief to the climbers when they withdrew from Kamet with their great task accomplished. After the strain of the all-absorbing conflict with the great peak the exploration of minor peaks and passes must have seemed a mere holiday. Yet even this sort of Himalayan work, if carried on for weeks, makes a care-worn mark on the temperament, and it is only when the travellers have descended to more normal levels that any overwhelming regret at leaving the mountains can be felt. However, if only the party is not too long at the high camps, this business of discovering passes and minor peaks is the most fascinating form of Himalayan mountaineering. The climber who cares only for capturing a big peak necessarily knows exactly where he will get to if he is successful, for the top is a blatantly obvious goal. On the other hand, the explorer of passes is often shielded from the commonplace certainty of knowing where he is likely to come out. In Garhwal, for instance, he cannot tell whether he will be deflected back into his own valley, or lured into the wilds of Tibet, or find himself admitted unexpectedly into the secret high recesses of the immense and unexplored Gangotri glacier. As Mr. Smythe remarks, this glacier may quite possibly turn out to be the biggest Himalayan ice-field east of the Karakoram. It is such uncertainties as these that give mountaineering a thrill which is absent from the infinitely more toilsome and perhaps more tensely exciting task of besieging a big peak.

The mountains to which the expedition now proceeded were the ranges surrounding the various sources of the Ganges. Mr. Smythe describes the sacred river where, under the name of Alaknanda, it emerges from the combined snouts of the Bhagat-Kharak and Satopanth glaciers. The true source of the Alaknanda is no doubt here, but the book omits to mention that 'the slender thread of the lotus flower' does actually and unmistakably 'fall from the foot of Vishnu', for it is only a few miles down the same valley that a tributary, a prodigious jet of water, shoots out horizontally from a glacier hidden far up in the recesses of a mighty precipice and falls hundreds of feet through the air. The foot of this astonishing fall is frequented by worshippers, and for all pilgrims this is the sacred source of the river.¹

The expedition also visited the Arwa valley and thoroughly

¹ This fall resembles the waterfall above Bergli, the sensationally situated hamlet in the Vispthal, but the fall in the Alaknanda valley is on the Himalayan scale, and dwarfs its European rival.

explored the watershed of two more sources of the Ganges. Peaks were climbed from here and passes leading over into the great Gangotri glacier system were discovered and crossed.

Excellent photographs by the author accompany the book and appendices in which Dr. Greene writes as a specialist on the medical aspects of high climbing and suggests a new treatment; Mr. Holdsworth in a fascinating description of the flowers considers the ratio of altitude between Garhwal and the Alps to be as 2 to 1, and consequently infers that as Alpine plants from European altitudes between 7,000 and 10,000 feet are grown at home successfully, gardeners should not find it more difficult to grow Central Himalayan plants from levels between 14,000 and 18,000 feet.

In conclusion, it is to be noted by those who come after that there are several streams that can claim to be called the Ganges and that the problems in the considerable area of their watersheds have been by no means completely solved. The predecessors of the Smythe expedition crossed the actual crests of the passes from the Satopanth and Bhagat-Kharak glaciers, but returned by the same routes and in neither case continued downwards for more than a few hundred yards along the apparently easy reaches of the glaciers leading presumably to Kedarnath and Gangotri respectively. Even when the Smythe expedition crossed from the head of the Arwa valley time did not allow of continuing down the newly discovered glacier system on which they found themselves, but they made a round and crossed back again into the Arwa valley by means of another new pass. High-level journeys completely uniting Mana with Kedarnath and Gangotri have never been recorded. The fulfilment of these adventures will be the privilege of those who come after.

C. F. MEADE.

UM DEN KANTSCH: DER ZWEITE DEUTSCHE ANGRIFF AUF DEN KANGCHENDZÖNGA, 1931.¹ By PAUL BAUER. *Munich: Knorr und Hirth, 1933.* 9×6 inches; pp. 191 + 72 illustrations, 2 panoramas, and a map. 12 R.M.

The story of Herr Bauer's 1929 attempt on Kangchenjunga as told in the *Alpine Journal*² has been incorporated into *Great Travel Stories of all Nations*.³ His book, relating the same adventure,⁴ is long out of print after undergoing many editions. All these facts indicate that a magnificent expedition has been commemorated worthily by

¹ Published by courtesy of the editor of the *Alpine Journal*.

² *Alpine Journal*, xlii. 185-202; *Himalayan Journal*, ii. 13-20.

³ Edited by Elizabeth D'Oyley (pp. 893-905). London: Harrap, 1932.

⁴ *Im Kampf um den Himalaja*. Munich: Knorr und Hirth, 1929. Reviewed in *Himalayan Journal*, iii. 136.

its leader. In *Um den Kantsch*, Herr Bauer gives us the narrative of his last equally gallant but even more unlucky attempt. I use the word 'unlucky' purposely. The expedition gained a height of over 26,000 feet and then with all the serious difficulties overcome, within 1,800 yards horizontally and 2,000 feet vertically of the summit, saw their hopes dashed to the ground by a wretched patch of bad snow resting on ice only a very few score of feet in height. The fact that this great party was wise and brave enough to retreat has proved how well they understood and respected the ethics of mountaineering. Their members' fame is sealed for ever.

Reading between the lines of the story of 1931, we realize at once in a self-effacing narrative why 'the soldiers of the 10th Legion were devoted to Caesar'. Sahibs, porters, whether belonging to high altitude parties or to L. of C., seem to have had no idea for personal comfort, providing their efforts could bring the advance nearer the goal. The start from Darjeeling was encouraging, Sherpas and Bhutias from all parts poured in as anxious recruits and, if a short hold-up did occur, this was due to prior events in no way connected with Bauer's party (pp. 15-16). Peace was restored quickly, and these first pages of the book form a touching memorial to the relations of Sahibs and porters throughout. Several Sherpas and Bhutias have died since, including Herr Bauer's personal porter, Gami, one of three heroes who fought it out high up with their Sahibs to the bitter end.

I have no intention of making a précis of this deeply interesting volume: those absorbed in mountaineering and daring adventure will read the story for themselves. But I will add that no one, whatever Herr Bauer may have published elsewhere in Alpine periodicals, can have realized hitherto how terrible and tremendous is an attack on Kangchenjunga pushed right home. And yet the north-east spur is declared generally to be the only feasible route! Two solid months anchored to a knife-edged and be-pinnacled ridge; never a single step to be taken lightly, never a moment of relaxation of tension, and with the ever-present peril of the inevitable Kangchenjunga tempests. A truly glorious adventure and undergone for the second time by many of the party, amateur and professional. The story of the accident (pp. 40-51)—and never was disaster more truly an 'accident'—is among the best-written chapters in the book. No one can read it unmoved: Bauer's unaccountable forebodings, the sick men racked with fever yet striving to find reliefs, the burial in the rocky islet of the Zemu (see the fine illustration facing p. 96), and lastly, prompted by Hermann Schaller's previous words, the great resolve to continue the attack. True, and no wonder, many porters had reached the breaking point; fully half the Europeans were down with chills and

malaria, but the remainder of all ranks—the survivors of the fittest—still push on. And all this happening *before* the party had attacked the crest! Soldier-volunteer of 1914, Ober Leutnant of the Somme, lying helpless and wounded by his dying Commander, Bauer proved himself a worthy leader on yet another stricken field.

Pushing over the ice pinnacles—in the literal sense of the word—hacking a gutter-like track through cornice and snowy slab, after weeks of crushing toil, Allwein and Wien on the 18th September attain their highest point (7,940–8,000 m. = *c.* 26,200 feet), just below the main north arête. The attack on the mountain proper had lasted since the 14th July. Exhausted, defeated—not knowing their leader breathless, without blankets and alone in a lower camp—but undaunted, they retire. The three splendid porters, Gami, Pemba, and Keddar, had reached the highest camp, XI.

Of the retreat there is little to say. Storms such as nearly overwhelmed the party in 1929 were due, but Providence proved merciful. The weather held up while the weakened, crippled mountaineers, the machine-gunners of November 1918, fought downwards slowly but surely as ever. On the 30th September the long-drawn agony was over.

The diary and appendix contain the movements of the now widely-separated members. Some visit the Tibetan border, others the Simvu Saddle and the unknown Passanram glacier and glen.¹ One, Wien, to the great benefit of Himalayan cartography, surveyed the Zemu glacier neighbourhood. The narrative of these explorations is not the least valuable in the book.

Of the appearance and general get-up of the book it would be difficult to speak too highly. The print (Roman) is excellent and the illustrations simply magnificent: the student or expert must seek the best out for himself. I should like to add how much British readers will appreciate Herr Bauer's graceful concession in the matter of reversion to British spelling of place-names (p. 21, footnote). The title of the book is, as the author points out, a concession to popular journalism!

As for the map in three colours, 'Karte des Zemu-Gletschers', on a scale of 1:33,333 (50 m. contours), a scale to be adopted very probably by the Federal Topographical Bureau for the future great map of Switzerland, it will be sufficient to quote the words of a distinguished Himalayan explorer and surveyor: 'It is a landmark in Himalayan cartography. Its excellence is due to the method of ground stereo-photogrammetry, in which the Continentals are some ten years ahead of our people, owing solely to the conservatism and obstinacy of our own surveyors. I wish Finsterwalder could have

¹ See also Dr. Allwein's account in this volume, p. 58.

seen his way not to put the contour values on some of the glaciers upside down, but apparently it is the German practice to put the values the right way up for a man *ascending* the glacier. But in one place at least, he has the contour value upside down on the map and also to the man ascending the glacier! However, this is a minor point in a very excellent production.'

In wishing this book the success it deserves and assuredly will command, I can add that student-mountaineers are certain to follow the reviewer's example, and read the volume through at one sitting.

E. L. S.

KASHMIR: THE SWITZERLAND OF INDIA. By DERMOT NORRIS. *Calcutta: W. Newman & Co., 1932. 7½ × 5 inches; 268 pages; illustrations and maps. Rs. 10.*

This is a handbook of information for the guidance, primarily, of those unacquainted with Kashmir, or for those who have some experience of the pleasures Kashmir can offer and wish to venture somewhat farther afield.

The author has obviously much practical experience and knows the ropes well on these more accessible pleasure-grounds with which he deals. Without being wearisome in description or tedious in detail, he passes on the benefit of much sound common-sense observation, which should enable the tourist, or the man on leave, to plan a very happy and economical holiday in Kashmir.

Apart from the less strenuous but very enjoyable summer holiday in and about the main valley, and the treks to Ladakh and Baltistan, the long and thorough chapter for the winter-sports enthusiast should be most helpful, and the information on shooting and fishing must be of great assistance to the stranger to Kashmir. The advice on servants, houseboats, camp equipment, and stores is all adequate and sound; it will be especially appreciated by the man of modest means, as the author in no way caters for the over-indulgent.

With the exception of a few small and immaterial details, such as a reference to ski-ing at Gilgit, which he may be confusing with Chitral, his information is very accurate.

There are some good photographs, and in the appendices will be found summaries of the State rules for visitors, and of the shooting and fishing regulations, whilst a bibliography is provided for the visitor who may wish to know more of Kashmir, its history, and its peoples. There are more exhaustive and more studious guides to Kashmir, but this little volume should be very useful to the many who seek quiet repose or energetic relaxation in this beautiful and fascinating country.

H. TODD.

SIMLA TO MUSSOORIE OVER THE HILLS. By MAJOR C. DAVENPORT. *Calcutta: W. Newman & Co. 7 × 4½ inches; 31 pages. Rs. 2.*

This neat little guide-book should prove useful to an inexperienced traveller contemplating the short hill journey between Mussoorie and Simla. Major Davenport gives hints for the journey and details of the route.

K. M.

ON ANCIENT CENTRAL-ASIAN TRACKS. By SIR AUREL STEIN, K.C.I.E. *London: Macmillan & Co. Ltd., 1932. 9 × 6½ inches; 342 pages, numerous half-tone and coloured illustrations, panoramas, and maps. 31s. 6d.*

This beautifully illustrated and comprehensive account of Sir Aurel Stein's geographical and archaeological explorations in Central Asia was published after the *Himalayan Journal* had gone to press. A detailed review will appear in vol. vi, 1934. All that can be said here is that the volume has been magnificently produced and the colour plates, illustrating some of the archaeological treasures of Sir Aurel's expeditions, are the finest I have ever seen. They are by Messrs. Henry Stone of Banbury.

K. M.

CORRESPONDENCE

A FRONTIER TOUR

To the Editor,
The Himalayan Journal.

DEAR SIR,

I have read with much pleasure Colonel Gannon's graphic account of Lord Rawlinson's remarkably energetic journey through Dir, Chitral, and the Gilgit Agency in 1923, but I cannot resist inviting attention to a few omissions and inaccuracies with regard, especially, to the fighting at the village of Reshun in 1895 (*Himalayan Journal*, vol. iv, p. 76).

The second British officer was Lieutenant Fowler, R.E. (now Lieut.-General Sir John Fowler, Colonel Commandant of the Royal Corps of Signals); and in view of his exceptionally gallant conduct during the retirement from the cliffs opposite Parpish, when he brought in a wounded sepoy on his pony, although wounded himself, and in view of his subsequent gallant leading of sorties down to the river for water, it seems a pity that his name should not be remembered.

I would also point out that fighting continued from the morning of the 7th to the morning of the 13th March, when the enemy hoisted a flag of truce, and not only for three days, as mentioned by Colonel Gannon. Edwardes and Fowler were treacherously made prisoners on the 15th March. After their seizure the enemy rushed the house which they had been defending and killed all the survivors of their detachment with the exception of about twelve, nine of whom were Muhammadans. The detachment consisted of forty Dogras and Gurkhas of the Ragonath Regiment of Kashmir Imperial Service Infantry, under Subadar Dhurm Singh, and twenty Bengal Sappers and Miners.

Edwardes and Fowler were taken to Umra Khan (the Khan of Jandol) at Drosh. There were, of course, no British at Drosh at that time. Eventually the two officers were handed over by Umra Khan to Sir Robert Low's force between the 12th and 16th April, after a captivity lasting over four weeks.

On p. 78 of the *Journal*, *Buni Zun* should read *Buni Zom*, the word *Zom* meaning 'mountain' in Khowar.

I never heard of any house at Chitral called after Hayward's name (p. 87), although I lived there for several years as Assistant Political Agent. Further, Sir Francis Younghusband told me quite re-

cently that Hayward was travelling independently and had no connexion either with the Government of India or the Royal Geographical Society.

Yours faithfully,
B. E. M. GURDON.

HEATHERFIELD,
WARREN ROAD,
CROWBOROUGH,
SUSSEX.

15th July 1932.

SUB-HIMALAYAN DIETETICS

*To the Editor,
The Himalayan Journal.*

DEAR SIR,

In connexion with Dr. Strickland's paper on Sub-Himalayan Dietetics, the following note, which refers to the incident mentioned by Mr. Dundas in that paper, *H.J.*, iv, p. 98, may be of interest.

In December 1911 I was in Political charge of a column camped at Nizamghat on the Dibang river; we were engaged in crossing the river on rough Mishmi rafts, an operation which took two or three days. Our transport consisted of Rengma Naga coolies. These men found an edible bug which they recognized as a welcome addition to their rations, and they collected large numbers of them from under the stones on the river bank. The local Mishmis warned them that, unless they removed a portion of the bug, those who ate it would be poisoned. The Nagas refused to believe this as they said that they knew the insect well in their own country.

In the early morning of the day on which we proposed to start, our doctor, Dr. Cornelius, was called to see a Naga who was said to be very ill. Shortly afterwards, as the coolies were parading, several cases occurred of men falling down in the line. This was clearly due to some kind of poisoning and, as I had no idea how many cases might occur and could not run risks once we had left the shelter of the Nizamghat stockade, I postponed the start for a day. In all eleven cases were dealt with; there were no deaths.

Dr. Cornelius made a detailed report in which, among other symptoms, he says: 'Then follows distinct rigors resembling a typical attack of ague and these keep on till they emerge with general paralysis of all limbs. There is no fever and the men are perfectly conscious all the while, though they cannot answer questions.'

Specimens of the bug were sent to the Indian Museum and were

identified as *Aspongopus nepalensis* Westwood, as mentioned by Dr. Strickland.

THE RESIDENCY,
SRINAGAR, KASHMIR,
3rd August 1932.

Yours faithfully,
F. M. BAILEY.

*To the Editor,
The Himalayan Journal.*

DEAR SIR,

Dr. Strickland's article on Sub-Himalayan Dietetics (*Himalayan Journal*, vol. iv, p. 96), supplemented by Mr. Furze's observations in Assam, touched a chord in my memory. So I looked up *The Mishmee Hills* by T. T. Cooper, published in 1873. There I read the following: 'In the evening when we camped at the Bramapootra, some of the men collected a number of edible beetles. These little insects, which are a species of water-beetle, are found in immense numbers during the cold weather in the dry shingly bed of the Upper Bramapootra. They are about the size of a finger-nail, with bronzed wing-shields, and when handled exude a liquid resembling walnut juice, of a strong but not unpleasant odour. The Khamtees seemed to consider them a great delicacy when boiled, and for several days the odour of the beetles seemed to impregnate their bodies, to their intense satisfaction.'

Perhaps it would be frivolous after that to suggest that perhaps these bugs have an aphrodisiacal effect! It may be noted that Mr. Cooper's 'beetles' behaved just like other bugs when handled; they exuded a pungent juice. Prince Henry of Orleans, who did not miss much on his journey across the head waters of the Irrawaddy in 1895, tells us nothing about bug-eating (*Tonkin to India*); but then he crossed that country in the rainy season, when the river-beds were full. So I might add that I saw Kachin women, south of Fort Hertz, turning over the stones in the river-bed during the low-water season and collecting these creatures. They are said to fry them in oil; but I am unable to give any of the circumstantial details furnished by Mr. Furze. I believe I sent specimens to the Natural History Museum in 1927; and I have no doubt that my specimens from Burma 'rejoice'—if it is a matter for rejoicing—in the same generic name as those of Dr. Strickland.

The only other observation I would make is that it is passing strange that they are not exported in bulk to China, that home of exotic delicacies, though I seem to remember my Panthay muleteers eating them.

HARLINGTON, MIDDLESEX.
18th November 1932.

Yours faithfully,
F. KINGDON WARD.

To the Editor,
The Himalayan Journal.

DEAR SIR,

I have read with much interest the article on Sub-Himalayan Dietetics in vol. iv of the *Himalayan Journal*; I fear that I missed my chances of sampling the Hemipterine delicacies specially referred to in Dr. Strickland's paper. But I well remember an incident in a meal while I was on trek with my friend J. H. Hutton in the Naga Hills in 1922. We had reached the village of Kerami, in the Kalyo-Kengyu country, and the *gaonbura* had brought us a present of chicken and eggs, and also a huge honeycomb of a very large species of Hornet (*Vespa magnifera*). The latter aroused my zoological interest. Every cell was occupied by a great fat maggot, or grub, about an inch and a half long. They were all wriggling and squirming and exhibiting the characteristic peristaltic action, which may intrigue the student of larval economics, but to the gastrologist is decidedly unappetizing.

The honeycomb and its contents were transferred to the comisariat department of the Naga staff and were received with unfeigned delight as a most welcome luxury. Hutton and I dismissed them from our minds. But while we were having our evening meal, Nihu, the Angami *dobashi*, appeared and offered us rather ceremoniously a plateful of these very maggots which had been boiled. Their appearance had not been improved by this treatment, and it would be difficult to imagine a more unsavoury-looking dish—a sodden mass of flabby, squashy, dirty-white objects. Hutton at once said that he never had and never would eat the things; and I was much tempted to shelter myself behind his refusal. But I was anxious to avoid hurting Nihu's feelings, since he was paying us a compliment by proffering the 'delicacy'. So I said to Hutton, 'Look here, if *you* will, *I* will.'

The challenge committed us both. With very wry faces, expressive of intense disgust and repugnance, we each took one of the grubs, pulled off the tough skin and put the contents into our mouths. Transformation scene! It was amusing to see the change of expression on each other's face. The scowl of disgust gave place to the grin of reassurance, as we realized that the thing wasn't half bad, tasting, in fact, just like honey.

Later I encountered this native delicacy in other villages and did not hesitate to accept the gift. I have never dared to eat the queen white-ant, so popular amongst African natives, and I feel now that perhaps I have missed something palatable; while locusts, flying-ants, and the dried black caterpillars, which I have seen sold in the

Nigerian markets, may, for aught I know, be worthy of a place on the menu at the Ritz—but wood-bugs and other Hemiptera, no! Olfactory experience of such-like induces altruism, and I leave them to you, partner.

Yours sincerely,
HENRY BALFOUR.

LANGLEY LODGE,
HEADINGTON HILL,
OXFORD.
28th Nov. 1932.

[In the words of the American President, 'This is not my baby'. I pass it on to Dr. Strickland, the medical zoologist of the Himalayan Club. Members will no doubt be glad to hear from him what an *Aspongopus nepalensis* 'with a spirit' tastes like.—Ed.]

CLUB PROCEEDINGS

THE ANNUAL GENERAL MEETING OF THE HIMALAYAN CLUB was held at New Delhi at 9.30 a.m. on Friday the 24th February 1933. General Sir Kenneth Wigram took the Chair.

The Report of the Honorary Secretary, Major-General W. L. O. Twiss, which is printed below, was read and adopted. The Club accounts for the year 1932, which are being circulated to members, were confirmed. The Officers, Members of the Committee, and Additional Members of the Balloting Committee for 1933 were elected, and Messrs. A. F. Ferguson & Co. were reappointed Auditors to the Club. Details of other business transacted will be found on page 162.

REPORT ON THE WORK OF THE CLUB IN THE YEAR 1932

By the Honorary Secretary

Membership.—During 1932, 22 new members were elected to the Club: there were 11 resignations and 2 deaths. The membership of the Club has now risen to 349.

Two lady members were enrolled, bringing up the total to three. It does not seem to be generally known that ladies are eligible for membership under the same conditions as men.

Obituary.—In August a very sad accident occurred on Panjtarni, near Pahlgam, Kashmir, which resulted in the death of Lieut.-Colonel C. F. Stoehr, R.E., and Lieutenant D. M. Burn, R.E. I will say no more here of this tragic occurrence, as obituary notices on these two officers, who were among the keenest members of the Club, are published elsewhere in this *Journal*, together with a report of the accident. On behalf of the Club and after consultation with General Sir Kenneth Wigram, Vice-President, and Colonel H. L. Haughton, Treasurer, I sent a cheque for Rs. 150 to defray the expenses connected with the rescue operations, that had been so promptly and ably conducted by Major K. C. Hadow. This action has since been unanimously approved by the Committee of the Club.

Although it happened in January 1933, and therefore not actually during the year under report, I cannot refrain from alluding to the death of Wing-Commander C. C. Durston, who was killed by a buffalo on the 11th January, when on a shooting expedition in the Central Provinces. 'Daddy' Durston was one of the finest characters I have ever met, and I am proud to have been able to number him among my friends. He was a keen sportsman, an airman of great

experience, and a very gallant gentleman, who was universally popular. By his death very many of us have lost a valued friend, the Royal Air Force one of their best officers, and the Himalayan Club one of their keenest members. He was most anxious to join the 1933 Mount Everest Expedition, and it was a great disappointment to him not to have been selected to take part in it. I had intended to propose him this year as one of the Vice-Presidents of the Club.

Expeditions.—Among the expeditions of 1932, I must first record the tragedy on Panjtarni in Kashmir on the 12th August. As stated above, a full report of the accident, as far as is known, is being published in the *Himalayan Journal*.

The year saw a determined attack on the great western summit of the Great Himalaya, Mount Nanga Parbat, by a combined German-American party of mountaineers under the leadership of Dr. Merkl of Munich. This party, which included an American lady, Miss Elizabeth Knowlton of Boston, was joined at Astor by Lieutenant R. N. Frier, of the Gilgit Scouts, who acted as transport officer, and was of the greatest assistance to the expedition. Repeated efforts were made to reach the north-east side of the plateau near the summit, by means of the upper Buldar-Rakiot ridge, and considerable experience was gained of the difficulties to be encountered before success will be possible. Avalanches were active and these to some extent contributed to the ultimate failure to reach the summit, for much of the equipment was lost and the morale of the porters was lowered. Ice-caves, found to be of the utmost value on Kangchenjunga, were not suitable on Nanga Parbat, and only two porters could be persuaded to go as high as Camp 6 (21,650 feet). Rakiot Peak (23,170 feet), was climbed on the 16th July by Herren Aschenbrenner and Kunigk, but the weather finally broke up on the 19th July and, though several determined attempts were made during August, culminating in a last desperate venture by Merkl, Herron, and Weissner on the 28th August, sickness and bad weather brought the gallant enterprise to a close, leaving the great mountain still unconquered.

An account of this expedition with photographs and a sketch-map is being published in the *Journal*.

On the way home, a most regrettable accident happened in Egypt. Rand Herron, a young American, and the only American of the party besides Miss Knowlton, was killed whilst climbing one of the Pyramids. It is feared that this sad occurrence may mean abandonment of the plan formed by the members of the expedition before leaving India, to return to the attack on Nanga Parbat in 1933.

Another expedition of considerable interest was the reconnaissance carried out by Mr. Hugh Rutledge on the south-eastern flanks of the great circular curtain of Nanda Devi. Further details of this expedition will be found in the *Himalayan Journal*.

Dr. de Terra, who accompanied Dr. Emil Trinkler, on the latter's journey to Eastern Ladakh and Sinkiang in 1927-8, has spent several months during 1932 investigating the geology and geomorphology of the extensions of the Karakoram ranges east of the upper Shyok. His results in the neighbourhood of the Panggong Lake and Changchenmo are of considerable interest and will be published in the *Journal*.

Our old friend the Chong Kumdan glacier, which had advanced across the upper Shyok valley during the winter of 1929-30, as we had expected, came into the limelight again in early July. The accumulated waters of the lake managed to find a weak spot in the degenerate ice near the snout and, as we had hoped, were released without disastrous consequences. Captain C. E. C. Gregory, who visited the glacier in 1931, and whose interesting report was published in the 1932 *Himalayan Journal*, has again collected some valuable information about the break in 1932, and has forwarded it to the Honorary Editor.

Several expeditions were made into Sikkim by members of the Eastern Section. In one case a party consisting of Captain G. H. Osmaston of the Survey of India, Mr. F. C. Osmaston, Mr. A. B. Stobart, and Mr. J. Latimer, passed over the Lungnak La into Lhonak, and attempted to climb the peak to the east of the Langpo and Jonsong massif, called by the International Himalayan expedition the 'Fluted Peak' (see *Himalayan Journal*, vol. iv, p. 130), and calculated by the latter to be 20,548 feet in height. They succeeded in reaching a position about 200 feet below the summit, but were unable to reach the top itself owing partly to dangerous snow and partly to lack of time to traverse the final ice-arête. After visiting the Chota Nyima La, the height of which was accurately fixed, the party crossed the watershed between Lhonak and the Zemu glacier, and reached the latter by the Green Lake glacier. Captain Osmaston remarks that there is plenty of room for detailed survey work in the higher parts of these glaciated regions.

Another expedition was an attempt on Mount Chomiomo by Messrs. Spence and Hale. Leaving the route to the Donkya La, north of Thangu, they approached the summit by the northern edge of the north-east glacier. In three days they established a camp at 20,600 feet. On the following day they proceeded some distance in

a southerly direction towards the eastern summit, but partly owing to lack of acclimatization and partly because their porters' boots gave out, they were forced to return from a height of 21,000 feet, some 1,400 feet below the summit.

It is unfortunate that M. Marcel Kurz, one of the Swiss members of the Himalayan Club, selected Nanga Parbat as his ground for exploration, for it is impossible for two expeditions to visit the same mountain in the same year. Mr. F. S. Smythe had already stood down in favour of Dr. Merkl, who was the first in the field. But we shall hope to see M. Kurz out in India again another year.

Towards the end of 1932 Herr Bauer published his new map of the Zemu glacier. This is a most beautiful and accurate production, and marks a great advance in large-scale Himalayan cartography. The Himalayan Club made a grant of Rs. 200 towards the expenses of publication, and it is hoped that the success that has attended this new method of stereo-photogrammetric survey in the Himalaya will induce more and more expeditions to make use of it.

On the 17th October an interesting flight was carried out by five Royal Air Force aeroplanes, under the command of Flight Lieutenant Isaac, from Risalpur to Gilgit, the distance of 286 miles being covered in 2 hours 20 minutes. The party spent two days at Gilgit and, during their stay there, carried out flights in the Hunza, Nagar, and Rakiot areas. They returned to Risalpur on the 20th October, the time taken on this occasion being only 2 hours 5 minutes. A number of excellent photographs were taken in the course of this expedition, some of which are being reproduced in the *Himalayan Journal*; those of Nanga Parbat and Rakaposhi are perhaps of the greatest interest to us, and are wonderfully good and clear.

Expeditions in 1933.—The great event of 1933 will of course be the Mount Everest Expedition, an all-British enterprise, under the leadership of Mr. Hugh Ruttledge, formerly of the Indian Civil Service, and one of the Founder Members of the Himalayan Club.

As is well known, the Tibetan Government had for some years withheld permission for a renewed attack on Mount Everest, but in July 1932, Lieut.-Colonel J. L. R. Weir, our Political Officer in Sikkim, succeeded in obtaining leave from the Dalai Lamai for an expedition to attempt the ascent in 1933. As soon as the welcome news was received in England, a strong Everest Committee was formed under the aegis of the Royal Geographical Society and the Alpine Club, with Admiral Sir William Goodenough, G.C.B., M.V.O., President of the Royal Geographical Society, as its President. Mr. Ruttledge was selected as the leader of the expedition, an excellent

choice in every way; among the members are Mr. F. S. Smythe, the leader of the successful Kamet expedition in 1931, and Captain E. St. J. Birnie, of Sam Browne's Cavalry, and Dr. Raymond Greene, members of the Himalayan Club, who went with him. A number of other members volunteered their services, but it has not been found possible to include them.

On the 2nd September I received a cable from Sir William Goodenough, asking us to nominate a member of the Himalayan Club to serve on the Mount Everest Committee and, after discussion with General Sir Kenneth Wigram, I replied by cable, nominating Sir Geoffrey Corbett, and also suggesting the utilization of Lieut.-Colonel Kenneth Mason's knowledge and experience. Sir William Goodenough wired at once, cordially agreeing with our proposal, and Sir Geoffrey Corbett gladly accepted his invitation to join the Everest Committee. Since then I have been in correspondence with Sir Geoffrey Corbett regarding the use of wireless, with special regard to the importance of meteorological information, and the employment of Gurkha non-commissioned officers to help with supply and transport arrangements.

The expedition sailed from Tilbury on the S.S. *Comorin* on the 20th January and is due to arrive at Calcutta about the middle of February, and I am sure I voice the feelings of all members of the Himalayan Club in wishing it every success and in expressing the hope that the year 1933 will see the conquest of the highest peak in our world by an all-British expedition.

It is a great satisfaction to all of us in the Himalayan Club that Mr. Ruttledge, one of our Founder Members, has been selected to lead the expedition. Since his selection, he has been engaged in studying all possible aspects of the enterprise, and we may be sure that no details will be omitted and that full provision will be made for every eventuality that can be foreseen.

In addition to the land expedition, an attempt is to be made to fly over Mount Everest by aeroplane, mainly for survey purposes. I do not know the detailed arrangements for this enterprise, but understand that Major L. V. S. Blacker, formerly of the Guides, is to be leader and in charge of the survey (i.e. observer and photographer), Lord Clydesdale the chief pilot, and Major P. T. Etherton the London manager. The original intention was to carry out the flights in January or February, but it looks as if they will not be attempted until March.

Another expedition of importance is that to be undertaken by a party of four Liverpool climbers under the leadership of Mr. Pallis. The object of this enterprise is to explore the Gangotri glacier,

one of the principal sources of the Ganges, and the surrounding mountains. The assistance of the Himalayan Club has been requested, and we are doing our best to meet the requirements of the party.

It is unnecessary to say that the Himalayan Club will always be ready to assist mountaineering parties or expeditions of exploration in the Himalaya by every means in its power. We did our best to help Dr. Merkl's party last summer, and might have done more if we had received longer notice of the expedition. In this connexion I would say that a most appreciative message was sent by the Consul-General for Germany, expressing 'sincere gratitude for the kind assistance which Dr. Merkl's German-American Himalaya Expedition has found from the authorities in British India, as well as in Kashmir, while trying to reach the summit of Nanga Parbat. The friendliness shown by authorities and private people alike finds my warmest appreciation.' The Consul-General goes on to say 'I especially want to mention in this connexion the very valuable help and advice my fellow-countrymen received from Major-General W. L. O. Twiss, of Army Headquarters, and Honorary Secretary of the Himalayan Club'.

I only mention this to emphasize one of the roles of the Himalayan Club, and one of the duties of its Honorary Secretary, but would remind you that the Honorary Secretary, whether a civilian official like Mr. Mackworth Young, or an officer at Army Headquarters, like myself, is usually a very busy man, who cannot give anything like as much time to the affairs of the Club as he would wish to be able to do.

Eastern Section.—At a Committee meeting of the Eastern Section of the Himalayan Club held at the United Service Club, Calcutta, on Monday, the 21st November 1932, the following decisions were made:

1. It was definitely decided after discussion that the proposed Club hut should be located in the neighbourhood of the Sebu La. A rough specification and estimate has been arrived at by discussion with the State Engineer, Sikkim, and Mr. Gourlay undertook to obtain further details from the Swiss Clubs on the subject.
2. With regard to the proposed memorial to be erected in Darjeeling, it was decided that the only prospect of raising an adequate sum for its erection would be by the assistance of those in England who had previously suggested a memorial to Chettan, and it was decided to write to them on the subject, sending a copy of the proposed design. The design and plan

of the proposed memorial are being taken to England by a member of the Eastern Section Committee, who is going on leave, in the hope of interesting people in England and raising additional funds.

3. It was resolved to sanction Rs. 100 from the Eastern Section funds for the production of Herr Bauer's map and to inform the Central Committee accordingly, with the suggestion that Herr Bauer might be approached on the subject of making the Himalayan Club or the Eastern Section selling agents for the map.
4. Mr. Gourlay proposed that the ski now in the possession of the Eastern Section should be made over to Mr. Wyatt for use in Chitral. As there is little chance of ski being used in Sikkim, this was agreed to.

Lectures.—On the 31st August 1932, Mr. Ph. C. Visser, Consul-General of the Netherlands and one of the leading members of the Club, delivered a most interesting and successful lecture, illustrated with numerous lantern slides, on his journeys of exploration, especially that undertaken in 1929–30, in the Karakoram and Himalaya mountains. This lecture was given in the Gaiety Theatre, Simla, under the auspices of the Himalayan Club, to a packed and most appreciative house, consisting of nearly all the most distinguished people in Simla. Not the least remarkable feature of Mr. Visser's travels and explorations was the part taken in them by his wife, who accompanied him throughout and shared all the discomforts, fatigues, and hardships inseparable from such a great undertaking.

On the 13th September Mr. Visser gave a second lecture to an even larger and equally appreciative audience at the Prince of Wales' Theatre.

Photographic Exhibition.—A photographic exhibition, organized by Lieut.-Colonel F. B. Scott, was held at Simla in September in connexion with the annual exhibition of the Simla Fine Arts Society. A large number of photographs of very high artistic and technical interest were received. Unfortunately, owing to the limited space available, it was not possible to display them all to full advantage. A selection of the most striking and interesting photographs was made for display on the screens, and the rest were placed in portfolios.

Mr. Ph. C. Visser exhibited a fine series of enlargements taken on his Karakoram expeditions. Lieut.-Colonel H. W. Tobin lent an album of photographs taken at heights from 20,000 to 25,000 feet on Herr Paul Bauer's Kangchenjunga expeditions of 1929 and 1931, and Herr Paul Bauer himself sent six photographs, which he has very kindly presented to the Club. Lieutenant Hugh Rose sent some fine

photographs taken on the British Frontier in Upper Kumaun and Garhwal. Dr. Ernest Neve's contribution consisted of a series of fourteen water colours of views in Kashmir. Captain C. E. C. Gregory sent two excellent panoramas and a large number of enlargements of various scenes, including the Shyok lake and dam, and some very interesting photographs of wild animals of Ladakh. Lieutenant G. Sherriff sent a series of fine enlargements and Lieutenant P. R. Oliver the same of the Baspa valley and Kanawar Kailas region and of the Dharmsala Dhauladhar range. Lieutenant N. R. Streatfield sent some photographs taken on a trip to the Rupal Nala below Nanga Parbat, and Lieutenant A. C. K. Maunsell sent photographs taken by Lieutenant E. A. Howard of the Tirich Mir, Madaglasht, and Drosh in its winter coat. Colonel H. L. Haughton contributed a series of three beautiful enlargements representing Dawn, Noon, and Sunset, and Lieut.-Colonel C. H. Stockley, Captain D. G. Lowndes, and Captain M. H. Berkeley sent views of Himalayan scenery. Mr. R. M. Gorrie sent a series of Himalayan forest photographs illustrating very clearly the protection afforded to cultivation by forests in the Himalaya.

Library—Lieut.-Colonel F. B. Scott has very kindly taken over the duties of Librarian, and has already effected a reorganization of the library. A number of books have been received from kind donors, one of the most interesting of which is an album of pictures of Simla in 1846, entitled 'Simla', by Captain Thomas, presented by Sir George Barnes.

The Journal.—Owing to our Honorary Editor having left India on leave pending retirement and having been appointed to the Chair of Geography at Oxford University, it has been decided to print and publish the *Himalayan Journal* in future at the Clarendon Press at Oxford. This will enable proofs to be more expeditiously passed than would be possible if printing were to be continued in India. Distribution to members in India will be made from the branch of the Press in Bombay, where additional and back numbers may be purchased. This arrangement will enable printing to be taken over again in India, should it be advisable when Lieut.-Col. Mason hands over the editorship. Lieut.-Col. Mason asks me to say that he is deeply grateful for all the help and courtesy he has received from Messrs. Thacker Spink, and their printers, Thacker's Press and Directories, Ltd., during the publication of the first four volumes. He also asks me to impress upon members and local honorary secretaries the importance of keeping him informed of their travels and of any events of Himalayan interest, so that he can arrange with contributors for the publication of their papers.

Geography and Geology.—It is of interest to note that a second edition of the *Sketch of the Geography and Geology of the Himalaya Mountains and Tibet*, by Colonel Sir Sidney Burrard and the late Sir Henry Hayden, published in 1907–8 by the Survey of India, is in course of preparation, and that the geographical portion is being revised by Sir Sidney Burrard himself, whilst the geological portion has been revised by Dr. A. M. Heron.

I would also mention that Mr. J. B. Auden has completed a detailed geological map of the Krol belt, from the neighbourhood of Solon in the Simla hills as far east as the Tons river, and that it is hoped to publish a report thereon during the year 1933.

Miscellaneous.—We regret the departure of Lieut.-Colonel J. L. R. Weir, Political Officer in Sikkim, to take up a higher appointment at Baroda, but welcome his successor, Mr. F. Williamson, formerly H.B.M.'s Consul-General at Kashgar, and a prominent member of the Club.

Early in the year the Eastern Section entertained Lieut.-Colonel and Mrs. Weir to dinner, on their return from Lhasa, and had the privilege of hearing a most interesting description of their visit to the famous capital of Tibet.

We congratulate Lieut.-Colonel F. M. Bailey on his appointment as Resident in Kashmir, and are lucky to have such a keen and enthusiastic member of the Club in this important post.

We now exchange our *Journal* with the publication of many other Clubs of a similar character to ours, and amongst others from which I have recently received requests for the exchange of Journals are the Slovensko Pleninsko Drustvo (Slovene Alpine Society), the largest Alpine Association of the Slovenes, which has a membership of 11,000 and maintains a large number of Alpine hostels and Alpine paths in the Jugo-slav Alps, and the Japan Camp Club, a Club located in Tokyo, which has a membership of over 3,000, and is formed by people interested in mountaineering, ski-ing, and travel and exploration in general. It is needless to say that I have gladly accepted these requests.

Conclusion.—I should like to ask you to authorize me to send a message of thanks to Mr. Mackworth Young for the work he did for the Club whilst holding the office of Honorary Secretary. As Secretary of the Army Department of the Government of India, he was a very busy man, and we owe him a deep debt of gratitude for all he did for the Club.

I am sure you will all agree with me in expressing regret at Sir

Malcolm Hailey's decision to resign the office of President of the Club, which is due to his feeling that he is too far from the Headquarters of the Club to enable him to carry out his duties as he would like to be able to do. Sir Malcolm Hailey has always taken the greatest interest in the welfare of the Club, and I have to thank him for several most valuable suggestions made to me since I assumed my present office.

I would put forward the name of General Sir Kenneth Wigram, Chief of the General Staff of the Army in India, now one of the Vice-Presidents of the Club, as Sir Malcolm Hailey's successor. If you agree to this, I would propose Mr. A. H. Lloyd, Member of the Central Board of Revenue, as Vice-President in Sir Kenneth Wigram's place. I would also request you to pass a vote of thanks to Colonel H. L. Haughton, C.I.E., C.B.E., for his services to the Club in the capacity of Honorary Treasurer, an office which he has held for nearly two years; he has had a great deal of his own work to do at Army Headquarters and, in spite of this, has carried out his duties as Honorary Treasurer most ably and efficiently.

ADDITIONAL BUSINESS TRANSACTED AT THE MEETING

Votes of thanks were passed to Mr. Mackworth Young, C.I.E., I.C.S., Honorary Secretary of the Club from April 1929 to March 1932, and to Colonel H. L. Haughton, C.I.E., C.B.E., the recent Honorary Treasurer.

The resignation of H.E. Sir Malcolm Hailey from the office of President, for the reasons stated in the Honorary Secretary's report, was accepted with much regret, and General Sir Kenneth Wigram, K.C.B., C.S.I., C.B.E., D.S.O., Chief of the General Staff, was elected President in his place.

The Honorary Secretary stated that numerous applications for membership are being received and that he felt sure that, if the objects of the Club and the advantages gained by members were more fully realized, there would be a still greater desire to join. H.H. Major Raja Sir Narendra Shah of Garhwal, was elected recently a Life Member, and has given a most generous donation of Rs. 500. Applications for membership from Indian gentlemen are increasing steadily.

CLUB NOTICES

I. ADDRESSES

The following are the addresses of the Honorary Secretary, Honorary Treasurer, Honorary Librarian, and Honorary Editor of the Club:

Honorary Secretary:

Major-General W. L. O. Twiss, C.B., C.B.E., M.C.,
Honorary Secretary, The Himalayan Club,
Army Headquarters, { Simla (April–September)
New Delhi (October–March).

Honorary Treasurer:

Major F. B. Webb,
Honorary Treasurer, The Himalayan Club,
G.S. Branch, Army Headquarters,
Simla (April–September)
New Delhi (October–March).

Honorary Librarian:

Lieut.-Colonel F. B. Scott,
Survey of India,
Honorary Librarian, The Himalayan Club,
Army Headquarters, Simla.

Honorary Editor:

Lieut.-Colonel Kenneth Mason, M.C., R.E.,
School of Geography,
Mansfield Road, Oxford.

II. APPOINTMENTS

The following have agreed to act as Local Secretaries, Correspondents, Assistant Editors, &c.:

Local Secretaries.

Kashmir Lieut.-Colonel F. M. Bailey, C.I.E.,
Resident in Kashmir, The Residency,
Srinagar, Kashmir.
Chamba Dr. J. Hutchison, Chamba, via Dal-
housie, Punjab.

Kumaun and Garhwal..			Captain C. J. Morris, 3rd Gurkha Rifles, Razmak, Waziristan.
Darjeeling	..	..	Lieut.-Colonel H. W. Tobin, D.S.O., O.B.E., Berhampore, Murshidabad.
Calcutta	..	..	L. R. Fawcus, Esq., I.C.S., The United Service Club, Chowringhee, Calcutta.

Local Correspondents.

London	..	..	Lieut.-Colonel E. L. Strutt, C.B.E., D.S.O., Secretary to the Alpine Club, 12 Somers Place, Hyde Park, London, W.2.
Quetta	..	..	Captain J. Barron, M.C., The Staff College, Quetta.
Central Europe	..	..	H. F. Montagnier, Esq., 90 Avenue Henri Martin, Paris XVI ^e , France.

Scientific and Technical Correspondents.

Archaeology	..	..	Sir Aurel Stein, K.C.I.E., PH.D., D.LITT., D.SC., c/o Dr. P. S. Allen, Corpus Christi College, Oxford, England. ¹
Botany	..	..	B. O. Coventry, Esq., Srinagar, Kashmir.
Fishing and Shooting	..	..	Bt. Lieut.-Colonel H. G. Martin, D.S.O., O.B.E., 72nd Field Battery, Mhow, C.I.
Folklore	..	..	His Excellency Sir H. W. Emerson, K.C.S.I., C.I.E., C.B.E., I.C.S., Governor of the Punjab, Lahore.
Geodesy and Geophysics			Major E. A. Glennie, D.S.O., R.E., Survey of India, Geodetic Branch, Dehra Dun.
Geology and Glaciology			Dr. L. L. Fermor, O.B.E., A.R.S.M., D.SC. (Lond.), F.G.S., F.A., S.B., M.INST.M.M. c/o the Office of the Director, Geo- logical Survey of India, Calcutta.
Medical Zoology	..	..	Dr. C. Strickland, M.A., M.D., B.CHIR., United Service Club, Calcutta.
Meteorology	..	..	Dr. C. W. B. Normand, M.A., D.SC., Director-General of Observatories, Poona.
Ornithology	..	..	H. Whistler, Esq., Caldbec House, Battle, Sussex, England.

¹ Sir Aurel Stein is travelling in Persia at present. It is not known when he will return to England.

Photography	Captain C. J. Morris, 3rd Q.A.O. Gurkha Rifles, Razmak, Waziristan.
Survey and Maps	Colonel R. H. Phillimore, D.S.O., R.E., Director, Geodetic Branch, Survey of India, Dehra Dun, U.P.
Zoology	Lieut.-Colonel C. H. Stockley, D.S.O., O.B.E., M.C., Abbott Mount, Kumaun, U.P., or c/o Messrs. Grindlay & Co., Bombay.

Honorary Assistant Editors.

<i>The Himalayan Journal</i> ..	Captain J. B. P. Angwin, R.E., Survey of India, Quetta, Baluchistan.
<i>The Pamirs and K'un Lun</i>	C. P. Skrine, Esq., I.C.S., Political Agent and Deputy Commissioner, Sibi, Baluchistan, and Captain G. Sherriff, R.A., 'Carronvale', Larbert, Stirlingshire, Scotland.
<i>Gilgit Agency</i>	Major G. V. B. Gillan, Political Agent, Gilgit, via Kashmir.
<i>Baltistan, Nubra, Ladakh, and Zaskar</i>	Lieut.-Colonel M. L. Gompertz, 3/10th Baluch Regiment, Secunderabad.
<i>Kashmir</i>	J. Kelly, Esq., M.A., I.E.S., Aitchison College, Lahore.
<i>Punch, Jammu, and Kishtwar</i>	H. L. Wright, Esq., Chief Conservator of Forests, Jammu and Kashmir State, P.O. Jammu, N.W.Ry., and J. Kelly, Esq., M.A., I.E.S., Aitchison College, Lahore.
<i>Chamba</i>	Dr. J. Hutchison, Chamba, via Dal- housie, Punjab.
<i>Kulu</i>	Captain D. G. Lowndes, 2/18th Royal Garhwal Rifles, Razmak, Waziristan.
<i>Lahul and Spiti</i>	Captain J. Barron, M.C., The Staff College, Quetta.
<i>Dharmasala Hills</i>	Captain J. W. Rundall, 1/1st K.G.O. Gurkha Rifles, Peshawar Cantonment.
<i>Bashahr</i>	R. Maclagan Gorrie, Esq., I.F.S., Forest Research Institute, Dehra Dun, U.P.
<i>Mandi State</i>	H. L. Wright, Esq., Chief Conservator of Forests, Jammu and Kashmir State, P.O. Jammu, N.W. Ry.

<i>Everest Group</i>	.. ..	Major J. G. Bruce, M.C., The Staff College, Quetta, and E. O. Shebbeare, Esq., c/o Forest Office, Darjeeling.
<i>Sikkim</i>	.. ..	Lieut.-Colonel H. W. Tobin, D.S.O., O.B.E., Berhampore, Murshidabad.
<i>Chumbi Valley and Eastern Tibet</i>	.. ..	F. Williamson, Esq., I.C.S., The Residency, Gangtok, Sikkim.

III. ROUTES IN THE HIMALAYA, VOL. II

The compilation of *Routes in the Himalaya*, vol. ii, has been taken over by Mr. R. Maclagan Gorrie, I.F.S., Forest Research Institute, Dehra Dun, U.P., who will be glad to receive details of routes in the Himalaya west of Nepal and east and south-east of Kashmir and Ladakh. Mr. Gorrie would be glad if the routes are put, as far as possible, in the same form as was adopted for vol. i.

IV. ROUTES IN THE HIMALAYA, VOL. III

Major H. R. C. Meade, Survey of India, 13 Wood Street, Calcutta, has undertaken to compile vol. iv of *Routes in the Himalaya*, 'The Eastern Himalaya'. The area covered by this volume will be the Himalaya east of Nepal as far as the Zayal Chu (Rima) river-basin. Major Meade will be grateful for any assistance from members and other travellers, and especially for details of the lesser-known routes in the area.

V. GLACIER OBSERVATIONS

The 'Commission des Glaciers' in the Hydrology Section of the International Union of Geodesy and Geophysics has appointed the Director of the Geological Survey of India *ex officio* member for the Commission in India, with Mr. Ph. C. Visser, Consul-General for the Netherlands, Calcutta, as an additional member, and has requested them to be responsible for collecting information concerning the advance and retreat of Himalayan and Karakoram glaciers.

The Director of the Geological Survey, Indian Museum, Chowringhee, Calcutta, will be grateful if members of the Himalayan Club and others who have recently visited such glaciers or who propose to do so will communicate with him.

Observations of glacier snouts take up very little time, and it would be of considerable scientific importance if travellers could spare a day or two during their expeditions to examine glaciers. It is not possible for scientific departments to maintain regular obser-

vations, as is done in certain other countries, in view of the distances involved. But much has already been accomplished by private enterprise, and much more is possible. The Director of the Geological Survey of India will be glad to send to those interested a special pamphlet which has been prepared for the purpose and which gives details of the data required. (See also Sir Edwin Pascoe's note in *Himalayan Journal*, vol. iii, p. 128.)

VI. THE HIMALAYAN JOURNAL, VOL. VI, 1934

It is hoped to publish the sixth volume of *The Himalayan Journal* in April 1934. All papers and other communications for publication must reach the Honorary Editor, Lieut.-Colonel Kenneth Mason, School of Geography, Mansfield Road, Oxford, by the 31st December 1933, and earlier, if possible. Sketch-maps should be sent to accompany articles if necessary; they should be clearly drawn in Indian ink. Photographs for publication should be on glossy bromide and should show as much contrast as possible. The late submission of promised papers causes extra expense to the Club, and may mean delay in publication.

Members, who have given permanent addresses in India, and who expect to be in England in April should send their address in England to the Honorary Editor. This will save the expense of sending their journal to India and will enable them to receive it earlier.

VII. PRESENTATION OF BOOKS TO THE LIBRARY

Books presented to the Library, including those sent for review, should be addressed to the Librarian, at Simla, and not to any official of the Club by name. The same applies to periodicals received from societies, clubs, and other institutions in exchange for the *Himalayan Journal*.

VIII. CLIMBING EQUIPMENT

The Eastern Section of the Club keeps a small stock of equipment which may be hired by members on application to the Honorary Secretary, Calcutta. There are available a few tents, several light shelters, ice-axes, crampons, mattresses, blankets, coolies' boots, rucksacks, and other miscellaneous equipment.

LIBRARY NOTICES

BOOKS ADDED TO THE LIBRARY

(1st January 1932 to 31st December 1932)

<i>Author</i>	<i>Title</i>	<i>Presented by</i>	<i>Classification</i>
Bauer, Paul.	Im Kampf um den Himalaja.	Knorr and Hirth, München.	Eastern Himalaya.
Conway, W. M.	The Alps from End to End.	Capt. Roger North.	Mountaineering.
Lattimore, Owen.	High Tartary.	Purchased.	Central Asia.
Lunn, Arnold.	The Alps.	Capt. Roger North.	Mountaineering.
Smythe, F. S.	Climbs and Ski Runs.	do.	do.
do.	The Kangchenjunga Adventure.	do.	Eastern Himalaya.
do.	Kamet Conquered.	do.	Central Himalaya.
Wadia, D. N.	Geology of India for Students.	Macmillan & Co., Ltd.	Geology and Geophysics.
Wilson, Claude.	Mountaineering.	Col. Capper.	Mountaineering.
do.	An Epitome of Fifty Years Climbing.	Author.	do.
Younghusband, Sir Francis.	The Epic of Mount Everest.	Capt. Roger North.	Eastern Himalaya.

F. B. SCOTT, *Lieut.-Colonel,*
Honorary Librarian.