THE GEOGRAPHICAL JOURNAL

VOLUME XCIII

JANUARY TO JUNE

1939

PUBLISHED UNDER THE AUTHORITY OF THE COUNCIL

EDITED BY THE SECRETARY

THE ROYAL GEOGRAPHICAL SOCIETY

KENSINGTON GORE LONDON S.W.7

EDWARD STANFORD LTD. 12 LONG ACRE W.C.2

AND 43 WHITEHALL S.W.1

ROYAL GEOGRAPHICAL SOCIETY

Patrons

HIS MAJESTY THE KING
HER MAJESTY QUEEN MARY

Honorary President

H.R.H. THE DUKE OF CONNAUGHT, K.G., G.C.B., G.C.S.I.

THE COUNCIL

(*Elected 20 June 1938 for the Session of 1938–39*)

President : Field-Marshal Sir Philip Chetwode, Bart., G.C.B., O.M., G.C.S.I., K.C.M.G., D.S.O.

Vice-Presidents

Professor Henry Balfour, F.R.S. (deceased)
Vice-Admiral Sir Percy Douglas, K.C.B., C.M.G.
Admiral Sir William Goodenough, G.C.B., M.V.O.
Professor Kenneth Mason, M.C.
The Rt. Hon. the Lord Moyne, D.S.O.
Lieut.-Col. Sir Francis Younghusband, K.C.S.I., K.C.I.E.

Treasurer—The Lord Plender, G.B.E.

Trustees—The Lord Biddulph ; The Most Hon. the Marquess of Zetland, G.C.S.I., G.C.I.E.

Honorary Secretaries—W. L. Sclater ; J. M. Wordie

Foreign Secretary—The Right Hon. the Lord Howard of Penrith, G.C.B., G.C.M.G., C.V.O.

Members of Council

Col. Sir Charles Arden-Close, K.B.E., C.B., C.M.G., F.R.S.
Major R. A. Bagnold
George Binney
Col. P. K. Boulnois, O.B.E., M.C.
Leonard Brooks
Lieut.-Col. Sir John Chancellor, G.C.M.G., G.C.V.O., D.S.O.
Augustine Courtauld
Stephen L. Courtauld, M.C.
Col. H. L. Crosthwait, C.I.E.
E. H. Keeling, M.C., M.P.
Dr. T. G. Longstaff
Brigadier M. N. MacLeod, D.S.O., M.C.
Major-General Sir Cecil Pereira, K.C.B., C.M.G.
Professor Edgar Prestage
The Rt. Hon. the Baroness Ravensdale
The Rt. Hon. Sir Malcolm Robertson, G.C.M.G., K.B.E.
J. M. Scott
Dr. Dudley Stamp
J. A. Steers
Professor E. G. R. Taylor
Sir Ernest Wilton, K.C.M.G.

Secretary and Editor of Publications—Arthur R. Hinks, C.B.E., F.R.S.

Librarian—G. R. Crone

Map Curator—F. Allen

Instructor in Survey—G. C. Flower

Bankers—Martin's Bank Ltd. (Cocks, Biddulph Branch), 16 Whitehall, S.W.1

CONTENTS

NO. 1 *JANUARY* 1939

THE SOURCES OF THE BRAHMAPUTRA, INDUS, SUTLEJ, AND KARNALI: WITH NOTES ON MANASAROWAR AND RAKAS TAL

SWAMI PRANAVANANDA

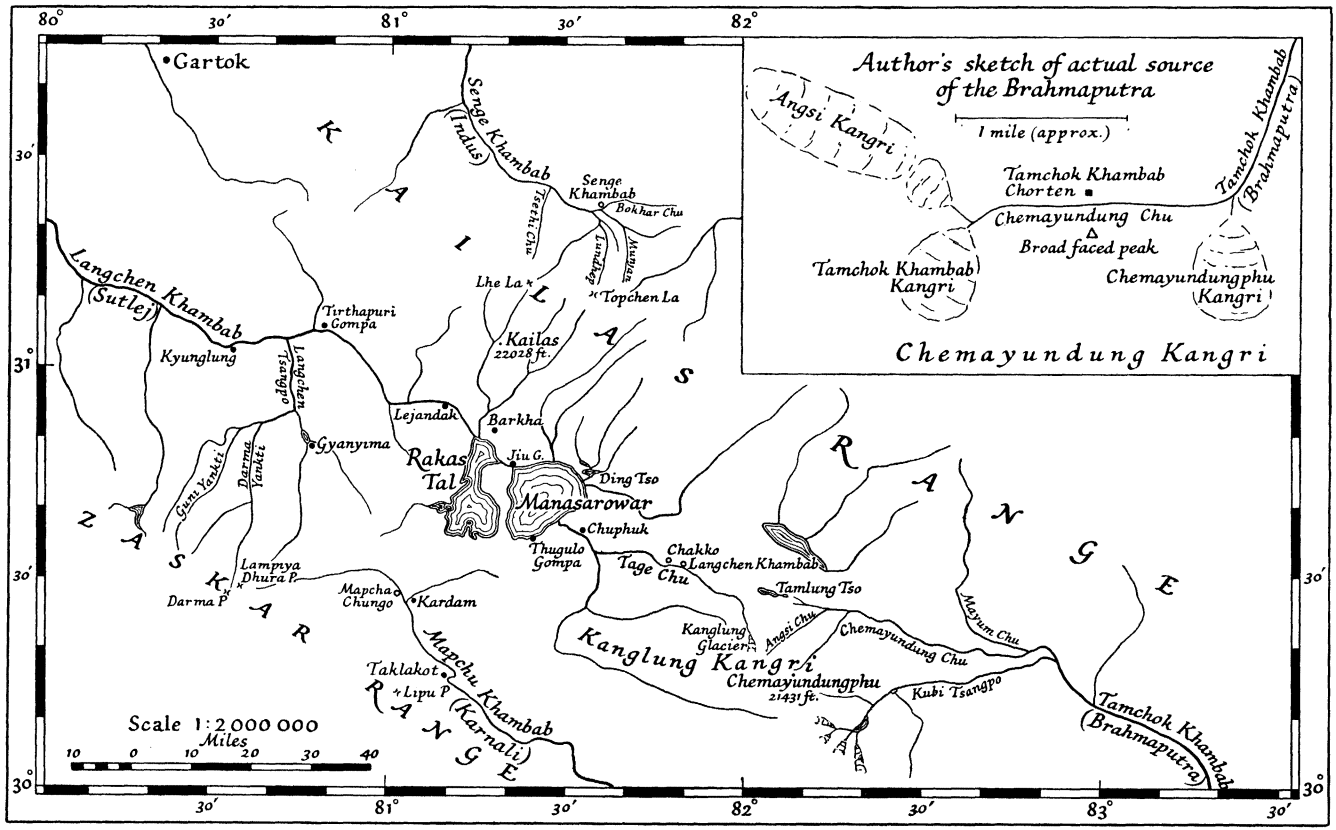
"LAKE MANASAROWAR is famous in Hindu mythology; it had in fact become famous many centuries before the lake of Geneva aroused any feelings of admiration in civilized man. To the north of Manasarowar stands the sacred peak of Kailas, reverenced in Sanskrit literature as the paradise of Siva. Before the dawn of history Manasarowar had become the sacred lake, and such it has remained for four millenniums. Its inaccessibility has enhanced its sanctity, and has enshrouded it in mystery." [1]

The "Kangri Karchok"—the Tibetan Kailas Puran—says that the four great rivers called Langchen Khambab, or the Elephant-mouthed river (Sutlej), on the west, Senge Khambab, or the Lion-mouthed river (Indus), on the north, Tamchok Khambab, or the Horse-ears-mouthed river (Brahmaputra), on the east, and Mapchu Khambab, or the Peacock-mouthed river (Karnali), on the south, have their sources in Tso Mapham, the lake unconquerable (Manasarowar). The water of the Sutlej is said to be cool, the water of the Indus hot, that of the Brahmaputra cold, and that of the Karnali warm. It is also said that there are sands of gold in the Sutlej, sands of diamonds in the Indus, sands of emeralds in the Brahmaputra, and sands of silver in the Karnali, and that these rivers encircle Manasarowar seven times before taking their courses towards west, north, east, and south respectively. There has long been a controversy over the sources of the first three of these rivers. Dr. Sven Hedin gave his final verdict in 1907–08.

I had the good fortune in 1928 to travel in western Tibet on a visit to the Holy Kailas and Manasarowar. I went from Srinagar, through Ladakh, Demchok, Gartok, Tirthapuri, Gyanyima Mandi, round Kailas and Manasarowar, to Taklakot, again to Gartok and back to Rishikesh by the Niti pass. In 1935 I made a second journey from Gangotri and Bhaironghati, by the Jelukhaga pass, Tuling, Gyanyima Mandi, Kailas, Manasarowar, and back to Rishikesh by the Damjan-Niti pass. In 1936–37 I travelled from Almora by the Lipu pass and returned by the same route. During the third visit I stayed for a year in the Thugulo monastery, on the southern shore of Manasarowar, when I had the rare opportunity of visiting the sources of the four great rivers of the Holy Lake. I feel therefore that I have something to say on the verdict of Sven Hedin regarding the sources of the Sutlej, the Brahmaputra, and the Indus.

At the very outset I would like to ask geographers, geologists, and surveyors how the source of a particular river is to be fixed. If the river in question happens to have more than one headstream, which of them is to be considered the main river? Is it decided by the quantity of water that it brings down, or by the length of the particular headstream, or is the source

[1] S. G. Burrard and H. H. Hayden, 'A sketch of the geography and geology of the Himalaya mountains and Tibet.' Delhi, Survey of India, 1934 (Part III, p. 228).



Sketch map showing the sources of the Brahmaputra, Indus, Sutlej, and Karnali, based on material supplied by the author

located from the traditions of the local people? If all three factors are to be taken into consideration, it will be impossible to locate the sources of the four great rivers of the Holy Kailas and Manasarowar, and other Himalayan rivers, inasmuch as none of the headstreams fulfils all the three conditions. If all the three conditions are not fulfilled, which of them should be given the greatest weight?

The Sutlej, the Indus, the Brahmaputra, and the Karnali are considered sacred by the Tibetans, and their sources are regarded as even more sacred. In Tibet it is the custom to erect a monument in holy places, and on the tops of passes wherefrom some holy place is first seen. The monument may take the form of a *chorten* (a pagoda-like structure), *mani*-wall, some *mani*-stones or slabs (on which the Tibetan sacred *mantra*, "Om ma ni pad me hum," is carved), cairns, coloured flags and festoons, or even heaps of stones (known as *laptche* in Tibetan). It is not strange to expect such holy monuments at the sources of the four rivers of the Holy Manasarowar, and Sven Hedin gives detailed descriptions of them at the sources of the Indus, at the spring Langchen Khambab on the banks of the Tage Chu, at the spring Chakko (its correct name is Chumik-Thongdul), and at several other places. When he describes the source of the Brahmaputra, he makes no mention whatsoever of these symbols, which are so common in Tibet.

According to Tibetan tradition, the source of the Brahmaputra lies not in the Kubi glaciers, as claimed by Sven Hedin, but in the Chemayundung glaciers. While locating the sources of the Indus and the Sutlej, Sven Hedin refers to all the Tibetan traditions at his disposal in support of his findings. When the question of the source of the Brahmaputra comes in, he does not give any authority but that of a vague quotation from the 'Elements of hydrography,' by the Chinese professor Chi Chao Nan, which runs thus: "Langchen-kabab lies south east of Kailas. On the east of this mountain stands the Tamchok-kabab mountain which is the source of Tamchok-kabab or the Brahmaputra." Even this single quotation gives more support to my findings than to those of Sven Hedin, because the Chemayundung glaciers are east of and nearer to the Kanglung Kangri glaciers (the source of the Sutlej), whereas the Kubi Kangri glaciers (where Sven Hedin places the source of the Brahmaputra) are on the south-east of the Kanglung glaciers, and not on the east, as has been suggested by the Chinese professor. Taking the Tibetan traditions into account, we have a monument (called Tamchok Khambab Chorten in Tibetan) at the source of the Brahmaputra near the Chemayundung glaciers, shown to me by my Tibetan guide. There is a big boulder about 12 feet high, on the top of which are the footprints of a Buddhist deity, and over the footprints a small hut has been erected with loose stone walls and roof, with the horns of a wild yak placed on the top. Adjacent to the boulder are three *donkangs* (*dharmashalas*), of which one was roofed. My guide told me that the Nyakora tribe of nomads go over there for yak-hunting at the end of summer, as there are a good many wild yaks there.[1] All round the boulder there are hundreds of cairns.

Sven Hedin should have pondered over the meaning of the name "Tamchok Khambab": *ta*=horse, *amchok*=ears, *khambab*=mouth. So the literal trans-

[1] *Cf.* T. W. Webber, 'Forests of upper India' (London, 1902), chap. xi.

lation of the name Tamchok Khambab is "horse-ears-mouthed" river. The sources of the four Tibetan rivers are located by Tibetans in certain springs, to which they attribute the appearance of the mouths of various animals, just as the Hindus call the source of the Ganges "Cow mouth"—Gaumukh. There are two glaciers, called Chemayundung-phu and Tamchok Khambab Kangri, with a broad-faced peak separating them. The monument or the shrine is situated on the left bank of the Brahmaputra (where it is called Chemayundung Chu) between these two glaciers, opposite the broad-faced peak. The two glaciers are the two ears, and the boulder is the mouth. Both these glaciers put together go by the general name of Chemayundung-phu, or simply Chemayundung. The distance between these two glaciers is about $1\frac{1}{2}$ or 2 miles. A little north or north-west of the Tamchok Khambab glacier is another smaller glacier or snow-field, behind which is the Angsi glacier.

Sven Hedin places the source of the Brahmaputra in the Kubi Kangri glaciers, giving us figures to show that the Kubi Tsangpo discharges more water than the Chemayundung. But he totally forgets this "theory of greater discharge of water" when he locates the source of the Indus. "'At this point the Singi Kampa is born. But the infant river which is a mere brook is shorter than either the Lungdep or Munjam.' 'The problem cannot be settled,' Sven Hedin writes, 'in any more satisfactory way than to accept the Tibetan view and to regard the Singi-Kabab as the source of the Indus in spite of its being the shortest and one of the smallest of the several source branches.'" [1]

If, as argued by Sven Hedin in fixing the source of the Brahmaputra, the quantity of water be taken into consideration, the source of the Sutlej must be placed not in the Kanglung glaciers (the source of the Tage) but somewhere in the Zaskar range. The Langchen Tsangpo, which joins the Sutlej a few miles below Tirthapuri, carries much more water than the Sutlej itself. This Langchen Tsangpo has three headwaters, two of which, the Guni Yankti and the Darma Yankti, are each bigger than the Tage Chu where it falls into Manasarowar. So the source of the Darma Yankti, which is somewhere near the Darma pass, should be the source of the Sutlej, as was remarked by Henry Strachey.[2] Surely the decisive point is that of the Tibetans and Chinese: that the two lakes, Manasarowar and Rakas Tal, lie on the Sutlej source stream like pearls on a string. When Rakas Tal is finally cut off from the Sutlej and its water begins to turn salt, then must the two lakes be regarded as an isolated hydrographic system.

"Some writers define the source of the river as the point of its course, that is most remote from its mouth. Colonel George Strahan has shown that if this definition be applied to the Ganges, its source will not be Himālayan at all, but will be near Mhow in Central India at the head of the Chambal." [3] In fact according to the Tibetan tradition the source of the Chemayundung is the source of the Brahmaputra, and the Chemayundung is the actual Brahmaputra; it is also longer than the Kubi. Whether length or traditions

[1] Burrard and Hayden, *op. cit.*, p. 241.
[2] *Journal* Asiatic Society of Bengal, 1848, p. 157.
[3] Burrard and Hayden, *op. cit.*, p. 184.

be taken into consideration, the source of the Brahmaputra cannot be placed in the Kubi glaciers, but must be placed in the Chemayundung glaciers. But if the source of the Brahmaputra be placed in the Kubi glaciers on the ground of the quantity of water, the location of the sources of the Indus and the Sutlej must be shifted elsewhere. If the sources of the rivers are to be fixed according to local traditions, as is done in the case of the Ganges and several other rivers, the source of the Brahmaputra should be shifted from Kubi to Chemayundung. Whichever theory be followed, Sven Hedin should not claim to be the discoverer of the sources of the Brahmaputra, the Indus, and the Sutlej. If any one wishes to verify my findings, I am ready to accompany him to the various sources of these three rivers. If any other theory but that of tradition be accepted in fixing the sources of these rivers, the sources of all the three rivers, the Sutlej, the Indus, and the Brahmaputra, must be shifted from their present positions as given by Sven Hedin and placed elsewhere after fresh exploration.

Besides the discussion about the sources of the three rivers, I would like to note down the following few points connected with the three great rivers, together with other information which may be of some use for future explorers.

Ganga Chu (channel between Manasarowar and Rakas Tal). When Sven Hedin visited Manasarowar he found "the highest point of Ganga Chu lying more than 6½ feet above the level of the Manasarowar." There were heavy rains that year, yet he found that the bed of the Ganga Chu was dry. I crossed the Ganga Chu itself near Jiu (Chiu) Gompa, about 100 yards from Manasarowar on 4 September 1928. That year was exceptionally dry, and there were very few rains, yet the Ganga Chu was 3½ feet deep and the flow was very rapid. I crossed it a second time on 21 August 1935, 2 miles from Rakas Tal. The current was gentle, but it was nearly 3 feet deep. I crossed it a third time half a mile from Manasarowar on 5 September 1937, and it was nearly 2½ feet deep. I again crossed the Ganga Chu on six other occasions near Jiu Gompa early in the winter of 1937, when I was doing the circumambulation of the Holy Manasarowar. The stream of water 1½ feet deep was frozen solid in the bed of the Ganga Chu. But near the hot springs (about 2 furlongs from Manasarowar) there was flowing water 6 inches deep. I followed closely the 6-mile winding course of the Ganga Chu along its left bank from Rakas Tal right up to Manasarowar on 14 April 1937, and I found ice and snow throughout the bed of the Ganga Chu, although at several places a regular slow flow of water towards Rakas Tal was seen. The water was very muddy where the Ganga Chu was flowing into Rakas Tal (Langak Tso of the Tibetans). I crossed the Ganga Chu again on 26 June and 17 July 1937, when there was flowing water about 10 inches deep. I crossed it again for the thirteenth time on 27 July 1937, and the water was about 16 inches deep.

There are sufficient grounds for believing that a rise in the level of the water of Manasarowar, and the consequent flow of water into Rakas Tal through the Ganga Chu, make the flow continuous into the now so-called "Old bed of the Sutlej" from Rakas Tal. The rise of water in Manasarowar and the consequent overflow into Rakas Tal through the Ganga Chu may be caused not

only by heavy rains but also by melting snows due to bright sunny days. I made circuits of Manasarowar, and found the Ganga Chu to be the only outlet of the lake.

Almost parallel to the Ganga Chu at a distance of about a mile on the south there is a line of gold diggings extending from Rakas Tal right up to Manasarowar. They were mined some years back, but nothing is done to-day. During the mining it was said that there had been an outbreak of smallpox, which was attributed by the Tibetans to the wrath of the presiding deity of the mines, and consequently the work was stopped. During the last operations, it was said one gold nugget as big as a dog (according to some, a dog-like nugget) was found.[1] At the place where that nugget was found, a *chorten* has been erected, which is called Serka-khiro (gold dog). This place is about a mile south of Jiu Gompa.

Some fifteen days' march northwards from the source of the Indus are the bigger goldfields at Thokjalung, Anglung, and elsewhere, which are being worked by the most primitive methods, scarcely worth the name of mining. About twenty years ago Tibetan gold was sold at Lhasa at the rate of Rs.10 per *tola*, according to the account given to me by the officiating Governor of Taklakot.

Tseti Tso, 3 miles away from Gussul Gompa, by the side of Manasarowar, has large deposits of borax both on the shores and on the island in it. The Tibetan Government has now stopped the working of borax there because of the belief that a deity became enraged. There are very big borax fields at Langmar and elsewhere in western Tibet.

The Sutlej. That part of the Sutlej described on the maps as "Old bed of the Sutlej" contained water, and there was continuous flow from Rakas Tal up to Lejandak, which is a day's march. I noticed it in August 1928, and also in August 1936. So the phrase "Old bed of the Sutlej" might be deleted from the Survey maps.

About 3 miles below Tirthapuri, a river called Langchen (by the same name as the Tirthapuri branch, coming from Rakas Tal) joins the Sutlej. When I asked my guide why this river was called Langchen, he told me that both this and the Rakas Tal branch go to make up the Langchen Khambab (the Sutlej), and so this branch also is called Langchen. This river Langchen is a combination of the three rivers Guni Yankti, Darma Yankti, and the Gyanyima branch. The Gyanyima branch carries much less water than the first two. Guni Yankti (called Chu Minjung in Tibetan) and the Darma Yankti (Chu Minjing) each carry more water than the Tage Chu where it falls into Manasarowar. Of these two rivers, the Darma Yankti carries the more water.[2] The Darma Yankti also carries more water than the Tirthapuri branch. So if the quantity of water is taken into account, the source of the Darma Yankti would be the source of the Sutlej; that is, in the Zaskar range somewhere near the Darma pass.

The islands in Rakas Tal. There are two islands in Rakas Tal: Lacheto and Dopserma (or Topserma). I visited them on 15 and 16 April 1937, when the lake was completely frozen. I traversed the frozen lake from east to west

[1] *Cf.* C. A. Sherring, 'Western Tibet' (London, 1906), p. 270.

[2] *Geogr. J.* 33 (1909) 427. So also Henry Strachey, *loc. cit.*, p. 157.

and from south to north on a yak. The island of Lacheto is shaped like a tortoise, with the neck stretched out towards a peninsula on the southern shore. The distance between the neck of the island and the cape of the peninsula is about half a mile. The circumference of the island is nearly a mile, and its surface is rocky and hilly. On the top of the hill there is a *laptche*, a heap of stones with *mani*-slabs, and on the western and the eastern sides of the hill there are the walled enclosures of the egg-collectors. There were wild geese on the level ground on the eastern side of the island. The egg-collectors of Kardam Goba were expected there in the last week of April, when the geese begin to lay eggs.

Dopserma, the southern part of which is named Tumuk, is rocky and hilly like Lacheto, but much bigger. The island is about a mile from east to west, and about three-quarters of a mile from north to south. On the eastern projection of the hill is a walled house in ruins, in which a Khampa Lama was said to have lived for seven years some time ago. Below the projection there are two or three walled enclosures. This island is under the jurisdiction of the Goba of Shungba. There were no aquatic birds on the island when I visited it. I could find only two islands in the Rakas Tal, and not three as shown in the maps of Sven Hedin or of the Survey.

Freezing of Manasarowar and Rakas Tal. The circumference of Manasarowar is about 54 miles. It froze on 28 December 1936 and melted again on 7 May 1937. It took three days to freeze completely, and the same number of days to unfreeze. Rakas Tal always freezes fifteen or twenty days earlier and melts again fifteen or twenty days later than its eastern neighbour, Manasarowar, but never earlier, as Sven Hedin states. The lakes freeze into opaque ice in the beginning, and then the ice becomes transparent. The thickness of the frozen ice in Manasarowar was 2–6 feet near the banks. Near the rocky banks the bottom of the lake, frozen fish, and water reeds could be seen through the transparent ice as if in an aquarium. The thickness of the ice on Rakas Tal appeared to be 2–4 feet. The peculiarity of Manasarowar is that there are tremendous cracks and fissures in the ice, whereas there are practically none in Rakas Tal. In Manasarowar terrible sounds are heard on occasion, and there are eruptions in the lake and along its shores. Nobody dares to go on Manasarowar when it is frozen, whereas men, flocks of sheep, loaded yaks and ponies traverse the frozen lake of Rakas Tal, as there are no cracks and fissures in it. On Manasarowar heavy blocks of ice of 20–50 cubic feet in volume are thrown by the eruptions 10 yards or so on to the shore. Sometimes the ice in the lake bursts and fountains of water gush out, forming small pools which are frozen again on the following night. The minimum temperature in winter 1937 was −18·5° F., and the lowest maximum was 2° F. Never was there a snowfall of more than 1½ feet on the southern shore of Manasarowar.

About a month after Manasarowar and all its feeders were frozen (with the exception of the Ding Tso and the mouth of Tage Chu), I found that the level of the water in the lake fell by about 12 inches below the ice, which consequently cracked and fissured. The disturbance beneath the ice due to the hot springs in the bed of the lake may also be the cause of cracks, noises, and fissures in Manasarowar. The absence of fissures in Rakas Tal may be

Cairns and mani-stones at the source of the Indus

Chemayundung glacier at the source of the Brahmaputra

Mapcha Chungo spring forming the source of the Karnali

Kanglung Kangri glaciers at the source of the Sutlej

Unfissured ice of Rakas Tal, seen from Lacheto Island looking towards Dopserma

Manasarowar frozen, with fissures and rafted ice on the shore

due to the fact that the water filtered out of it by subterranean paths is compensated by the subterranean supply from Manasarowar. As no appreciable vacancy is created beneath the ice on Rakas Tal, no heavy fissures are to be found in it.

Hot springs of Manasarowar. There are three hot springs on Ganga Chu, 2 furlongs from Manasarowar. One spring is on the left bank, one on the right bank, and one boiling spring on a small rock in the middle of Ganga Chu. About three-quarters of a mile south of the mouth of Ganga Chu, 40 or 50 yards from the shore, I saw an oval patch of water, about 10 yards in diameter, in the frozen lake of Manasarowar, on 28 January 1937, when the minimum night temperature in the verandah of my room was 2° F. Some aquatic birds were swimming and playing in the pool and on the ice nearby. This makes me believe that there must be hot springs in the bed of Manasarowar.[1]

About 3 or 4 miles from the shore of Manasarowar, upon the left bank of the Tage Chu, there are several hot springs at Tagpotong varying in range from lukewarm to boiling temperatures. There is a regular stream of hot water flowing into the Tage. Opposite these springs on the right bank of the Tage are some caves called Chuphuk, where a few monks live in winter. There are some *chortens* and *mani*-walls. Just near the caves there are the foundations of a ruined monastery. Some shepherds from Nonokur camp here in early spring and autumn for a couple of months in each season. Near the cave and a mile farther down there are more hot springs. About three-quarters of a mile above the caves, at a place called Tomomopo on the left bank of the Tage, there are hot springs, some boiling and bubbling and some lukewarm. It is interesting to note that there are hot springs at Tirthapuri and some at Kyunglung 10 miles down, on the banks of the Sutlej. Like beads on a string, there is a series of hot springs on the Sutlej, at Tomomopo, Tagpotong, Chuphuk, Iphuk, Manasarowar, Ganga Chu, Tirthapuri, and Kyunglung.

Source of the Indus. Of the different source streams of the Indus, the Tsethi Chu, the Lungdhep Chu, the Munjan Chu, and the Bokhar Chu, the Lungdhep Chu carries most water and is the longest of all the streams. I went to the source of the Indus by Lhe La and returned by Topchen La; therefore I did not see personally the Tsethi Chu, but my guide informed me that the Lungdhep Chu is bigger than the Tsethi Chu. Next come the Munjan and the Bokhar Chu, both of which appeared to be almost of the same size; some shepherds hold the Bokhar to be bigger than the Munjan, but my guide said that the Munjan is bigger than the Bokhar, and I cannot be definite about it. The Lungdhep Chu is certainly the biggest and the longest, and as such its source, which is in the Topchen La, should be considered the source of the Indus if the quantity of water is taken as criterion for fixing its source.

Source of the Brahmaputra. Of the three headwaters of the Brahmaputra, the Kubi, the Chemayundung, and the Mayum Chu, the Kubi is by far the biggest, and as such its source in the Kubi glaciers should be regarded as the source of the Brahmaputra if the quantity of the water is taken into

[1] Noted by Colonel Ryder in 1904.

account. But if length be the deciding factor, the Chemayundung branch, which is 6 or 7 miles longer than the Kubi (Sven Hedin admits this), should be the main branch of the Brahmaputra. The Kubi glaciers are nearly four days' march from the Chemayundung glaciers. Then again, Angsi Chu is longer than the Chemayundung, and the Angsi glaciers are equally massive. It seems therefore that we may have to shift the source of the Brahmaputra to the Angsi. The Indian merchants, who go from Manasarowar beyond the Kubi Tsangpo for wool purchases, consider the Tamlung Tso to be the source of the Brahmaputra, inasmuch as a stream from it flows into Angsi Chu and subsequently into the Chemayundung, which is considered by them to be the main stream of the Brahmaputra. As such the Indian merchants call the Tamlung Tso "Brahmakund," and consider it sacred and bathe in it.

Source of the Map Chu, or Karnali. After two days' march from Taklakot up the Karnali, I reached a place called Mapcha Chungo on the right bank of the Map Chu. At the edge of the bank is a big *mani*-wall with several *mani*-slabs and streamers. On descending a few yards towards the bed of the river I was shown the big spring of Mapcha Chungo (peacock mouth) gushing out from the wall of the steep bank of the river. There are some *mani*-stones and a few streamers near the spring. The water from the spring flows down a beautiful green velvety moss, which has some resemblance to the neck of a peacock, into the Karnali below. This spring is the traditional source of the Map Chu (peacock-mouthed river, or Karnali), and the actual source of the Map Chu or the Karnali is therefore somewhere near the Lampiya Dhura pass, whence flows the main stream of the Karnali.

Conclusion. Taking local Tibetan traditions into account, the source of the Sutlej lies in the Kanglung glaciers, east of Manasarowar, 65 miles from Barkha. The source of the Indus is in the springs of Senge Khambab (half a mile north of Bokhar Chu), north of Kailas, 53 miles from Barkha. The source of the Brahmaputra is in the Chemayundung glaciers, two days' march east of the Kanglung glaciers or 92 miles from Barkha, and the source of the Karnali is at the Mapcha Chungo spring, about 23 miles north-west of Taklakot. If one takes other facts into consideration, the sources of all the four rivers must be shifted elsewhere after systematic and scientific exploration and survey. I leave the matter for serious consideration to the seekers of truth, who may draw their own conclusions in the light of the few facts I can place before them.

Note by T. G. Longstaff

Sherring's 'Western Tibet' (1906) contains very apposite information on the Manasarowar problem. I would particularly draw attention to Sherring's panoramic photograph of the channel between Manasarowar and Rakas Tal on p. 271, a copy of which is in the Society's collection. In the *Journal* for February 1907 is a short paper by myself of which pp. 207 and 208 may usefully be compared with the Swami's interesting account. In general I am in full agreement with him in accepting the traditional sources of the four rivers. If length is to be the criterion, then further survey is required. If volume is taken as the test, then, with glacial sources and an Arctic winter

climate to contend with, flow must be measured throughout the year. It savours of impertinence for Europeans to assert their views against the usage of other civilizations.

I think that the cracking of the winter ice on Manasarowar and the "rafting" on the shore, shown in photographs sent by the Swami, indicate that there is active water-flow into Manasarowar even in the winter season. This goes far to justify the claim of the author that the true source of the Sutlej is in the Tage Chu, which flows from the Kanglung Kangri glaciers to the east of Manasarowar. Such water can only escape by the channel (the Ganga Chu of the Swami) at Jiu, connecting Manasarowar and Rakas Tal, thence to enter the "Old bed of the Sutlej" either above or below ground, according to the season. A flowing stream was found in this channel by Henry Strachey in 1846; by Sherring and myself in 1905; and by the author in 1928, 1935, and 1937.

Those who have travelled in Tibet must admire the character of the Swami, displayed by his omission of all reference to the hardships he must have suffered during his winter journeys in these inhospitable regions.

The
GEOGRAPHICAL JOURNAL

Vol XCIII No 5 R.G.S. *May 1939*

EXPLORATION OF ANCIENT SITES IN NORTHERN AFGHANISTAN

EVERT BARGER

Evening Meeting of the Society, 6 February 1939

IT has long been the custom of this Society to give, through the Expedition Fund, assistance to Fellows for exploration and research. As one of those who have benefited by this generosity, it is my privilege this evening to give you an account of the work of a small expedition which made last summer an archaeological exploration in those regions where the Oxus flows from "his high-mountain cradle in Pamere," and where, many centuries ago, the civilizations of China, India, and the Mediterranean met. It was along the highroads of Central Asia that Buddhism, taking with it some of the forms of hellenistic art, went, in the first centuries of our era, to China, and that, in the other direction, silk caravans made their way to the markets of the Roman Empire. A glance at the map of Asia will show the routes along which these different civilizations travelled.

The valley of the Wei Ho is China's natural gateway. Going west from the ancient watch-towers of Tunhwang, two routes skirt the arid and uninhabited interior of the Tarim basin. One route passes the depression of Turfan, and follows the string of oases on the northern rim of the desert to Kashgar. The other route runs along the southern edge of the Tarim basin to Khotan. There is no evidence that the direct passes across the Karakoram to India were used in ancient times, but there were three ways across the Pamir massif. One of them, which for various reasons I shall not discuss, went from Kashgar to Ferghana and Samarkand across the Terek pass; the second, which was the silk route described by Ptolemy, ran from Kashgar through the divide between the Alai and Trans-Alai ranges, and reached Termez on the Oxus by the valley of the Waksh; the third is that of the Upper Oxus and Wakhan, which was the shortest way from Khotan to Badakhshan and Balkh. This last was the route followed by the Chinese pilgrim Hiuen Tsiang, on his homeward journey, and by Marco Polo; and in the course of

this paper I shall suggest some reasons why it may have been perhaps the most important of all.

Ancient Bactria is the plain, now partly a desert and partly covered with thorn and camel-scrub, between the Hindu Kush and the Oxus. It was bounded on the east by the Pamir massif, and on the north-west it was joined to the vast Eurasian steppe by Margiana (with its ancient capital of Merv) and Sogdiana (Samarkand), marginal areas of mixed cultivation and pastoral economy. In Bactria the route from the Mediterranean, which ran along the northern edge of the central desert of Persia, and the road from India up the Khyber pass and the Kabul valley met the great highways from China described above. Just as the Pamirs are the nodal point of the mountain systems of Asia, Bactria was the meeting-point of three peripheral civilizations.

It will be observed that all these routes pass through the narrow strips of cultivation which fringe the great desert belt, except where they cross the great barrier of the Pamirs and the Hindu Kush by narrow fertile valleys. Scattered along these fringes of cultivation between the mountains and the desert, there is a certain amount of archaeological evidence to show how civilizations came and went. Our expedition, which numbered four, and which left England at the end of May 1938 under the auspices of the Indian Section of the Victoria and Albert Museum, divided its time and its forces between the excavation of Buddhist monasteries in Swat and a reconnaissance in the north of Afghanistan.[1] But I hope that, in speaking to-night of our work in Afghanistan, you will allow me to discuss some of the raw material of history which has come from other places on these great highways. For the lands between the Indus and the Oxus, and between the Caspian and the frontiers of China, form one vast canvas which, if we are ever to write the history of Central Asia, we must try to look at as a whole.

Almost a quarter of a century has elapsed since Sir Aurel Stein and the late Professor Le Coq returned from their last great expeditions to Central Asia. Since the War political conditions have been most unfavourable to British archaeological enterprise in all the territories beyond the administered frontier of India. Eighteen months of preparation by letter and telegram did little more than extinguish our hopes of reaching Chinese Turkistan, our original goal. But when my companion, W. V. Emanuel, and I arrived in Kabul from Swat at the end of July, the difficulties, so large when seen from London or even from Peshawar, were resolved in one conversation with the Afghan Foreign Minister, H.E. Sirdar Faiz Muhammad Khan, himself a scholar keenly interested in the exploration of his country. As the first British archaeologists to enter Afghanistan, we received a warm welcome, and I cannot speak too highly of what the Afghan officials in outlying parts of the country did to further our work, or of their kindness and solicitude for our comfort. In 1922 the French obtained a virtual monopoly of archaeological research in Afghanistan. It is less than a year since, in this same hall, M.

[1] A brief account of the excavations in Swat will be found in the *Journal* of the Royal Society of Arts (vol. 87, no. 4490, 9 December 1938), and illustrations in the *Illustrated London News*, 24 December 1938. The detailed report, both of excavations in Swat and of the reconnaissance in Afghanistan, will appear as a volume in the *Memoirs* of the Archaeological Survey of India.

Hackin described the most recent work of his Mission. No words of mine can pay tribute to his generosity in giving us his support, and securing that of the French Government, for our proposals for work in Badakhshan, an area into parts of which the French archaeologists, occupied with their great tasks in other parts of the country, had not yet penetrated. Such a generous spirit of international collaboration is unhappily comparatively rare to-day in the world of science.

We set out from Kabul in a new Chevrolet car, a party of five—Emanuel, myself, an Afghan interpreter, an Indian servant, and a Kabuli chauffeur. We crossed the Hindu Kush by what is probably the highest motor-road in Europe or Asia (Shibar pass, 10,500 feet), built by the Afghan Government in 1932–33. This magnificent road, which is kept open all the year round, is the only link for wheeled traffic between Kabul and Afghan Turkistan, but the way which it follows from Bamiyan to the Oxus plain, down the gorges of one of the main feeders of the Kunduz river, is not even marked as a camel track on our latest map. Mazar-i-Sharif and Balkh are now within two days' journey of Kabul. Russian petrol reaches the Khyber pass, and all kinds of Japanese goods, imported through India, fill the bazaars of the Oxus territories. The Far East is still in touch with Bactria. But the motor lorry, which is fast driving the camel from the ancient mountain highways of Asia, brings at least one evil. Cholera was raging in Badakhshan last summer, although the Afghan Government was making most praiseworthy efforts to establish a quarantine and scientific control.

Let us now see where Bactria lies on our archaeological map, for it is only by combining the scattered pieces of evidence which are the historian's chief raw material during the ten centuries between Alexander's conquest and the Islamic invasions that we can make a coherent story. Greek kings ruled in Bactria for two centuries after Alexander had conquered Asia west of the Indus and the Pamirs, and Greek dynasties survived for perhaps another one hundred and thirty years between the Hindu Kush and the Indus. Their story is known only from their coins, of which thousands of examples exist, and from episodes referred to by classical writers, whose knowledge, after Parthia had driven a wedge between the Mediterranean world and the hellenic outposts of Middle Asia (*c.* 150 B.C.), is fragmentary.[1] Chang K'ien, whose mission (138–126 B.C.) brought China into contact with the West, gives a cross-section of Bactria in the last years of Greek rule, and after that the Chinese sources give some help; but in later centuries their information is usually limited to the comparatively brief periods in which the Chinese were in direct control of the Tarim basin or maintained outposts or embassies in Ferghana.[2] We have, for

[1] In a recent work, 'The Greeks in Bactria and India' (1938), Dr. Tarn has made all that is at present possible of these materials. Some criticisms may be made of his reading of the archaeological evidence which is of fundamental importance for an estimate of the legacy of the Greeks in India. I discuss one point below (p. 382, note 6). By his reference to "a brief visit of the French to Balkh" (p. 71) Dr. Tarn does less than justice to M. Foucher's excavations there, which lasted eighteen months.

[2] The relevant passages of the chief Chinese sources were published in an English translation by F. Hirth, 'China and the Roman Orient' (1885). G. F. Hudson, 'Europe and China' (1931), has done a good deal to relate them to the classical and Byzantine sources. But much has still to be done in this direction, especially by fitting into the

instance, no exact information as to when and how Buddhism was introduced into China, although we know how the silkworm was smuggled to Khotan and later into the Byzantine Empire.

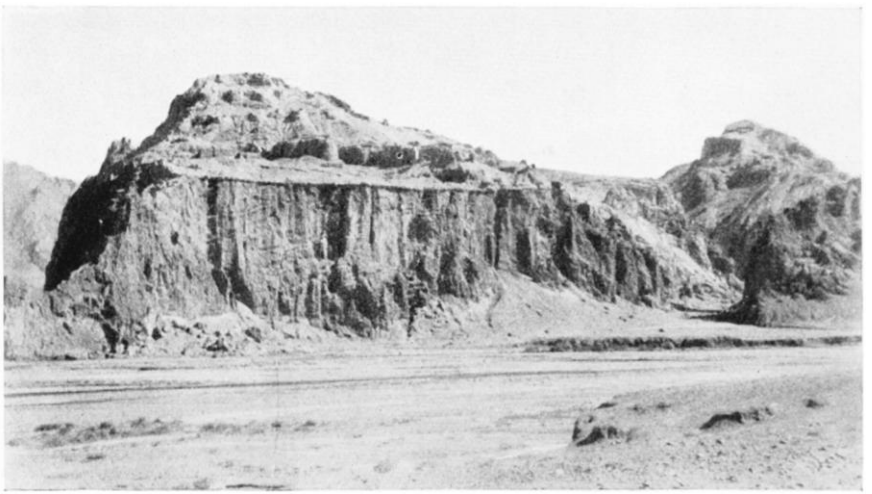
The Greeks in Bactria were overthrown by hordes from Central Asia; the repeated invasions of nomadic peoples, Sakas, Kushans, Ephthalites, and Turks, are the chief landmarks in the history of Bactria down to the Islamic invasions (the end of the period under consideration), and long after. Precipitated, generally as a function of a much wider movement on the Eurasian steppe, into the settled plains and fertile valleys, some of these hordes reached India to rule on the Ganges, others were checked by the Hindu Kush, or, after crossing it, lost their identity and were submerged in the tide of Indian history, as the Greeks had been before them. When we know more about the society, political systems and powers of resistance of the peoples in Bactria and India who were successively overthrown by these nomad invasions, the historian may perhaps claim a hearing on the fascinating question of climatic periodicity. At least he may have something to say about the relative importance of the new doctrine which a recent disciple has added to the orthodox canon of Huntington's theories: namely, what Professor Toynbee calls the "human" or "individual" element in this cyclic process, the breakdown and disintegration of sedentary civilizations which "pull nomads out of the steppe." [1] In leaving the explanation of the rhythm of Bactrian history to our climatologists or their critics (the rhythm itself is an obvious fact of history), I may observe that what little we know of the sedentary peoples of northern Afghanistan during this period suggests that a nomad conquest brought chiefly a change of masters. In the country between the Indus and the Oxus civilization was repeatedly shaken by the nomads, but we must not assume that its course was fundamentally altered by their inroads or their ephemeral empires. The Kushans were, for example, converted to Buddhism. Hiuen Tsiang, who traversed these regions just fifty years before the Islamic invasions, speaks of the savagery of the Ephthalites; but the pious pilgrim still had the pleasure of recording the existence of some thousands of Buddhist monasteries as he passed through Bactria and Gandhara. In his time the Turks were content with a general supremacy over a large number of petty kings, not all of whom were Turks. It was left to Genghis Khan to earn the title of the "Great Destroyer."

So much for the background; let us now consider the archaeological evidence that can be plotted on the map. We must begin on the Indian frontiers. Ancient Gandhara, which stretched from Taxila on the edge of the Indus plain to Kabul, included to the north the territories of Swat and Buner. The museums of Europe and Asia contain hundreds of examples of Greco-Buddhist sculpture, from Bacchic scenes which tell stories like those found on many a Greek vase to turbaned bodhisattvas, statues of Indian princes

scheme of general history the evidence of the documents recovered by pre-War expeditions from Central Asia, many of which have not yet been published. The lack of a definite equation between Chinese, Sanskrit, and classical topography and terminology is still a serious handicap.

[1] A. J. Toynbee, 'A study of history,' III. pp. 7–50 and 391–454, 1934. *Cf. Geogr. J.* 91 (1938) 1–16.

Shibar pass, Hindu Kush



Ruined city near Bamiyan

Foothills of the Hindu Kush at Tashkurghan

The Afghan mail lorry between Peshawar and Kabul

The expedition car crossing the Kunduz river

Expedition caravan in Badakhshan

which show Greek influences only in some of the conventions of the dress. There is a time lag here which we cannot explain, for the reign of Hermaeus, the last of the Greek kings who ruled in any part of India or Middle Asia, came to an end about the turn of our era, and it is impossible, for various reasons, to assign a single piece of Greco-Buddhist sculpture to a much earlier date, and some of the material may belong to the fifth century A.D. Nearly all of what we have is the by-product of military penetration or the work of the ubiquitous Pathan treasure-seeker; most of the pieces of sculpture have no better pedigree than the labels which they acquired in the Peshawar bazaar. By calling the Greekish figures early, and the more Indian types late, we can work out a chronology based on considerations of style alone, as M. Foucher did in his monumental work ('L'art gréco-bouddhique du Gandhara,' 1905–22), but a scheme based on such abstract methods can be contradicted by the archaeologist at almost every turn. In Swat for instance we found "Indian" Buddhas, with moustache, expressionless faces, and a squat and rather ugly appearance, in closest association with scenes in relief which were "classical" in style. Scientific excavation on the North-West Frontier has really only begun with Sir John Marshall's labours at Taxila, of which we still await a detailed report. Work at other sites in different parts of Gandhara may enable us to arrive at the beginnings of an archaeological, as distinct from a stylistic, chronology.

The Buddhist civilization of the oases of the Tarim basin owes at least the genesis of its art to Gandhara and Iran; nothing is more surprising than that Chinese imperialism should have left so few traces on the art and archaeology of the country west of Tunhwang before Turkistan became a land of Turks. But here again there are fundamental difficulties of chronology. It was not until Sir Aurel Stein went as far east as Loulan (which was not of course a monastic site) and the watch-towers of the Tunhwang *limes* that he had any considerable amount of data more solid than that of coins and documents found, not in the sites themselves, but in neighbouring rubbish-heaps. But there is also much more difficult ground than this on which we have to tread in appraising the archaeological evidence. The results of the four expeditions of Grünwedel and Le Coq, which brought back to Berlin a splendid selection of the paintings from the cave monasteries of Turfan and Kucha, are really a *jeu d'esprit* of the art critic, largely divorced from the facts and methods of archaeology.

During the last fifteen years discoveries made by the French in Afghanistan have raised two serious objections to the accepted archaeological chronologies of the Tarim basin, and therefore to the scheme of historical events that has been deduced from them. In the first place, the study of the cave paintings of Bamiyan has given us a number of "fixed points" and done much to alter our conception of the origins and development of what has been called Sassanian Buddhist painting.[1] M. Hackin showed by his brief examination of the Basalik site near Turfan, when he accompanied the Citroën-Hardt expedition

[1] J. Hackin, A. Godard, and Y. Godard, 'Les antiquités bouddhiques de Bamiyan,' 1928; J. Hackin and J. Carl, 'Nouvelles recherches archéologiques à Bamiyan,' 1933; J. Hackin, 'L'art bouddhique de Bamiyan dans ses rapports avec l'art bouddhique de l'Asie Centrale,' 1932.

through Chinese Turkistan in 1931, how much could now be done, with our present knowledge, to revise Grünwedel's theories.[1] I shall not discuss this problem here, for, apart from what we have at Bamiyan and in the Tarim basin, no examples of Sassanid painting exist.[2] Secondly, excavations at Hadda, a series of sites in the Jalalabad basin, have produced hundreds of figures, more Roman than Greek in type, which, as the coin evidence shows with a singular lack of ambiguity, date from the fifth, or perhaps even the sixth, century.[3] This late Gandharan material, represented at other sites on both sides of the Khyber pass, is almost certainly the result of a new wave of trade and cultural influence along the late Roman frontier, which is also illustrated by M. Hackin's amazing finds of fourth-century Syrian glass objects at Begram in the Kabul plain,[4] and perhaps by the large number of Roman coins found at places such as Sar-i-Pul on the northern flank of the Hindu Kush.[5] With few exceptions, the whole gallery of Hadda types, the Buddhas, the heavily ornamented bodhisattvas, the barbarian warriors, the stately benefactors, even the caricatures and demons, are the ancestors of those we find in the Tarim basin at most of the sites from Khotan to Turfan. As Hadda is a fixed point in our scheme (fifth century),[6] it follows that the art of Chinese Turkistan must be much later than was suggested by the inconclusive evidence hitherto available.

The Buddhist civilization of the Tarim basin was a synthesis of Iranian and Indian elements. As the two objections to accepted chronologies discussed above concern Indian sculpture and Sassanian Buddhist painting, they are clearly fundamental. Hadda has supplied a wealth of comparative material the meaning of which only renewed excavation in Chinese Turkistan can illustrate and explain. In the meantime, if you will allow me perhaps to oversimplify both the passage of Buddhism from India to China and the archaeology of Central Asia, our chief problem is this: How did the plaster sculpture of Hadda reach Khotan and Turfan? Until we can fill in the missing links, this is mainly a question of geographical probability, and it was one of the chief problems that we had in mind when we reached the north of Afghanistan.

When, at a place called Pul-i-Kumri, we emerged on to the plain of Bactria from the last defile in the foothills of the Hindu Kush, we became prospectors

[1] J. Hackin, 'Recherches archéologiques en Asie Centrale,' 1931.

[2] Professor Herzfeld's excavations at the site of Koh-i-Khwaja in Seistan, paintings from which Sir Aurel Stein brought back in 1915 and which he described as Sassanid Buddhist work, have shown that the place was a Parthian fire-temple. Stein, 'Innermost Asia,' II, pp. 909–25, 1928; Herzfeld,' Archaeological history of Iran,' pp. 58–74, 1935.

[3] J. Barthoux, 'Les fouilles de Hadda,' 3 vols., 1930–35.

[4] Preliminary report in the *Revue des Arts Asiatiques*, vol. 12, 1938. Photographs in the *Illustrated London News*, 6 August 1938.

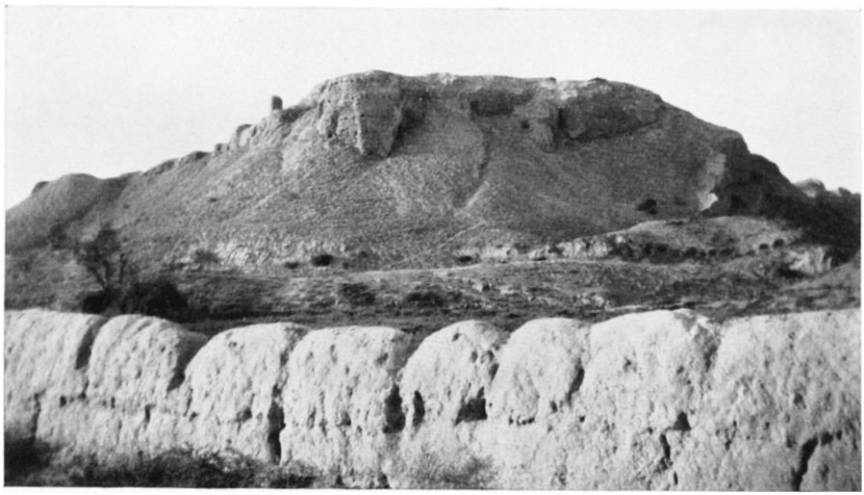
[5] *J. asiat.* 226 (1936) 292.

[6] Dr. Tarn's suggestion ("The Greeks in Bactria and India,' p. 398) that the stucco heads at Hadda were "cast in old hellenistic moulds and then attached to the fourth century A.D. bodies" is unlikely to be accepted by any archaeologist. It was inspired by some remarks of M. Foucher on one of the Hadda statues (*Mon. et mem. Fond. Piot* 30 (1929) 101ff.). Apart from the obvious improbabilities of such a theory, no mould was found during the systematic excavations at Hadda. That the heads and bodies were made separately and by different methods is of course clear.

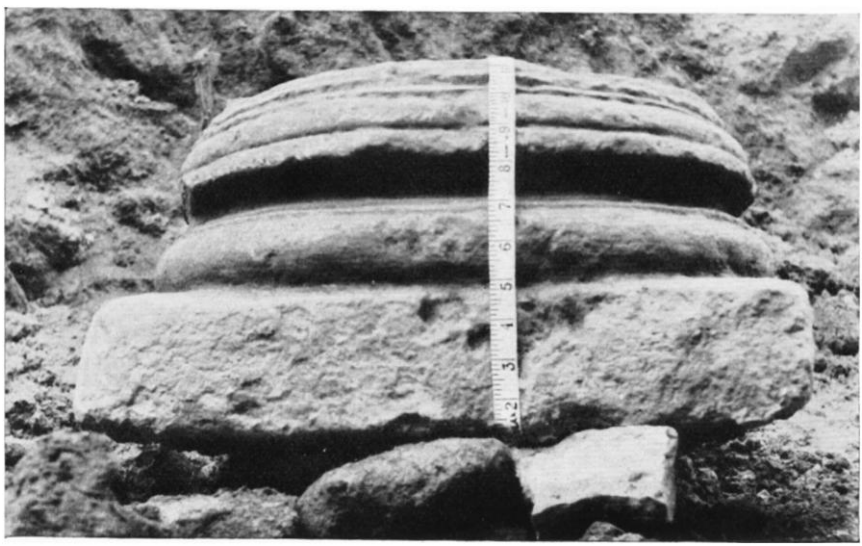
The shrine at Mazar-i-Sharif

Beginnings of a sugar factory, Pul-i-Kumri

Ancient irrigation canals near Balkh



Remains of an ancient city near Akcha, Afghan Turkistan



One of a row of hellenistic columns found at Kunduz

in a country parts of which no archaeologist has visited. Leaving the great north road, which turns north-west and crosses another spur of the mountains to reach Mazar-i-Sharif, we struck due north along a bumpy track to Khanabad. At Baghlan, a few miles farther on, we came upon the site of a sugar factory, marked, not by any habitation or structural foundations, but by a signpost in Persian and in French, and by an array of rather derelict crates and pieces of Czechoslovakian machinery, dumped on the steppe by the lorry drivers at the end of their 600-mile journey from the railhead at Peshawar. Although more than half the population are nomads, Afghanistan has not escaped the beginnings of industrialization, largely as a result of Germany's enterprise and generous credits. There is electricity at Kabul and Herat, a huge hydro-electric scheme at Pul-i-Kumri installed by Siemens, which is to feed a textile factory, and four cotton refineries in the Oxus territories, built and equipped by Russian engineers. But after we had passed through a belt of cultivation, mostly of sugar beet, the country was empty, except for occasional clouds of dust, which took shape as groups of horsemen or as great flocks of sheep whose skins are the chief wealth of Afghanistan in the world market.

Our purpose was to find out what surface ruins exist, what sites might be worth excavation, what objects have been found locally, and to collect geographical data, ancient and modern. Our itinerary was determined by the desire to investigate a number of centres where there was some *prima facie* geographical or historical reason to suppose that ancient remains might exist, but it had to be elastic, for progress in any direction depended on the willingness of the local authorities to remove the political obstacles which have always lain in the way of British travellers on the frontiers of Russian Central Asia. Our methods were necessarily haphazard. We took with us no spades, we had neither time nor permission to dig, and in any case, excavation is not possible until sites which are worth digging have been found. In every village or nomad encampment we stopped and asked the inhabitants whether they knew of any ancient sites (*Kafirkalas* or "places of infidels"), or whether, in ploughing the fields, or in any other way, anything old had been found. We had a set of photographs of seals and other objects to show the kind of things for which we were looking.

It was slow and patient work, sitting for hours in the village conclave over endless cups of tea, exchanging courtesies and trying to convince these simple people that we were not the tax-collector or the conscription officer in disguise, just as, in the towns, we had to convince zealous officials that we were not secret agents, and that archaeology really could be a profession. Much time was of course wasted on false scents; Chinese or Russian coins are "old" to the Afghans of to-day, and Muhammadan graves or rocks worn into strange shapes by the weather had naturally aroused what antiquarian interest these peasants and shepherds have. But the generous hospitality of Afghans, Turkomen, Tajiks, and Uzbegs is a thing never to be forgotten, especially as to the people north of the Hindu Kush the existence of *Inglistan* is unknown: their information about Europe is usually limited to Germany and Russia.

We passed through Khanabad, a town of recent growth, where not even a

single ancient coin relieved the drab monotony of our hunt through the Russian crockery, Japanese cotton goods, and German alarm clocks of the bazaars, to Kunduz, where these methods were luckily crowned with success. This small town, with its new and well-kept streets, was an important place in Hiuen Tsiang's time, and again last century, when Wood had a good deal to say about the Uzbeg chief who had carried off so many of the inhabitants of the Badakhshan uplands to die in the pestilential marshes surrounding his capital. Here we sat for many hours in the bazaar, as we so often did, waiting until our presence and our mission were noised abroad throughout the town.

An old man who had paid no attention to us, and who had been just one of the expressionless bearded faces that filled the *Tschaikhana*, suddenly spoke up, saying that he had something which might be of interest to us, though he could not say what it was. He led us to his house on the outskirts of the town, a substantial dwelling in the shape of a caravanserai. In the courtyard stood the bases of two Greek or Roman columns of Corinthian style. He took us farther up the street to a pit dug by builders to get earth for making bricks. There, at a depth of 10 feet, a third column base was just being unearthed. This is the first ancient stonework found to the north of the Hindu Kush, the first Greek remains seen in Central Asia. Only excavation will show what they are—perhaps the edge of a forum or a temple. Excavation may not be easy, for on one side of the site there is a row of buildings, and beyond them the main road, although on the other side there is a large open space on which, last summer, a number of nomads had pitched their *yurts*. But this lucky find disproves the conclusion drawn from M. Foucher's unsuccessful excavations at Balkh, namely that the hellenistic cities of Bactria, like their successors of to-day, were all built of mud or sun-dried brick, and had therefore left no trace behind.[1]

Somewhere, perhaps underneath the shapeless mounds round Balkh, many of which are the mud of which later cities were built, there must be other Greek structural remains of stone. Chang K'ien found (128 B.C.) Bactria to be a land of walled towns,[2] and in Ferghana, the Greek occupation of which was until recently in doubt, he speaks of "fully 70." The difficulty is where to begin looking for them. Classical writers only supply with certainty two names of cities in Bactria and two in Sogdiana, and a Sanskrit source perhaps adds a fifth; and of these five the position of two is uncertain,[3] and only Balkh lies within the boundaries of modern Afghanistan. Dr. Tarn may be right in saying that most of the towns seen by the Chinese were military colonies or large villages walled with mud. But chance has brought one lucky find, and may add others. Excavation at Kunduz may at least show what a Bactrian town of which there is no mention in classical writers was like.

Some 2 miles north of the place where these remains were found, there is

[1] M. Foucher has not yet published a detailed report of his excavations at Balkh, where he laboured with a large army of workmen for eighteen months (1923–25). His general conclusions will be found in his 'Étude sur l'art bouddhique de l'Inde' (Tokyo, Maison Franco-Japonaise), pp. 57–62. He told the Congress of Orientalists at Oxford that in the "Mother of cities" he had found "absolutely nothing."

[2] F. Hirth, "Translation of the Shi-ki of Ssu-ma Ch'ien" (*J. Amer. orient. Soc.* 37 (1917) 89ff.).

[3] Summary of the evidence in Tarn, *op. cit.*, p. 118.

a huge "castle" with walls of mud 100 feet high and over 2 miles in circumference. There is a wide and deep moat, and there are four gateways. The interior consists of a series of shallow undulations or mounds well rounded by the weather, which indicate the remains of mud buildings, aligned along two roads which intersect at the centre and which connect the four gates. The fortifications on top of the enceinte are obviously comparatively modern; they still retain the shape of walls. But because here, too, builders had been excavating earth, we were able to examine some of the lower strata of kiln-baked brick. These lower walls were very reminiscent of Sassanian building, and some of the pottery collected from these levels proves to be similar to pre-islamic Persian types which, thanks to the labours of Mr. Pope, we can now arrange in some sort of chronological order. In appearance, this impressive ruin is very similar to the Parthian fortress of Takht-i-Suleiman, which Mr. Pope has recently surveyed on the western marches of the Sassanid Empire.[1] From Kunduz a road, along which I was not permitted to travel, runs to the Oxus, and close to where the Kunduz river joins the Oxus there is a ruined fortress which, though apparently smaller, was described to me as of similar plan. It is called Kalat-i-Zal, a name so often associated with pre-islamic remains. The ruin at Kunduz is a site of which we cannot say anything more definite at present than that it should be excavated. But I think that it will almost certainly prove to be one of the strongholds by which the Sassanid kings maintained a shaky hold on the Bactrian frontier, and Kalat-i-Zal may have been an outlying post commanding the passage across the Oxus.

There is a third site at Kunduz, a mile and a half north-east of the town, and about a mile from the fortress, which until two years ago might have attracted no more attention than the other mounds dotted over the surrounding country. During the autumn of 1936 excavations made for an irrigation canal brought to light a number of fragments of rather mutilated stucco figures, which were sent to Kabul. The local officials dug into the mound and, without finding any more fragments of importance, they uncovered three chambers with apses in the mud walls. M. Hackin paid a brief visit to the site a few months later, when the countryside was unfortunately covered with snow, and he was easily able to recognize the remains of a Buddhist monastery, no doubt one of the ten the existence of which Hiuen Tsiang records in the Kunduz region.[2] From the shape of the mound there would appear to be two courtyards surrounded with cells, and the large lump at the northern end probably represents a stupa. M. Hackin has published an account of the stucco fragments in a pamphlet printed in Kabul.[3]

Chance has here provided what may prove to be a find of first-class importance, for these seven heads are the first Buddhist sculpture from the regions north of the Hindu Kush. It would delay me too long if I mentioned here more than one or two of the possible or probable implications of this discovery. It has always been supposed that the Buddha image, missing on all

[1] Preliminary report in *The Times*, 18 February 1938, and in the *Illustrated London News*, 26 February 1938.

[2] Beal, 'Records of the Western World,' p. 288.

[3] 'L'art bouddhique de la Bactriane,' 1937.

early Buddhist monuments in India where the Master is represented by his footsteps or some other sign, was created somewhere in northern India, either at Mathura or in Gandhara, and that it was the work of "Greek refugees," or "Indians," or "Indianized Greeks." Buddhism of course reached Bactria from India, and the hitherto non-existent Buddhist art of Bactria was assumed to have been a derivative of Indian models, like that of Hadda, or of the Tarim basin. But these heads from Kunduz are in some ways more "Greek" than any Buddhist sculpture in India, and they show, in more primitive form, some of the conventions developed in Gandhara. If M. Hackin is right in dating them in the first century B.C. or the first century A.D., it will follow that the Buddhist art of Bactria was an independent development, and that the Buddha image was created there and not in India. The historical probability is that Buddhism reached Bactria very early, before Buddha was personified in stone or plaster. The Bactrian Buddha may have gone to India, where, in an Indian environment, he may have become the Buddha we know so well in Gandhara or at Mathura. As a working hypothesis, M. Hackin's dating is the only one that will make sense, for, if some of these heads look more Central Asian than Greek, they are certainly not importations from India.

From Khanabad we took a new road, only completed last summer, to Faizabad, a distance of 137 miles. The making of roads is one of the chief concerns of energetic Afghan governors, and this road came into being without the assistance of any European engineer or even that of a steam-roller. Beyond Kishim, where it leaves the old caravan track which ran *via* Daraim to Faizabad, the road cuts its way through the gorges of the Kokcha, parts of which were hitherto impassable. Workmen had to be suspended in baskets from the almost perpendicular cliffs to drill the holes for blasting. The men of each village are made responsible for completing the section of the road in their district, and above Faizabad, where the road is now being traced to Jurm, we saw the Governor in his shirt sleeves directing his men. The bridges are made of logs covered with rubble, and they have to be renewed twice a year, for each seasonal migration of the nomads' sheep destroys them beyond repair. There is not much traffic yet, only a motor lorry once every two or three weeks. Even in the neighbourhood of Khanabad horses panic at the first sound of a motor vehicle, and it took as much as half an hour to get through a large flock of sheep. Petrol for the return journey had to be taken from Faizabad, and in the back of the car we had to crouch between a petrol tank and the roof.

At Faizabad we were the guests of the Governor, whose province of Badakhshan includes Wakhan and stretches up to the Chinese frontier on the Wakhjir pass. Our host had some sad stories to tell of American and German travellers who had reached Faizabad in the belief that instructions had been given for them to proceed into Wakhan, and whom he had had to turn back. But after some telephone conversation with the Governor-General in Khanabad, who had given us a most cordial reception, we received permission to proceed on horseback to Jurm. In doing so we were, I believe, the first Englishmen to pass that way beyond Faizabad since last century, perhaps since Lockhart and Woodthorpe reached Ishkashim in 1886. Seven horses were hired, through the good offices of the Governor; two of these were for baggage, and

the rest for ourselves and our military escort, it being understood that the three Tajik caravan drivers were to walk. But these Badakhshan horses are so sturdy (their fame reached the Chinese Emperor at an early date) that for long marches two of the drivers would ride on top of the baggage on one horse.

The whole of the north of Afghanistan is frankly marked as "unsurveyed" on the Survey of India map, except where it shows the results of the two boundary commissions, on the west and in the High Pamirs, and in the far eastern corner, which has also been sighted by the theodolite of Professor Mason. It was therefore not surprising to find that the shape of the Kokcha valley on our map was incorrect, and that Faizabad, for instance, was perhaps 20 miles out of position. For this part of the map presumably goes back to Wood's journey, and to the traverses of those remarkable surveyors Pandit Manphul, who came to Faizabad in 1867, and the Munshi, Faiz Bakhsh, who went to Wakhan in connection with Forsyth's Yarkand expedition in 1870. These reports were summarized by Colonel Yule in "Papers connected with the Upper Oxus regions" (*Journal R.G.S.* 42 (1872) 438ff.).

But our chief concern was with ancient geography. We were on the first stage of the route which goes up Wakhan to the headwaters of the Oxus and crosses the Pamirs to Tashkurghan and the Tarim basin, followed by Hiuen Tsiang on his homeward journey, by Marco Polo, and by the Jesuit, Benedict Goes, in the seventeenth century. It has been repeatedly stated by Sir Aurel Stein that this branch of the Silk Route was of much less importance than the one which ran from Termez on the Oxus up the valley of the Waksh, through the broad valley between the Alai and the Trans-Alai, and past Irkistam, the present frontier station, down to Kashgar.[1] This theory goes back to Yule's [2] and Richthofen's [3] reading of Ptolemy,[4] and after securing the weight of Dr. Herrmann's authority[5] it has since been endlessly and uncritically repeated as if it were an historical fact. It is of course true that the Alai valley is a "natural highway," and Sir Aurel Stein's explorations have proved that this is the route which Ptolemy appears to describe, even if we may never know the exact position of the "Stone Tower." But to say that Ptolemy refers to the Alai valley is one thing; to argue from such premises that the main trade route passed that way for many centuries is quite another. Ptolemy's geography of the regions beyond the Pamirs is so confused that it is hard to make sense of it. His information, obtained at fourth hand and apparently from a single expedition of merchants, hardly provides a suitable basis for generalizations about the whole of ancient and medieval trade.

There are a number of reasons for thinking that the Wakhan route may have been nearly as important as the northern route, and in discussing them it must be remembered that this is not only, or even primarily, a question as to which way the silk came to Persia and the Mediterranean; we want to know how, in the reverse direction, Buddhism went from India to

[1] *Geogr. J.* 65 (1925) 381; 'Ancient Khotan,' I, pp. 54ff.; 'Innermost Asia,' II, pp. 847ff.; "On ancient tracks past the Pamirs," *Himalayan J.* 55 (1932) 21–4.

[2] H. Yule, 'Cathay' (2nd ed. by Cordier, 1915), I, pp. 190ff.

[3] Richthofen, 'China,' I, pp. 497ff.

[4] Ptolemy, *Geog.* I, xii.

[5] A. Herrmann, 'Die alten Seidenstrassen zwischen China und Syrien,' (1910) map; 'Das Land der Seide und Tibet im lichte der Antike' (1938), pp. 105ff.

China, how the plaster sculpture of Hadda got to Khotan. To begin with I think that we can definitely exclude the passes over the Karakoram as a route along which Buddhist civilization may have travelled. So far as I am aware, there is no evidence that the Karakoram pass was used in ancient times, and Fa Hien's account of the Gilgit road reads like a piece of exploration. But more decisive than negative evidence is the fact that the archaeology of Kashmir is provincial; it is a local derivative from Gandhara, and not an intermediate stage between Gandharan or Hadda prototypes and the Buddhist art of the Tarim basin. The route up the Kunar valley and over the easy Baroghil pass to the headwaters of the Oxus, which Sir Aurel Stein followed on his second Central Asian expedition,[1] might be considered, but two wrecked stupas at Gilgit and a rock carving at Mastuj are not much evidence. Had this been a main road, for trade or pilgrims, something more substantial would have come to light at Chitral during forty years' occupation by British troops.

It seems clear that the main route from India and the Kabul valley to the Tarim basin lay across the Pamirs. Now Wakhan was much nearer the Khyber than the Alai route which ended at Termez, for it could be reached through the valleys of Kafiristan, many of which are still unexplored. A caravan driver assured me that a good horseman could ride from Jurm to Kabul, *via* the Anjuman and the Nawak pass, in three days. There is still much traffic on this route. For a caravan coming from China round the southern rim of the Tarim basin, Wakhan is the shortest route from Khotan to Bactria or India. The northern oases of the Tarim basin were frequently subject to raids and temporary occupation by invaders from the Dzungarian steppe, and again Kashgar was naturally and easily occupied by invaders from Ferghana, as it was by the Turks. To such general historical and geographical considerations we may add the fact that in the seventh century Wakhan was for a time a Chinese administrative district. But the archaeological evidence is of much greater weight. The fruits of Sir Aurel Stein's reconnaissance in the Alai valley were some old cultivation terraces, a mound or two and the remains of a few stone buildings.[2] Wakhan, on the other hand, is known to be full of fortifications, buildings, and caves, which Sir Aurel Stein believed to be of Sassanid date, and among which he has also found traces of Buddhist worship.[3] No site in Wakhan has yet been excavated, and in a sense it has never been explored. The route through Wakhan has always followed the southern bank of the Oxus, for the floor of the valley is broader there, and the chief settlements mostly lie on the south (or Afghan) side. Sir Aurel Stein and Olufsen[4] have explored the Russian bank, but, so far as I am aware, no record exists of any traveller who has been on the Afghan side of lower Wakhan since Wood made his famous journey to the sources of the Oxus in midwinter exactly a hundred years ago.[5]

[1] 'Serindia,' I, pp. 30–72; *J.R. Asiat. Soc.* 1910, p. 37.

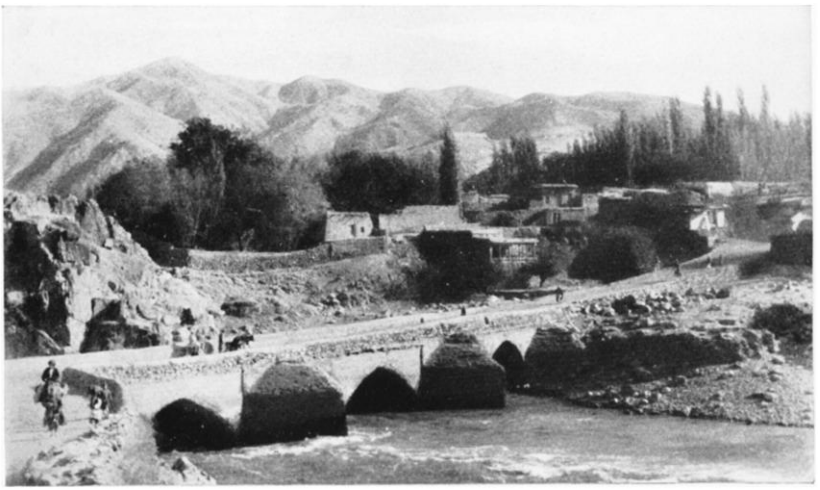
[2] 'Innermost Asia,' II, p. 847.

[3] *Ibid.*, pp. 863–76.

[4] F. Olufsen, 'Through the unknown Pamirs,' 1904.

[5] Sir Aurel Stein crossed the Baroghil saddle and surveyed the uppermost part of the valley from Sahrad to the Wakhjir pass ('Serindia,' I, pp. 6off.). Colonel T. E. Gordon visited the part of the valley between Kila Panja and the Little Pamir lake ('Roof of the world,' 1876).

The Warduj valley from Baharak looking towards the Pamirs



Bridge over the Kokcha at Faizabad

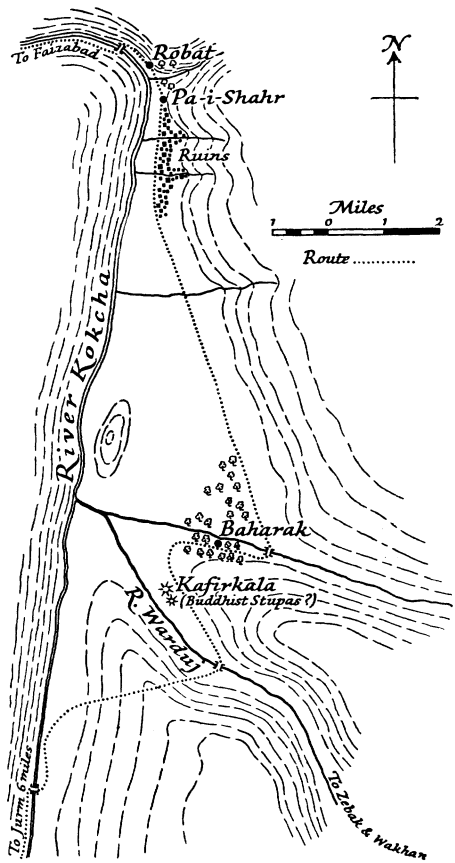
The plain of Baharak from the south-east

Ruined building in Balkh

The great Buddhist stupa at Balkh

The walls of Balkh

Thorough excavation of some of the ancient sites in Wakhan must be perhaps the most important single item on any agenda of archaeological work in Central Asia, and there is every hope that the progressive and liberal spirit that animates the present Afghan Government will allow it to be done. On our journey up the Kokcha, we made a discovery which strengthened my conviction that the Wakhan was an extremely important route. For about 15 miles beyond Faizabad the Kokcha runs in a series of narrow gorges. The valley then broadens out to the width of a mile, although for some way farther upstream the river is in a trough and cannot be used for irrigation. Beyond a hamlet with the significant name of Pa-i-Shahr ("foot of the town"), we came across remains of undressed stone, strewn along the valley for a distance of about 2 miles. It was not always easy to trace the exact extent of the ancient site, and only here and there, chiefly in the entrances to the side valleys, was it possible to make out the plan of the buildings with any certainty. For the stones had frequently been cleared away and built into walls supporting recent terraced cultivation, and occasionally they had been piled up to make sheep enclosures. But there can be no doubt that this is the site of a large city, almost certainly that of the ancient capital of Badakhshan. Judging from a map, it lies exactly where one would expect to find it.



Sketch-map of Baharak

Just beyond the end of these remains the valley opens out into a fertile plain, triangular in shape and some 6 miles by 4 miles at its greatest extent. Here the Kokcha receives two affluents, the Warduj, from the south-east, which the route to Wakhan follows as far as Zebak, and another from the east. The village hidden by luxurious fruit trees on the farther edge of the plain, at the entrance to the Warduj valley, is called Baharak, a name long associated with the ancient capital. "Khairabad," placed at this point on our modern maps, and to which they attribute a post office, has disappeared, both as a place and as a name. Farther on, in the mouth of the Warduj valley, at the spot where the traveller coming from the east might feel that he had at last emerged from the Tsungling mountains, are two mounds of roughly

hewn stones, which have the appearance of wrecked stupas. They are known locally as *Kafirkalas*, although the nearer we get to modern Kafiristan, the greater the caution necessary in attributing importance to this name. The plain of Baharak itself would have been an unsuitable site for a city. Its extreme fertility would have been wasted, and again it could have been attacked from four sides. The town built in the narrow valley just off the plain commands the route leading from Faizabad to the Warduj and Wakhan, and the extent of the ruins illustrate, I think, the importance of that route, to which I have already referred. Holdich [1] discussed the position of Idrisi's city of "Badakhshan" at length, and finally came to the conclusion that it was more likely to have been Jurm than Faizabad. Neither of these places could have supported a large population, for they are situated on narrow rocky shelves, between the river running in a gorge and the steep sides of the valley, and corn would also have had to have been brought from a distance.

The days we spent riding through the uplands of Badakhshan, close under the Roof of the World, with distant views of glimmering white summits, were among the pleasantest of our travels. Our camp was supplied with the famous fruits of Badakhshan; indeed, apples of Baharak are sent all the way to Kabul, where they fetch a fabulous price in winter. We found nothing else of antiquarian interest, except two or three Greek and Sassanid coins in the bazaars of Faizabad and Jurm. Unfortunately we did not have permission to leave the main route, part of which, where it follows the Kokcha below Faizabad, does not follow any ancient highway. A thorough archaeological exploration of Badakhshan north of the Kokcha and of the Anjuman south of Jurm should produce interesting results; it is strange to think how little, if at all, our knowledge has advanced since, by the study of place-names, by combing the works of the Arab geographers, and by using reports now lost or buried in the archives in Delhi, Sir Henry Rawlinson collected so many indications of ancient sites in this region.[2]

From Faizabad we returned to Khanabad, and although it was only the beginning of September, Shiva lake was said to be frozen and nomads were already on the move, streaming down the valleys to lower pastures on the plains. After a visit to Kunduz, to see whether our friends the builders had done any more excavation, we crossed the plain to Balkh. On the way we had a distant view of the Oxus, across a belt of desert, with the mountains of Russian Turkistan beyond. Balkh is a wilderness of mud walls of uncertain age, 11 miles beyond the modern provincial capital of Mazar-i-Sharif, which has grown up round the chief shrine in Afghanistan, a splendid building of the Timurid epoch. M. Foucher found that the stupa, 200 feet high, described with such a wealth of detail by Hiuen Tsiang, had become simply a huge cake of mud. The walls of Balkh are 7 miles in circumference. It is idle for us to hazard an opinion as to whether, if M. Foucher had dug deeper or at some other spot in that great area covered by walls, mounds and rubbish heaps, he

[1] Sir Thomas Holdich, 'The gates of India,' pp. 273–4 (1910). Holdich did not notice that Idrisi was uncritically repeating Ibn Haukel's itineraries, with a few inaccurate interpolations which are the source of much of the confusion in his itineraries. 'Idrisi' (ed. Jaubert), I, pp. 474–5 = 'Ibn Haukel' (ed. Ouseley), pp. 230–31.

[2] H. Rawlinson, "A monograph on the Oxus," *Journal R.G.S.* 42 (1872) esp. 507ff.

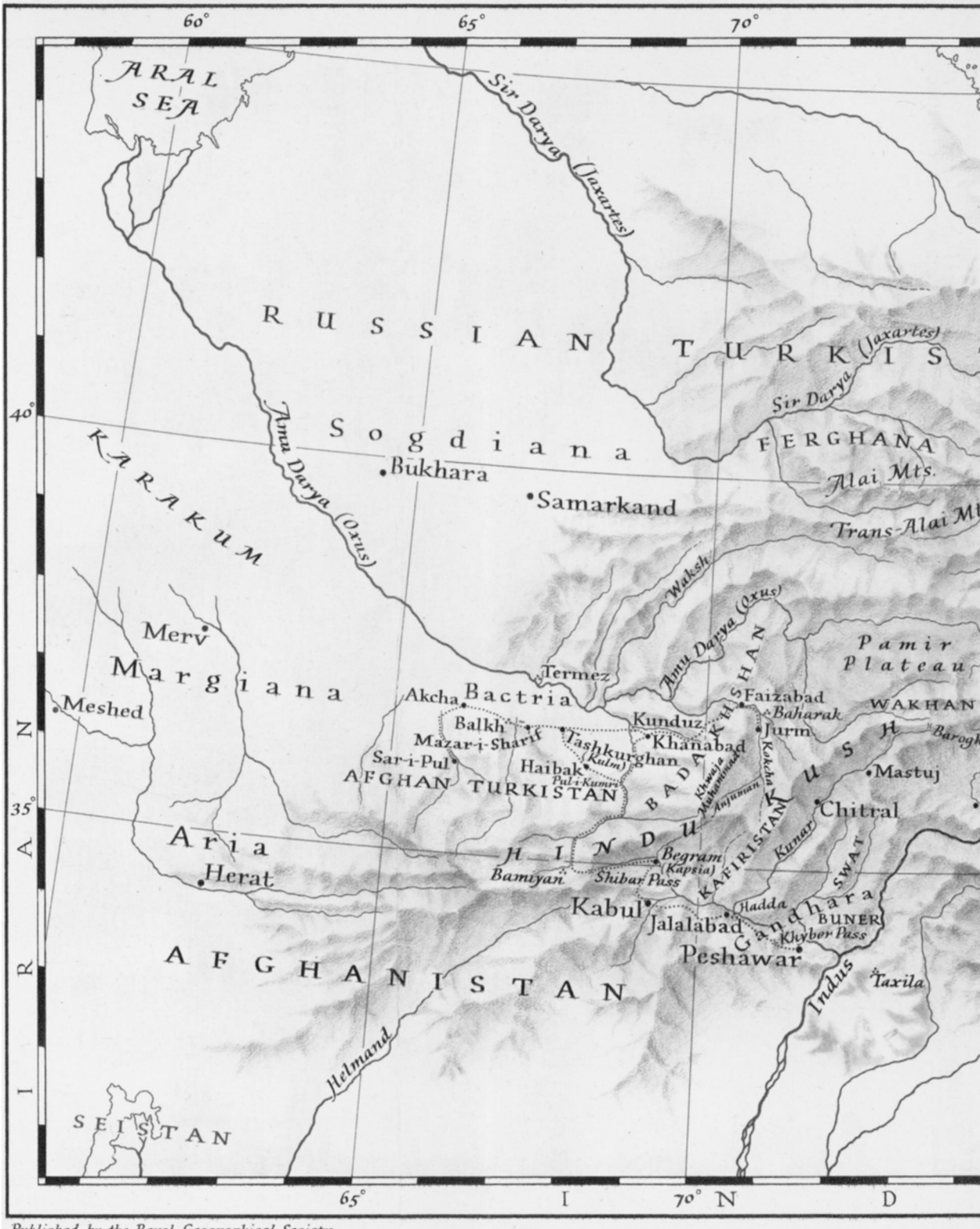
might not have found something more substantial under the mud of successive ages. Greek coins are certainly numerous in the bazaars of Balkh, and indeed, until six or seven years ago, when the Afghan Government introduced its first paper currency, they were often common tender.

On the plain between Balkh and Shibarghan, some 50 miles west of Balkh, we examined and plotted on the map a very large number of mounds, from about half of which we were able to bring back an assortment of pottery fragments. Most of these sherds are variants of those slip-painted and splash-glazed wares which we call early Islamic, but which we cannot easily classify. Chronological argument is defeated, not, as in India, by the conservatism of the potter, but by the inadequacy of our knowledge and of comparative material. This is not the place to give a detailed account of these mounds, of their shapes, dimensions, and distribution. They are mostly found in groups, for the larger tumuli have a number of small dependencies. By relating this topographical data to the pottery, when it has been examined, I hope that we shall at least be able to decide which type of mound has the semblance of antiquity and would therefore warrant excavation.

A number of systems of ancient irrigation canals can be traced on the plain, a detailed survey of which would be a necessary adjunct to any programme of systematic excavation in Bactria. What I may call the classical view, elaborated by Holdich,[1] is that these canals were fed by the Oxus. But this is contradicted by Idrisi,[2] who says that the Oxus was not used at all for irrigation until it reached a place certainly situated below the modern Russo-Afghan border. Idrisi was merely repeating what Ibn Haukel said in the tenth century.[3] It is difficult to believe that the Greeks were more enterprising in this respect than the Turks and Arabs were before Genghis Khan left his mark on the civilization of Bactria, or that, if they were, the Arabs would not have known of such an ancient irrigation scheme and turned their knowledge to some account. There is, on the contrary, some evidence that the Balkh river once reached the Oxus, and I must leave the explanation of the desiccation of Bactria to climatologists, or to those geographers who are familiar with the hydrography of the Hindu Kush.

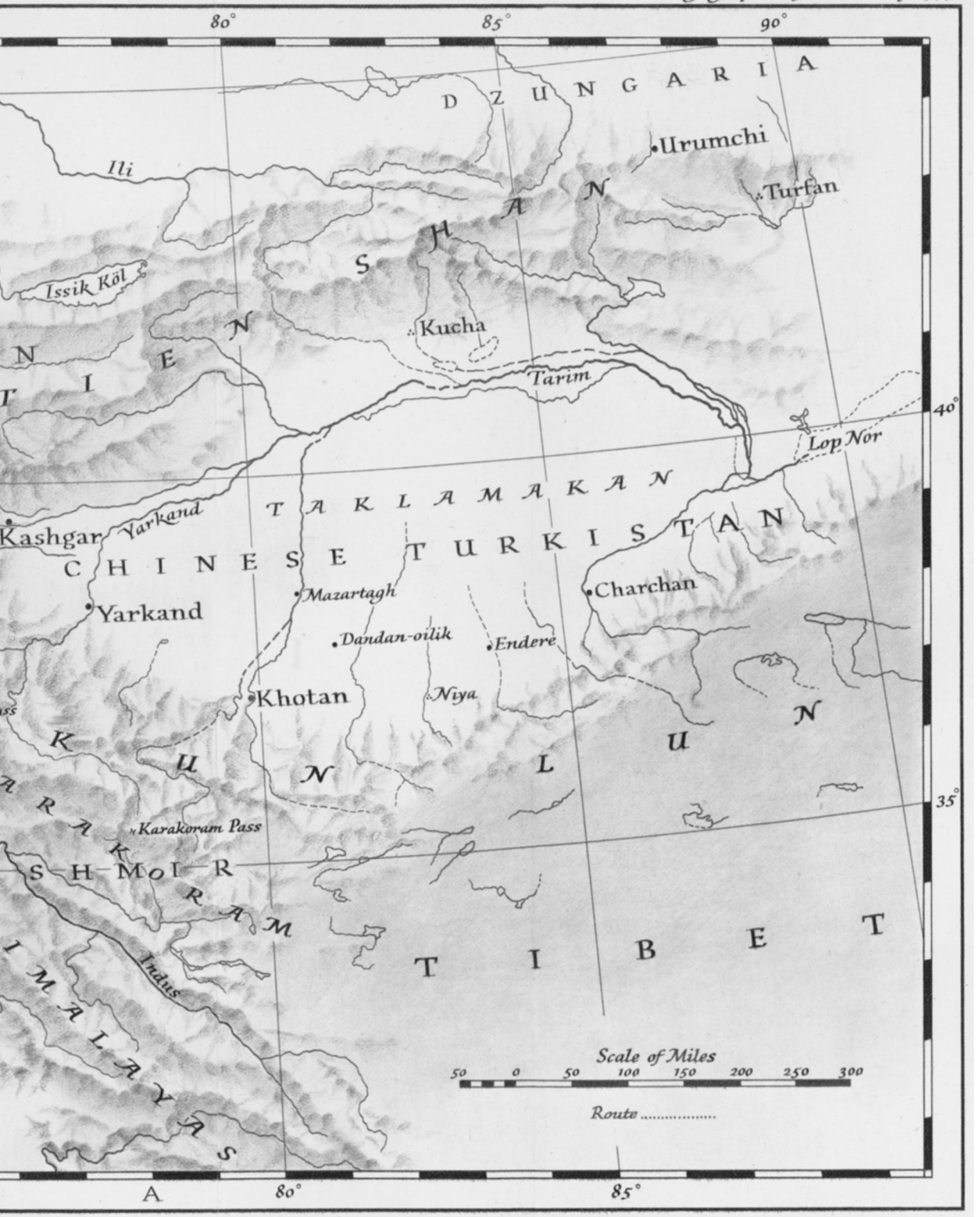
At the end of September we were back in Kabul as the grateful guests of Sir Kerr and Lady Fraser-Tytler, and in Peshawar we rejoined the two members of our party who had been excavating in Swat. We had travelled over 2000 miles in Afghanistan, a stern but hospitable country of rugged mountains and wind-swept plains. The archaeology of Central Asia is still a thing of shreds and patches, and if there is perhaps too much of the dust of history in what I have told you of our researches, I hope that I may have been able to interest you in some of the problems which may be solved by future expeditions to Central Asia.

[1] 'Gates of India,' p. 75.
[2] Ed. Jaubert, I, p. 475.
[3] Ed. Ouseley, p. 239.



Published by the Royal Geographical Society

LORATION OF ANCIENT SITES IN NORTHERN AFGHANISTAN" by Evert B



NORTHERN AFGHANISTAN
Barger

5000 feet up or spending three or four hours a day wading across the river to sites on the less-frequented farther bank.

We were not entirely preoccupied with monasteries as such; we wanted to get a more general picture of the lay-out of the country in Buddhist times. As the basis for that picture Weatherhead, the surveyor, made a comprehensive map of all the ruins of that period in the valley, not only of monasteries and shrines, but forts, villages, cultivation terraces, ancient waterworks, barrages, and so on.

In the last month or so we travelled farther up the valley and spent some time in the excavation of quite a different kind of site: a large flat-topped mound near Charbagh, about 25 miles up the Swat from Barikot, our first headquarters. Sir Aurel Stein saw that mound and described it as an acropolis. That may be correct; at any rate it was certainly a centre of habitation. We found on the lower slopes of the mound the ruins of Buddhist walls and pottery indicating occupation of the site in Buddhist times and probably for some centuries later, and beside the pottery we found a certain amount of iron-work, a few heads, terra-cotta figures and a few very battered pieces of the same kind of sculpture as decorated the monasteries. Not perhaps very much to go on, but I think it was enough to encourage one to go on excavating that kind of site. There are plenty of sites in the Gandhara plain which must conceal ancient villages and which so far have been practically neglected by archaeologists. It is the excavation of these rather than future exploration of monastery sites that may help us to fill in details of our very incomplete picture of Buddhist civilization in that area.

Mr. W. V. EMANUEL: I was not expecting to say anything, but perhaps I might add a few personal touches about our methods of living and working, which may be of interest to non-technical members of the audience.

In particular, it may interest you to know how we lived. The food in the Swat valley is limited. It consists mostly of rice, for the valley is covered with rice fields, but rice perpetually is not a very good diet for Europeans. We lived largely on chickens which, like the rest of the inhabitants of Swat, are rather poor; and on kidneys. Apart from chicken we had a few vegetables such as tomatoes and marrows. There are more vegetables than one would suspect in that very poverty-stricken country: the valleys in between those wind-swept and barren mountains are surprisingly rich and fairly well cultivated. We occasionally got fruit from India. In Afghanistan we were saved by having an old servant with us because, although he was not hired as a cook, he was able to produce from the bazaars in a very short time, with the aid of three bricks and two or three pots, a very good meal which was free of *ghee*, the frightful clarified butter or mutton fat with which the Afghans cover all their dishes. They have very few different dishes and they all taste of the fat. When we stayed with governors and in rest-houses we had to do as the Romans did. We also had some very tough mutton, and our greatest fear was of some kind of dental trouble in a country of no dentists.

Mr. Barger has already mentioned our methods of inquiry. It is difficult to convey to you the fascination and interest of wandering round a bazaar and really getting to know how to go, shall we say, from the Street of the Potters to the Alley of the Hat Makers. After going round two or three mornings one soon gets to know which merchant has a particular cache of Greek coins and how many *Afghanis* he is going to go on asking until he reaches the price one is willing to pay for the coin. There are surprises, such as mysterious English coins, 1837 pence, and coins of Peter the Great which turn up among the Sassanid seals and the coins of Bactrian kings. There is something extra-

ordinarily and uniquely fascinating about the chase for the past in a country which in the present is so interesting because it is so unspoiled.

Mr. JOHN DE LA VALETTE: It is a terrible admission for one so long a Fellow of this Society, but I must confess that I cannot add to the geographical side of the subject under discussion. There are however certain other aspects about which I might say a few words.

We must, I think, all admire Mr. Barger and his comrades for having selected the months of July to September in which to carry out their work; they must have been terrifically hot months. It shows not only that they had all the vigour of youth, but that they had all the enthusiasm which makes real archaeologists. Perhaps too this is the moment to say that it is about time that something should be done in those regions by Englishmen in the way of archaeological research for, as you have heard, nothing very much has been done there by the English for twenty-five years. There may be political reasons for that. Men like Mr. Barger and his colleagues are however the best political agents. It is all very well to say, as Mr. Barger did, that when you get into a country things suddenly become easier; that depends on the man who gets into the country, and his behaviour when there.

One point which immediately emerges from this discussion is that, whatever may be the outcome of the careful scrutiny of the objects brought back by the expedition, they only represent a first step. Even so they will probably provide a great deal of evidence to complete our scrappy knowledge of the chronology of that part of the world and of the interrelations between the arts of India, China, Greece, Persia, and Turkistan in this particular part of Afghanistan where so many trade routes meet.

Mr. Barger's expedition was made possible partly by the assistance of the Royal Geographical Society, as he mentioned, and also by the support given to him by the authorities of the Victoria and Albert Museum who are responsible for the Indian Section. This is a remarkable achievement, because I believe it is the first time that the Victoria and Albert Museum have considered it within their province to support an archaeological expedition, as they did by lending the services of Mr. Wright and in other ways. I feel sure that if with this support and the support also of the India Office and the Indian authorities on the spot the expedition can be repeated, the preliminary work which has been done so brilliantly this time will lead to very important finds. I am very glad to think that the men who have been engaged on this expedition are all so young that they have still a long time of fruitful research before them. They may thus help to advance not only archaeology and geography but also the good repute of England in a part of the world where it may well need a little more moral support.

[*The following contribution has been received by the Editor.*]

Mr. K. DE B. CODRINGTON: I am glad to take this opportunity of congratulating Mr. Barger and the members of the expedition on the work they have done. The discovery of the Kunduz pillars is obviously of the greatest importance, while the list of sites reported holds great promise for the future.

It seems to me worth remembering that the problem of Bactria, that is to say of hellenism in the East, is not the only problem. The ewers and vases which are to be seen everywhere on the Ajanta frescoes are Sassanian in form. The costume, or rather uniform, of the retainers in many of the frescoes is a close parallel to the costume of the Bamiyan frescoes, and both derive from somewhere west of India. The pottery fragments which Mr. Barger has brought back from some of his sites contain Sassanian types as well as Islamic types.

It should therefore be clearly possible to reconstruct the history of the Oxus valley after the hellenistic period.

The difficulty of hellenistic archaeology is largely one of defining provincialism. Not only do the areas concerned tend to be vague, because of the lack of governmental and social traditions, but the cultural forms tend to be preserved over long periods. They do not change as they do in the great centres where wealth and fashion rule. For instance, turning to the region south of the Pamirs, we know that the Greco-Buddhist art of Gandhara was in existence in Kanishka's reign: it is reflected in his famous relic-casket and in certain Buddha figures from Mathura. We also know that in its moulded plaster form, typified by the Hadda finds, it persisted well into the fifth century A.D. and later. Yet the types seem to show almost no trace of organic development during these four centuries or more. Indeed, though we know from extant texts and from the reports of the Chinese pilgrims, who were on the spot, that sectarian Buddhism existed, we are still unable to distinguish from the architectural and sculptural remains, including the iconography, which sites were Hinayana and which Mahayana. In other words, we do not know the Buddhist tin tabernacles from the Buddhist cathedrals.

Mr. Barger's greatest contribution is the picture of the human conditions he has given us. Further excavation will doubtless help to reconstruct, in some sense at any rate, the cultural possibilities of Indians living in Afghanistan and Greeks in Bactria. Controversy based on largely unedited literary accounts can only lead to a clash of opinions. It is only too obvious that the various trends of opinion are contradictory. The decision lies with the spade.

The CHAIRMAN: I would like to ask your permission to quit the Chair for a few moments in order to say a few words on this extremely interesting subject. Mr. Barger will have, before I return to the Chair, the opportunity of shooting me dead if he feels so inclined.

The lecturer has, in the course of his most interesting paper, mentioned the Munshi, one of the Survey of India explorers, who went with Forsyth's Mission to Yarkand in 1870. Perhaps as one who has surveyed on the Pamirs I may be permitted to add a few words with regard to these men. While the exploits of the Hindu Pundits, A. K., Nain Singh, and the rest of them who explored Tibet, are now pretty well known, the services of the no less intrepid Mussulman explorers of the North-West Frontier have been less generally recognized. Perhaps the four most conspicuous of them were those known as "the Mirza," "the Mullah," "the Havildar," and "the Munshi."

The Mirza, between 1868 and 1873, made important journeys across the Pamirs and was eventually murdered while asleep near Bukhara. The Mullah, between 1873 and 1879, explored Dir, Swat, Chitral, and Mastuj, and passed on to Yarkand, besides tracing the whole course of the Indus from the plains to Bunji. The Havildar, between 1870 and 1874, made three important journeys to Bukhara, visiting Faizabad and Kulab, and reaching Yazghulam on the Oxus, between Darwaz and Roshan. And the Munshi, among other travels, followed the Oxus through Wakhan for 60 miles to its great northward bend at Iskashim and then followed the river northwards through the then totally unknown districts of Shughnan and Roshan to Kala Wamar, near the confluence of the Murghab and Oxus.

The work of these men was beset with extraordinary difficulties and dangers, and if their maps do not reach the requirements of modern archaeological research we must not be surprised. The accurate mapping of these distant regions is a progressive operation which takes many years to complete. I mention these facts because there may be a misconception in Mr. Barger's mind.

The word "unsurveyed" on a map is not identical with the word "unexplored." These old Mussulman travellers were explorers of routes; their observations and reports were collated and compiled; succeeding travellers have used their maps and added to our knowledge, and the work of surveyors has been made vastly easier on their account. The archaeologist now has an easier task than the archaeologist in the past. At the same time, an absolutely accurate topographical map is not essential for the correct interpretation of an outline of historical fact, and it would be wrong to assume that scholars of a past generation must necessarily fall into error because they had not such maps.

There is another comment I wish to make. Mr. Barger remarked that Sir Aurel Stein had repeatedly stated that the northern route by Kashgar, Irkishtam, and the Alai valley was of "much more importance" than the two routes by Shughnan and Wakhan; and he said: "This theory goes back to Yule's and Richthofen's reading of Ptolemy, and after securing the weight of Dr. Herrmann's authority, it has since been endlessly and uncritically repeated as if it were an historical fact." Now I do not pretend to be an archaeologist, and I presume that archaeologists have their own little differences of opinion, just as geographers and surveyors have. But I have studied the geography of those regions very carefully and I have read and studied most of Sir Aurel Stein's writings year by year as his expeditions took place: those three remarkable journeys of detailed geographical and archaeological exploration in Central Asia. Perhaps in Sir Aurel Stein's absence I may be permitted to make some brief observations.

Firstly, when Sir Aurel Stein was stressing the importance of the northern route he was, I am quite sure, alluding to the Silk Route from China westwards, and not to the Culture Route from Gandhara to Central Asia. These are two very different questions. To begin with, their termini are by no means identical; while, if we are to accept Mr. Barger's chronology, the Silk Route must surely have been in use long before the Culture Route. As a fact of geography, which cannot be denied, the northern route is considerably the easiest of the three, owing to the difficulty of getting off the Pamirs from the two southern routes, and therefore the northern route would be the more natural route, geographically, between Mesopotamia and China, especially in times of political security. On the other hand, Gandharan culture would more naturally follow the direct southern route. It should be remembered that, though Sir Aurel Stein may not have had the good fortune to explore the Oxus and its tributaries in Badakhshan, he has closely examined in detail those sections of all three routes which cross the Pamirs, which Mr. Barger has not; and Sir Aurel has, in fact, written as much about the southern route as the northern. It is relevant here to stress the fact that these three routes across the Pamirs have no direct bearing on those north and south of the Taklamakan desert farther east: it is quite possible for the old Silk Route to have gone through Khotan, Yarkand, Kashgar, and by the Alai valley while the Gandhara culture route may have passed through Wakhan, the Little Pamir, Tashkurghan, and Kashgar to Turfan, the two crossing at either Yarkand or Kashgar.

My second point is this: If Ptolemy's geography of the regions beyond the Pamirs is so difficult to follow, is it not remarkable that four such scholars as Baron Richthofen, Sir Henry Yule, Dr. Herrmann, and Sir Aurel Stein—none of them particularly anxious to take each other's opinions without a certain amount of scrutiny and all with such varied experience in travel and learning—should agree on the route followed by the agents of the Mesopotamian Maës along the northern Silk Route in the first century A.D.? The same scholars are agreed that

the Buddhist pilgrims, Sung Yün and Hui Sheng in A.D. 519 and Hiuen Tsiang in A.D., 642 followed the southern route through Wakhan. Sir Aurel Stein expressly quotes Hiuen Tsiang as having heard an old story that a great troop of merchants, with thousands of followers and camels, had once perished by wind and snow near the Chichiklik hospice on the southern route. There is indeed little doubt that both routes were in use for the silk trade. Possibly one was used more than another at one time or other. Balkh would have surely lain on both.

Sir Aurel Stein is the last man to generalize the history of centuries from an isolated classical allusion. He digs deep for his facts. And if his views have been misinterpreted in this respect, as undoubtedly they have been misrepresented in the problem of desiccation in Central Asia, I can assure you that the fault is not his. I am not saying that Mr. Barger has misrepresented Sir Aurel's views, but perhaps he is a little inclined to accept another's misrepresentation. At any rate, those are my views, and now Mr. Barger may, if he desires, shoot me dead.

Before sitting down I would like to express our deep appreciation of all the help that both the India Office and the French authorities have given this expedition. I hope that all that can be done will be done in order to further the exploration of the region. Intensive work has hardly yet begun in Central Asia. We have now to dig deep.

Mr. EVERT BARGER: So far from my having any desire to shoot the Chairman dead, I think we are all of us to be congratulated that my few remarks on the historical geography of the Pamir region should have drawn such a valuable contribution to this discussion. If I still hesitate to accept some of Sir Aurel Stein's views on the fascinating problems of the Silk Route, and if I have not been altogether persuaded by the impressive arguments to which we have just listened, that may only be because I am rather obstinate. It would be presumption on my part if I attempted to challenge the Chairman's authority or that of Sir Aurel Stein on any question affecting the geography of the Pamirs. In replying to what the Chairman has said, I confine myself, as I tried to do in my paper, to the historical evidence (some of which is of course supplied by the archaeologist), and to the methods of synthesis and ways of thought appropriate to the historian.

Let me begin by saying that the distinction which the Chairman has drawn between the Culture Route, from the Indian frontier (Gandhara) to China, and the Silk Route, from China to the West, seems to me a very penetrating suggestion. But I am uncertain how far this distinction would carry us in solving the main problem, which is that of the relative importance of the two routes during a period which lasted a thousand years. The Chairman was certainly right in pointing out that the chronology which I inferred from the archaeological evidence supposes the existence of the Silk Route described by Ptolemy some centuries before Buddhism travelled from India to China along the Culture Route. But we know from the Byzantine sources that silk caravans were still coming overland from China during the period (say from the fourth to the ninth century) in which Buddhist missionaries such as Hiuen Tsiang were crossing the Pamirs, and Wakhan was even for a time a Chinese province. Those centuries are perhaps the crucial period in the march of civilizations across Asia, as I think the archaeology of the Tarim basin shows. I find it hard to believe that during that period trade and religion should have taken different routes. The only direct evidence that the northern route was used at all, at any date, comes from Ptolemy. On the other hand, the importance of the southern route through Wakhan is brought out, not only by the archaeological evidence

which Sir Aurel Stein's own explorations have provided, but by the Chinese records.

This is a problem on which geographers, archaeologists, and historians all have something to say. As I am not a geographer, I can only deal in what I may call geographical probabilities. Experts such as Professor Mason and Sir Aurel Stein, to whom we owe so much of our knowledge of the Pamir massif, assure me that the northern route is much the easier of the two. But I think that the archaeologist and the historian can only accept that proposition as a *prima facie* indication of facts which have yet to be proved. We have to ask ourselves whether there are not factors in the history of Central Asia which would upset assumptions drawn from geographical data.

Admittedly the history of these regions is sketchy, but in attempting to piece it together, I think that we do find some facts to suggest that the route which is geographically speaking more difficult was nevertheless the more popular. The Chairman said that the routes round the Tarim basin have no direct bearing on the relative importance of the routes across the Pamirs. With this I do not entirely agree, because the history of the northern oases of the Tarim basin explains why (as I think) the Silk Route described by Ptolemy may at an early date have been eclipsed in importance by the southern or Wakhan route, as regards both trade and the meeting of cultures. We find repeated reference to the occupation of the northern oases of the Tarim basin by Huns and other peoples. It was natural that, as a result of shortage of pasture or of political convulsions on the Eurasian steppe, nomads should occupy the oases on the northern fringe of the desert. The Turks, for instance, occupied Kashgar long before they made eastern Turkistan a land of Turks. It must have been infinitely more difficult for China to maintain communications along the northern route by way of Turfan and Kashgar than it was to reach Khotan from Kansu along the southern rim of the desert, and to travel on *via* Wakhan to the emporia of the West and to the homelands of Buddhism in India. In other words, political conditions in the north of the Tarim basin, of which we have some historical evidence, may have made it more difficult for traders and missionaries to pass that way than along the southern route, despite its greater physical obstacles.

I hope that in answering the Chairman's arguments as best I could, I have neither shot him dead nor presumed to trespass on territory which is not my own. The Buddhist route through Wakhan has not yet been explored by the archaeologist, and the relative importance of ancient routes across the Pamirs is one on which we may perhaps be allowed to differ. For at present the evidence is so scanty that in this discussion we have not, I imagine, been searching for anything more solid than what I may call a working hypothesis. It is a problem which I hope future expeditions will be able to solve.

The CHAIRMAN: It comes to this: I am not dead, and the next stage is that we shall have to do all we can to get enough money to send Mr. Barger back to dig. I ask you to show your very hearty appreciation of his extremely interesting lecture.