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cars on to the wide, hard, sands, we find tens of thousands of people, with probably one to two thousand cars, spending a happy and health-giving day there every Saturday and Sunday during peace-time summers. These people come from all parts of south-west and south-east Lancashire, and their appreciation of this natural playground is shown by the way that they ignore the man-made attractions of neighbouring towns.

One therefore comes to the conclusion that this area should be preserved in its present natural state. That however is not entirely possible, because, as Mr. Steers has said, sand-dunes will not stand more than a certain amount of rough usage. Besides bathing, walks, and games on the beach, one of the chief attractions of any dune area is the possibility of sitting or lying on the sand in some comfortable, sheltered hollow, resting and sun-bathing, and absorbing the fresh air after spending a week of work in some relatively smoky town. Already before the war, considerable areas near the main access roads had had to be fenced off in order to allow the dunes to recover from the trampling of the previous summers. I should be pleased to know if Mr. Steers has any suggestions to make with regard to means for limiting the numbers of visitors to regions of this type to the quantity that the area can stand. The local corporation makes a charge of a shilling a day for each car entering the beach in the Southport area, with an annual five shilling contract for local ratepayers only, which no doubt restricts the numbers somewhat, but the whole length of coast is backed by an electric railway from Liverpool, which, on peace-time summer Sundays, has a train, capable of carrying a thousand people, every ten minutes throughout the day, and in addition there are thousands of cyclists.

A GEOGRAPHICAL INTRODUCTION TO THE HISTORY OF CENTRAL ASIA

K. DE B. CODRINGTON

Evening Meeting of the Society, 8 May 1944

GEOGRAPHY is the background of human endeavour. History, archaeology, and ethnology neglect it at their peril, for modern humanism cannot envisage man apart from his environment. He is not however its mechanical product, since he actively contributes to it, modifying the scene of which he is a part. Moreover it must be confessed that he has the faculty of destruction as well as of construction. This being so, the possibilities of human nature must be included in the discussion of any objective natural laws which pure geographers may seek to postulate. Central Asia comprises varied areas of very wide extent; but the size of the geographical field is not the only difficulty. The human material it provides is, also, essentially complex. It is true that the recorded traverses of the great explorers have made the main, physical features of the area known to us. At the same time it should be realized how thinly they cover the actual terrain, and how much still needs to be defined. Yet our geographical knowledge of Central Asia is precise compared with our knowledge of its history, that is to say, of the human factors implicated.

The real validity of history dwells in the details out of which we construct our résumé of events. It is really a dimension, not a subject, and, in devoting ourselves to it, we must seek our data where we can, rejecting neither the products of the archaeologist's spade nor the ethnologist's interpretation of human behaviour, in order to clothe with significance our bare skeleton of dates. Our view of the human scene, at any given period, must obviously be built upon the physical facts at our disposal. But geography is not a mere record of discoveries. It is, also, the expression of ideas, and must strive toward their synthesis with the physical facts, in a single, critical picture. If that picture is to be true, it is above all necessary that the known facts should not be obscured by immature generalization. Such generalizations as Primitive Man, or Economic Man, useful as symbolic aids to theory, require constant revaluation in the light of what is known in specific areas, at definite dates.

The academic view identifies Central Asia with Nomadic Man. If we would avoid the doctrinaire, and we must if we are to preserve the claims of science, we should not be satisfied with such an assumption. We should not allow the assumed Nomad to obscure the living man, who is the only proper subject of our interest in history. In the same way, the delusive simplicity of the customary textbook terms, "desert," "steppe," or "mountain" should not be allowed to obscure the rich variety of the actual terrain. Therein lies the geographical problem.

The fundamental traditions of European learning, which has only recently been persuaded to look beyond Greece for its origins, remain self-centred. Cary and Warmington, in a recent book ('Ancient explorers,' p. 130), maintain that they have to treat of "the slow penetration into, and even conquest of, a part of the vast tracts of Asia by the civilized peoples of the enterprising West." This vision of Classical Imperialism as the pioneer of the trade-routes of the East is in conflict with Herodotus' sober opinion that Darius was the discoverer of the greater part of Asia. In point of fact, rice, ginger, and pepper all appear in classical Greek under their proper Indian names, correctly transliterated, indicating close mercantile contacts of long standing, based upon accurately drawn bills of lading. Correct phonetic transliterations of oriental names may be traced from the early tales of mythical monsters to Ptolemy's place and tribal names. The coincidence of the Greek and Sanskrit for "tin" seems to be due to a Sanskrit borrowing from Greek, for all the Indian quotations are late. This verbal accuracy is astonishing and clearly indicates contacts between Indians and Greeks outside India. It is clear however that the Greeks first became aware of the existence of the mass of Central Asia through their market-outposts on the shores of the Black Sea. It was not the land, nor the people, in whom the Carian pioneers were interested. They wanted to do business, above all in gold and iron. The Milesian and Athenian merchants, who succeeded the Carian Argonauts, wanted corn and fish: a foothold in the ports sufficed their need.

Apart from what they knew of the Indians, Persians, Egyptians, and Nubians, the Greeks were specially concerned with two kinds of barbarians, the Gauls from the west and the Scythians from the north-east. It is evident that the peculiar customs and habits of the Scythians of the Euxine hinterland

distinguished them not only from the self-conscious Greeks, but also from all other barbarians. They existed, not merely as a barrier to Greek commerce, but as a threat to the civilized world. Herodotus made the Greeks Scythian-conscious. Strabo took up the tale, and three centuries later, Ammianus Marcellinus is still quoting the old stories, just as he quotes the old place-names without any attempt to coordinate them. Indeed, they survive and are strangely corroborated by the mediaeval Central Asian missionaries and explorers, John of Carpini, William of Rubruquis, and Odoric of Pordenone. The pattern of Central Asian history is notably stable and reappears through the centuries with persistent regularity. The Greeks however were not alone in their discovery and fear of the nomads of Central Asia, nor is the European myth of nomad *ogres* unique. For centuries the Chinese have been concerned with the problems of the defence of their own, equally self-conscious, civilization against Central Asian hordes. Upon this ancient and widely established tradition, dramatizing Central Asia as a seething cauldron, symbolic of the wrath of God (*Yaqut*, II, 410), was grafted the gentler, eighteenth-century, sentimental romance of patriarchical Arabia. So the nomad became identified with the desert, and consequently, since Central Asia is nomadic, it must also be largely desert. It is indeed remarkable, in spite of the concentration of interest upon Central Asian nomads and nomadism, how little attention was paid to the source of the trouble itself; the hinterland, from which the terrible flood of men and horses erupted, still remained unknown. For Aristotle India was the eastern boundary of the world.[1] To the north lay the Scythian wastes. In between lay the oriental Parnassus, which was regarded as an eastern limb of the Caucasus. Beyond stretched the circumambient sea, which even Pliny, whose knowledge of India was detailed and, on the whole, accurate, still was able to believe in.[2] It was left to Ptolemy to write of "the unknown land," which bounded Scythia on the north, and Bunbury describes his knowledge of Scythia itself, as being of "the vaguest possible character." He had however heard of China.[3]

So it came about that, very slowly, the literary accounts of the classical and Arab geographers made men aware of the long, east and west line of mountains which divides Asia in two, but gave them no picture of what lay behind. The traditional view of the Alps as the barrier, in Europe, between classical culture and barbarism provided an intelligible analogy. Gradually an appearance of definition was created by means of new names, borrowed from the merchants'. itineraries and travellers' tales upon which early geography was forced to rely; so that the semi-mythical Parnassus gave place to Caucasus, and Caucasus gave place to an east-and-west Paropanisus and a north-and-south Imaus, and the mediaeval Bolor, which we know as Pamir. At the same time, the Scythian consciousness of Herodotus and Strabo was supplanted by the Mongol consciousness of the mediaeval travellers, and, since both these peoples were identified by the nomad way of life, interest was still focused upon the desert and the steppe—the nomad scene. This view not

[1] *Meteorological* I, 13, 15, 20.
[2] Strabo, XI, VII, 2. Pliny, II, 170.
[3] 'History of ancient geography,' vol. II, p. 597.

only neglects the magnificence of the Mongol Empire, which is fully documented, but also obliterates the achievement of nomad emperors upon the throne of China.

A glance at the map shows that the major feature of Central Asia is the great, diagonal mountain-chain, running from north-east to south-west, from Lake Baikal in the latitude of Norway, to Hindu Kush in the latitude of Sicily. The desert and steppe can only be defined in terms of this great divide, which in its central reach, lies between the Tarim basin and Transoxiana, and so sets its massive mark between the historic province of Chinese Imperialism to the east and the ancient birthplace of Iranian culture to the west. But this is not all; to the south lies a third cultural focus, India. The analogy with the European Alps is therefore false, for the barrier lies, not between barbarism and civilization, but between ancient culture and ancient culture. Moreover northern Europe, with its navigable rivers and re-entrant seas, plentifully supplied with harbours, differs utterly from Central Asia with its rivers universally and inevitably destined to lose themselves in sand. It is perhaps permissible to draw a parallel in these terms, as Cahun does, between the Vikings of northern Europe and the Nomads of Central Asia.[1] In doing so however, it is necessary to remember how close the contacts between Iran and China, and India and China, have been, and how rich were the fruits of the coming and going which ensued. The archaeological and literary evidence can no longer be neglected on this point; as an accomplishment, this distant cultural exchange is an historical fact of the greatest importance, and as such it stands as a corrective to the exaggerated Nomad-consciousness of traditional history. Business is a matter of contacts. It cannot be carried on without good will and organization. Our problem is not merely the doctrinaire definition of abstract Nomadism. It is necessary that we should understand what manner of men, living in the Central Asian complex of mountain and desert, achieved, or obstructed, this remarkable, cooperative exchange between three of the world's oldest and most highly specialized civilizations. From this point of view, it is abundantly clear how important, historically, the great Central Asian mountain-divide is. It is also clear that its function was never that of a mere barrier. Our interest is focused, not upon the wall itself, but upon the many breaches in it, which were the channels of persistent human intercourse through the centuries.

The complex of parallel ridges and valleys, which lie between Pamir and Herat, has naturally played a special part in the development of traffic between India and China; the lines of communication with Persia lay to the south and included the open sea-ways of the Persian Gulf. Alexander's geographers recognized the great height and complexity of the mountains to the north, and Arrian (XXIX), quoting Aristobulus, dramatizes the difficulties the Greeks had to face in their passage, as, also, does Quintus Curtius.[2] The latter here and in his description of Bactria in the same book strikes a realistic note which is unique in classical geography. He specifically states that at that time the region was imperfectly known to the bordering nations on either side, because there was no interchange or traffic between them, and

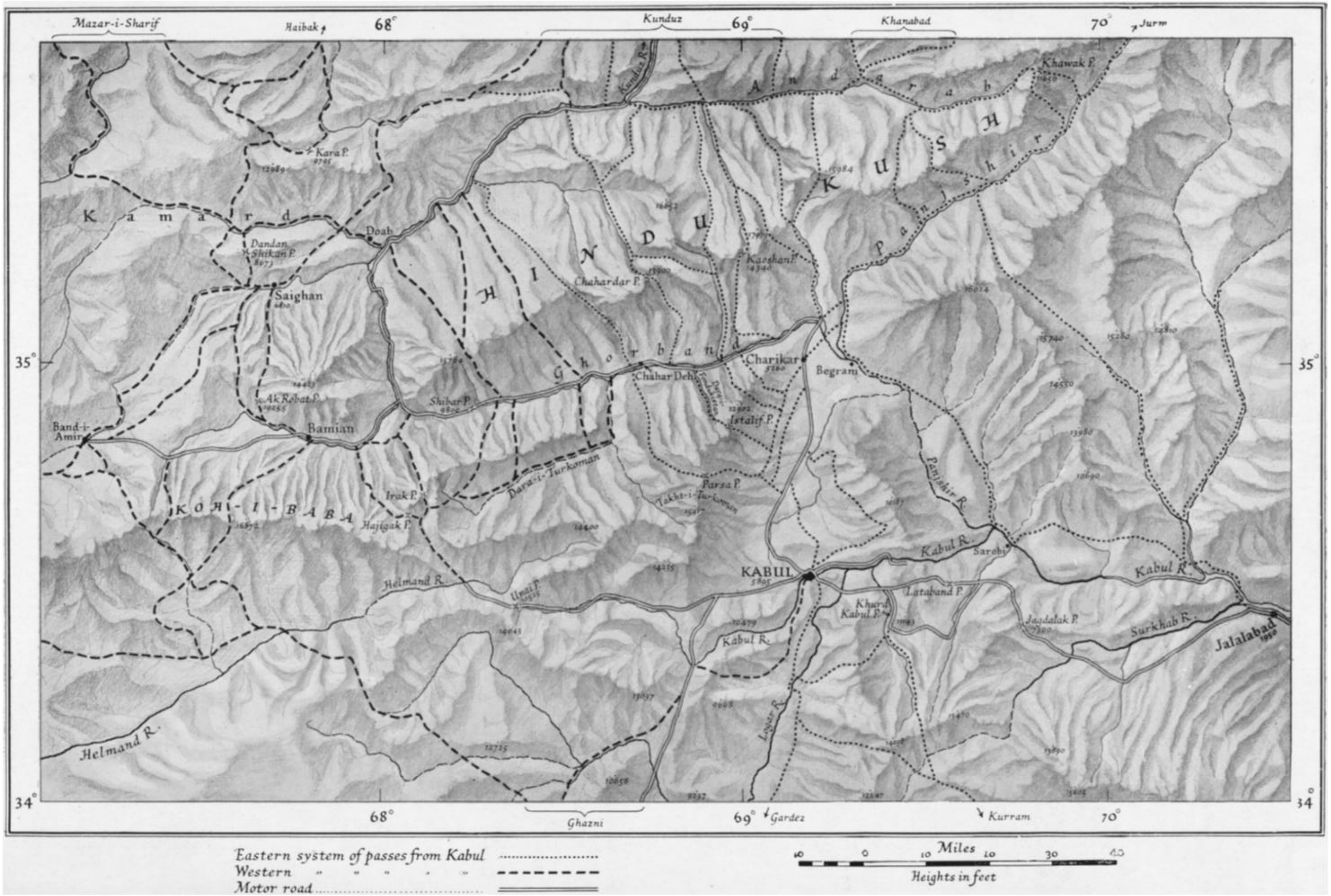
[1] Cahun, 'Introduction à l'histoire de l'Asie,' p. 2.

[2] VII, 3, 6. See Schmieder's edition, notes vol. II, p. 1248.

Ghorband valley, looking west to the Shibar Pass

Kalu valley from Shahr-i-Zohak

The north road to Doshi at the Bulola Gorge



Mazar-i-Sharif
Haibak
Kunduz
Khanabad
Jurm
68°
69°
70°
35°
34°
Kunduz R.
Andarab
HINDU KUSH
Panjshir
Khawak P.
Kara P.
Kamard
Doab
Dandan Shikan P.
Saighan
Chahardar P.
Kaoshan P.
Ghorband
Charikar
Begram
Chahar Deh
Istalif P.
Shibar P.
Ak Robat P.
Bamian
Band-i-Amir
Dara-i-Turkoman
Parsa P.
Takht-i-Turkoman
Irak P.
Hajigak P.
KOH-I-BABA
Panjshir R.
Kabul R.
Sarobi
KABUL
Helmand R.
Unai P.
Khurd Kabul P.
Lataband P.
Jagdalak P.
Surkhab R.
Jalalabad
Logar R.
Ghazni
Gardez
Kurram
Eastern system of passes from Kabul
Western " " "
Motor road
Miles
Heights in feet

it may well have been so. However, here as elsewhere, the barrier is incomplete and its passes and valleys eventually provided well-trodden routes for the transportation of Buddhism and Indian art to China, via the caravanserais and merchant-cities of Transoxiana and Taklamakan, which also served the Mesopotamian and Black Sea routes. The advance of the Greek dynasties of Oxiana towards the Indus, and their final retreat from the Oxus under barbarian pressure, must have played a critical part in opening these routes to Indian trade. The objective was the Chinese market, for the west was already served by easy routes to the south. The event however was not merely local, a matter of the decline and fall of decadent, Hellenistic princelings, for throughout the whole period Parthia was also deeply concerned in combating the irresistible flood from the north. On the one hand, profitable trade-routes had to be kept open; on the other, it was felt that civilization had to be defended, and, in this sense, the Parthians were certainly Phil-Hellene.

In all the marching and countermarching that ensued, the valleys of the Ghorband and the Upper Kunduz river were prominent. The Ghorband, and its tributary the Panjshir, which flows into it at an acute angle from the north-east, are part of the Indus system; the Kunduz flows into the Oxus. Together they form a trough of about 100 miles in length, broken only by the mature, rounded downs of the Shibar Pass. North of the Ghorband rises the main axis of Hindu Kush; south of Bamian, in the upper Kunduz valley, lies the peaked scarp of Koh-i-Baba. From Charikar, in the region of which Alexander built his cities, to Bamian, where a thousand caves cluster around the two great, rock-cut Buddhas, every inch of the way is historic. So voluminous is the documentation—Sanskrit, Greek, Latin, Persian, and Arabic—that it is hard indeed to confess that the real facts available for the foundation of a true understanding of the region and its history, are few and imperfect. The literary record, in this case, like the geological record, is discontinuous. It is also inhumanly abstract. What does it amount to? Upon the Greek retreat are superimposed successive, barbarian, intrusive layers. That relics of Greek rule in Bactria remain to be excavated can hardly be doubted, but for want of planned digging all we know of it at present is based upon the distribution of chance finds of coins. Even the barbarian status of the invading hordes is an assumption, for we only know them as they make their entrance into the known world, so to speak, through Bactrian, Parthian, and Indian eyes. Indeed, in India, where the labours of the Archaeological Survey have provided us with a certain amount of concrete evidence, it is clear that the intruders are already Indianized. What, then, as far as the evidence goes, and we can pretend to read it, is the pattern, in this complex area, of the history of the clash of Central Asian hordes upon the stable cultures of ancient Iran and India, and what is its basis in terms of geography?

Herzfeld suggests that *Eranvej*, the ancient home of the Aryans, straddled the Oxus and Jaxartes from Khwarazm to Samarqand. A late tradition fixes upon the Oxus as the dividing line between Turan and Iran, but this assumption begs the whole question of the actual development of the conflict. We know that Turan, the Central Asiatic cauldron, repeatedly spilled over into the Iranian field, but we do not know what these invasions actually amounted to. Were they mere forays, leading at the most to a kind of Asiatic feudalism,

or were they true invasions of peoples, transporting not only arms and the vocabulary of military dominance, but a way of life and a vital social structure? The picture will be distorted, unless it is clearly realized, from the beginning, that the Iranian Tajik represents in the Kabul valley, as in other parts of Central Asia west of Tien Shan, the most ancient, sedentary stratum of the population.[1] At the same time, it must be realized that the Kabul valley has repeatedly been included in Indian kingdoms, effectively organized from the Sutlej to Hindu Kush. It is therefore evident that the Tajik, with his irrigation channels, his gardens, and his orchards, persists, in spite of the hammer blows from the north, the tramp of armies, and the reactionary resilience of Indian culture to the south, against which the barbarian, triumphant in arms, could not protect his individuality or his name. One after another, the invaders vanish in the mass and complexity of ancient India. Yet even on semi-Indianized ground in the Kabul valley, on the very fringe of the Iranian world, the Tajik has remained himself.

Moreover this remarkable resistance of the Tajik cultivator and the obvious survival value his way of living has in a peculiarly hard world, can be traced to very early times. In the course of the centuries, Turan has obviously gained upon Iran, restricting the range of Iranian culture; for the Scythians and Sarmatians, whom the Greeks knew beyond the Euxine coast, spoke an Iranian tongue, and it has long been admitted that Iranian peoples of a kind were scattered from the Caspian to the Bug.[2] Iran, as history treats of it, is a land of great cities; it is true that the court was migratory, but so were the courts of mediaeval Europe. This is the real origin of the obvious conflict between Iran and Turan; Iran represents urban administration while Turan would maintain tribal freedom. For cities, though they grow wealthy by trade, cannot live without bread. Their very existence demands a certain standard of agricultural skill and organization. Iran of the cities, each surrounded by the orchards and fields of the villages, which gave it sustenance, looked towards Mesopotamia; it was indeed to a large extent the successor of that ancient centre of town-minded civilization. But the Assyrians had known the tribal Cimmerians and Scyths as well as the Medes and the Persians. When Darius created Iranian imperialism, Iran of the cities was faced by a frontier problem. Certain areas were then absorbed within the Empire, and so urbanized, as part of the imperial administrative machine. But the periphery of unadministered, tribal Iran, remained unknown, or rather confused with the Scythian menace. In this greater, barbarian Iran, the Tajik, skilled in irrigation and grafting, had his place from early times, within the Scythian lands, cheek by jowl with Scythian manners and economics. His survival is a fact of the greatest significance.

Laufer found it necessary to preface his 'Sino-Iranica' with the observation that we really know very little of the culture of ancient Iran, and it must be admitted that the old Persian inscriptions and the *Avesta* do not give us an

[1] Wilson's 'Travels,' vol. 2, p. 366, records Tajiks at Sultanpur, west of Jalalabad, settled according to tradition in pre-Ghaznavi times. The name was originally applied to the invading hosts of Islam, and first occurs in Chinese sources. (Chavannes, 'Voyages des Pélérins Bouddhistes,' p. 25, *circa* A.D. 675.)

[2] Minns, 'Scythians and Greeks,' p. 97.

adequate picture of Iranian life and manners. Central Asian exploration has however provided a massive array of linguistic documents which have been ably dealt with by Pelliot and others.[1] These make it clear that Iranian-speaking peoples were prominent in Central Asia up to the very borders of China. Indeed, for a time, they were the great middlemen between the West and the East. Archaeological evidence of this fundamental phase of Central Asian history is not available, but its end is clearly defined. Long before Islam made the trade routes her own, Iranian mediation gave place to Turkish and Tibetan domination. Fortunately Rostovtzeff's researches in south Russia provide us with a well-documented picture of what he boldly calls the "almost completely Iranian . . . Scythian kingdom . . . the northern counterpart of the kingdoms of Darius and Xerxes" (p. 9). The Scythian hinterland was in close touch with the classical world through the Greek colonies on the coast. It learnt to appreciate Greek luxury goods and to follow Greek fashions. Yet the Scythian way of life remained what it was. In such circumstances hybridization was inevitable, and, indeed, welcome. But in the Eurasian product, with its acceptance of the rule of dynastic tyrannies, it is clear that it was Asia which dominated, not Greece. Since abundant archaeological material is available, the process can be studied in detail and has a bearing by legitimate analogy with what happened centuries later in Parthia and Bactria, and especially in the Indian province of Gandhara.

Assyrian inscriptions discover a great movement of tribes from Central Asia southwards in the eighth and seventh centuries B.C. In the middle of the seventh century, Cimmerian tribes, in alliance with the kingdom of Van and other semi-civilized peoples of the mountain tracts, attacked Assyria. Behind them pressed the Scythian hosts, the real instigators of the conflict. The Mesopotamian cities of the plains were then still the centres of civilization and, once in movement, the tribes pressed southward instinctively, like bees to honey. Esarhaddon with great astuteness concluded an alliance with the Scythian leader against the Cimmerian league. The Scythians took full advantage of the victory they shared with the Assyrians, for whom the incident was merely a frontier defensive deployment. Later they were brought to heel by the growing Median power and finally detribalized by Persian imperialism. Herzfeld is able to reconstruct the technical terminology of the old Iranian political structure with its hierarchy of clan, tribe, and nation, under their appointed leaders ('Archaeological history of Iran,' p. 20). It is interesting to note that the Median title to kingship was only recognized after Assyrian tutelage had been converted by inter-marriage into alliance. Herodotus' description of Ecbatana is derived from Babylonian mythology, but Polybius' sober words preserve a realistic picture. The columned palaces of cedar-wood and cypress, overlaid with gold, which he describes, do not derive from Mesopotamia, but from the great cities conquered by Sargon in north-western Iran, and represented upon the bas-reliefs which decorated his palace at Khorsabad. It is therefore not surprising that the art of the Scythians of the north Black Sea hinterland should show Mesopotamian influence, for these early Iranian cities provided a half-way house. Trade is obviously a matter of movement. It postulates a producer and a consumer, that is to say a

[1] 'Influences Iraniennes en Asie centrale et en Extrême-Orient.'

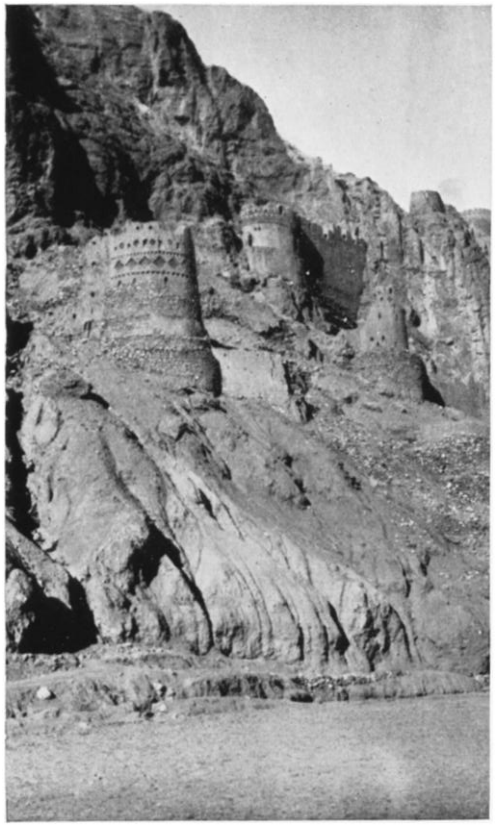
beginning and an end. Taste and fashion refine upon the barter of the crude necessities of daily life; commercial interest preserves old contacts. It is therefore quite natural that Mesopotamian influence should persist in the north, and that Attic vases of high quality should abound in Scythian graves. Later on, Greek artists were not unwilling to serve the idiosyncracies of local Scythian taste.

Imperial Iran was able to rise above its origins and acquire its own traditions, making a unique contribution to the record of civilization. Tribal Iran never freed itself from the pattern of Central Asian history. Herodotus' outline of these matters is quite acceptable. Here was a confederation of mixed tribes, including Mongolians, but under Iranian leadership. Rostovtzeff is explicit: "as conquerors and as a dominant minority the Scythians developed a strictly military organization. The military chief was the king, who dwelt in an armed camp. . . . The king, the princes and the cavalry lived on the revenues provided by the conquered regions and on the produce of their herds. . . ." They had slaves and among them were the agriculturalists, who grew the corn for the Athenian market. They, themselves, remained migratory, a loose confederation of semi-independent princes, living upon their appointed manors, bound to the central power by feudal agreements based upon military power and mutual profit.

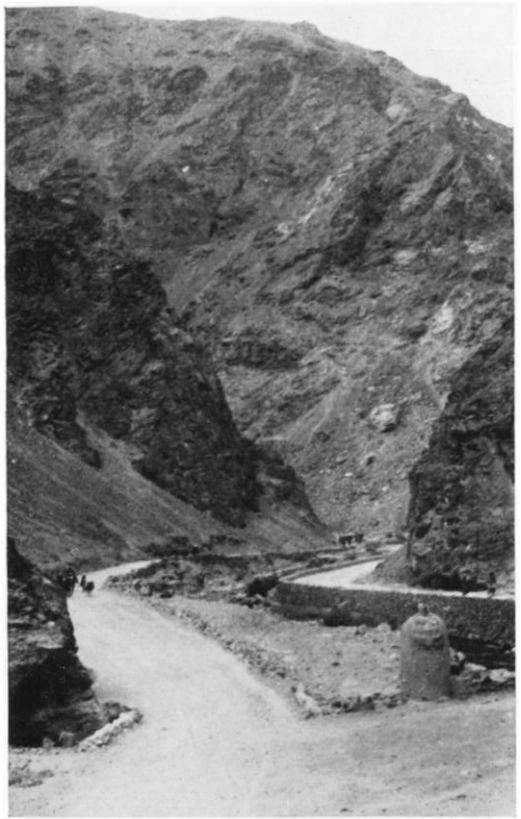
It was this vital, shifting, tribal aristocracy, which the Greek merchants in the ports of the Euxine chose to serve for their own ends. They influenced it, but never Hellenized it. As centres of fashion and wealth the Greek cities became part of Scythian life. Reflecting the Scythian mode, it was inevitable that local despots should arise, forestalling the Macedonian romance, the northern equivalents of Pontus and Armenia. It is particularly interesting that, under these conditions, Scythian art should have survived side by side with imported classical objects and their locally made imitations. Rostovtzeff accepts it as a branch of Persian art. Both the art of Persia proper and Scythian art derive a great part of their being from Mesopotamia, even from ancient Elam; both share distinctive elements, which are ancient and primitive. In the sixth century B.C., the northern Scythians were still in close contact with the cities of Iran, both by way of the Caucasus land-routes and the Greek ports of the southern Black Sea coast. In the fifth century contacts by the land routes had already diminished; later they all but ceased. When man begins to export himself wholesale, trade suffers. The great movement of peoples had begun, which ended in the Mongol sack of Baghdad and the creation of the Manchu Empire. The Chinese had recognized the danger from the beginning. Darius forestalled it by his Scythian expedition, so did Alexander before he turned his face eastward. The advance of Celtic and Germanic tribes altered the case, but only superficially, for the Sarmatians were also Iranian and Roman history is full of Sarmatian wars. The new product of the Iranian borderland were formidable foes, for they fought with the long lance and were clad in armour. Their heavy cavalry were the advance guard of the Middle Ages.

Latimore rightly demands a revision of our ways of thinking about all these matters.[1] Our mistake is that we simplify the terms we use into concepts that

[1] 'Mongol journeys,' p. 119.



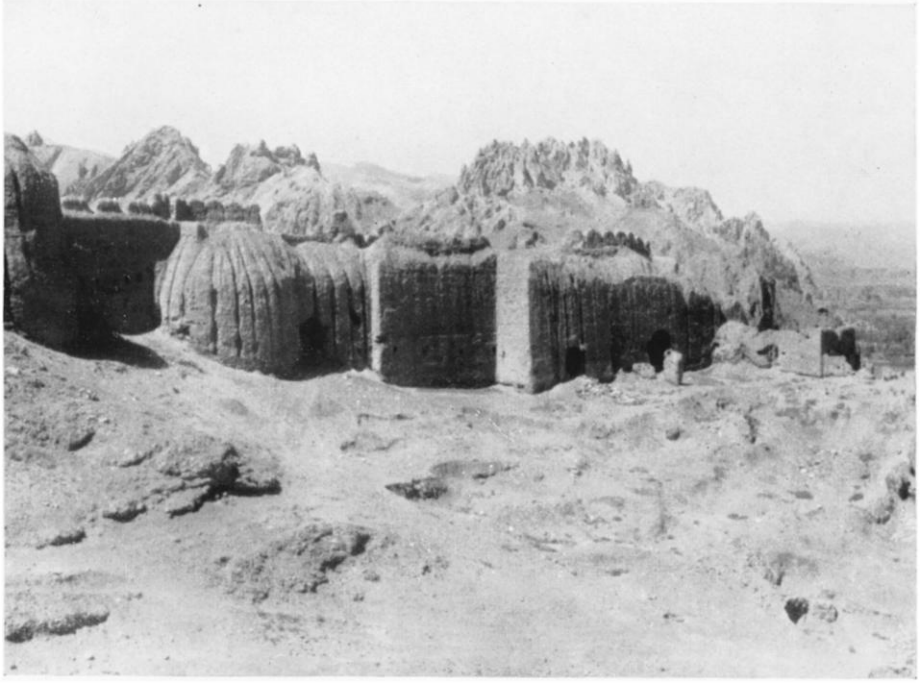
Shahr-i-Zohak, Kalu valley



Fork of Bamian and Doshi Roads, Bulola valley

Kalu river, below Kalu village

Kunduz valley, looking west from Shahr-i-Zohak



Shahr-i-Zohak at junction of Kalu and Kunduz rivers

are much too rigid, and so squeeze the real richness and content of nomad history from our descriptions. Are Mongols, because they are "nomads," nothing but horsemen? Are there not cities and gardens and fields in Central Asia, both in the desert and the steppe? Is there not trading to be done, as well as forays to be made? Do not nomads have cattle? Do not many of them cultivate? For the sake of the academic abstract, "nomad," are we to gloss over the fundamental complexity of race and speech and faith with which Central Asia faces us? Cahun is more direct, and undoubtedly nearer the truth, when he lays it down that we cannot discuss such a country in terms of racial, or linguistic or cultural individualism, but only in terms of a shifting federalism, in which successive political combines react upon one another, the conquered merging with the conqueror.[1] The Scythians and Sarmatians of early history, and the Huns, Magyars, Turks, Mongols, and Manchus of the mediaeval period were political associations. Behind the pseudo-national façade the tribal names of the older, constituent peoples recur repeatedly in the traditional genealogies; but even here it is seldom possible to sift out the fundamental racial units. Yet it is clear that it was a common way of life, and a certain agreement in common conventions, that made these shifting combinations possible. But there was no sudden transition from the sedentary to the nomad. It is true that the nomad peoples bestrode the trade-routes between the cities of Iran and the cities of China. But Central Asia had also its own great markets. There were always merchants, as there still are, and long ago the Tajik tended his orchards and gardens, as he still does.

Southward movements across Hindu Kush included the Bactrian Greeks, the Sakas, who displaced them, and the Kushans, who displaced the Sakas. Ephthalites and Turks followed, and finally Chingiz Khan and his Mongols, and their kinsmen, the Mughals. In discussing these movements, it is important to distinguish between intrusions from Central Asia, in which the nomad idea is clearly implicated, and exchanges between the stable cultures of Iran and India upon which the mobile hosts impinged. In spite of the fact that India is named after the river Indus, Sindu, the Divider, the effective extension of Achaemenid rule into the Indus valley is witnessed to, not only by traditional history, but by the ancient Middle Eastern constituents of early Indian sculpture.[2] Hekataeus knew Kasyapapura, a frontier city of Gandhara, and Scylax explored the Indus throughout its navigable length, his expedition being followed by the subjugation of the country. Gandhara and Paruparaesanna appear at Behistun; but "Indians" are only mentioned in the Persepolis and Naksh-i-Rustum inscriptions. Scylax's expedition obviously served an already established interest in the sea-routes, which Herodotus[3] states were later fully exploited by Darius to his own ends. That the main commercial contacts were maritime and remained so up to Strabo's time, is suggested by his merely cursory mention of the Bactrian road in significant conjunction with his analysis of Hipparchus' erroneous views on Asiatic geography, and his avowal that, generally speaking, the men who had written

[1] 'Introduction à l'histoire de l'Asie,' p. 38.
[2] Coomaraswamy, 'Arts and crafts of India and Ceylon,' p. 40.
[3] Frag. 178, Herodotus, IV, 44.

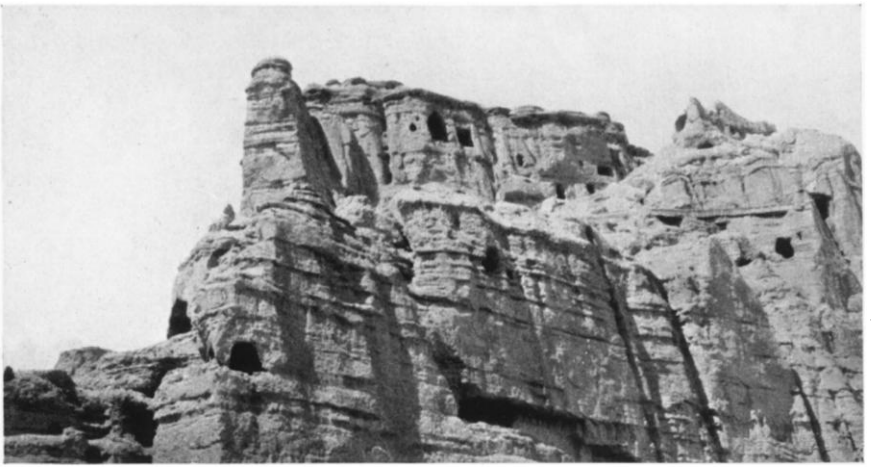
about India were liars. What later became famous as the Royal Road and the Silk Route was still unknown (Strabo, II, 589). Yet Herodotus' review of the Oriental political make-up of his time is very circumstantial. Cyrus had to deal with three racial entities: Babylon, Egypt, and the Saka of the Persians, whom he specifically identifies as the Scythians of the Greeks.[1] The Saka are brigaded with the Caspians in Darius' 15th administrative division, and are distinct from the Parthians, the Chorasmians, the Sogdians, and the Arians of the 16th division. They wore the pointed cap and had a distinctive bow and battle-axe.[2] The Indians, on the other hand, had the 20th division to themselves; they were polyglot barbarians, inhabiting the marshy banks of the Indus and the desert beyond. For Herodotus the Indus was not merely the boundary of Persian India, but the limit of the known world.

This view however must be modified in the light of the distribution of Indian languages and the established pattern of Indian history. West of the Indus lies the ridge of the Sulaiman Hills, along which the present Durand Line is drawn, defining modern Afghanistan. North and west of this lies Hindu Kush. In between there are relics to be found of at least two non-Pushtu, non-Iranian, Indian dialects, Hindki and Brahui. History repeatedly demonstrates the extension of Indian rule to Hindu Kush and the upper Kabul valley, and it is well known how far and how deep the commercial interests of Hindu merchants have gone in Central Asia. The Mauryans ruled in the Kabul valley, as well as the Indo-Bactrian kings and the Kushans, and the well-founded Shahi Brahmin dynasty, which endured up to the coming of Islam. Again, repeatedly under Muslim rulers, including the Mughals, the Kabul valley was politically part of India proper. That is to say, that at all those periods Hindu Kush was the political boundary of India.

It is evident that historical interest, preoccupied with the nomad idea, has been focused upon the alleged constant threat of invasion from the north. This view is based upon a radical misunderstanding, for the first recorded invaders of India, the Sakas, belonged, not to Central Asia or Turan, but to Iran itself. Herzfeld treats of them as being Iranians of the outer Iranian fringe.[3] The Parthians themselves were originally of the Iranian fringe; they, too, achieved empire and urbanity to find themselves faced with further barbarian pressure from the same source. The Saka tribes in the reign of Phraates II, then burdened with his war against Antiochus VII Eusebes, swept through Sarakhs and Herat to create havoc in eastern Iran. After two Parthian kings had been eliminated in the struggle, the Great King of Kings, Mithridates II (123–87 B.C.) finally reduced the Sakas to order, that is to say, brought them within the structure of Iran proper and settled them in the land, which is still known as the Saka-land, Seistan, the ancient Drangiana. Doubtless with the Great King's approval, remembering Darius' lost Indian province, they, together with certain Parthian detachments, later passed on into India *via* the Bolan Pass, to found a series of satrapies, which survived for more than four centuries. This view neglects Thomas' argument in support of an earlier Saka movement southward (*J. Roy. Asia. Soc.*, 1906, p. 181),

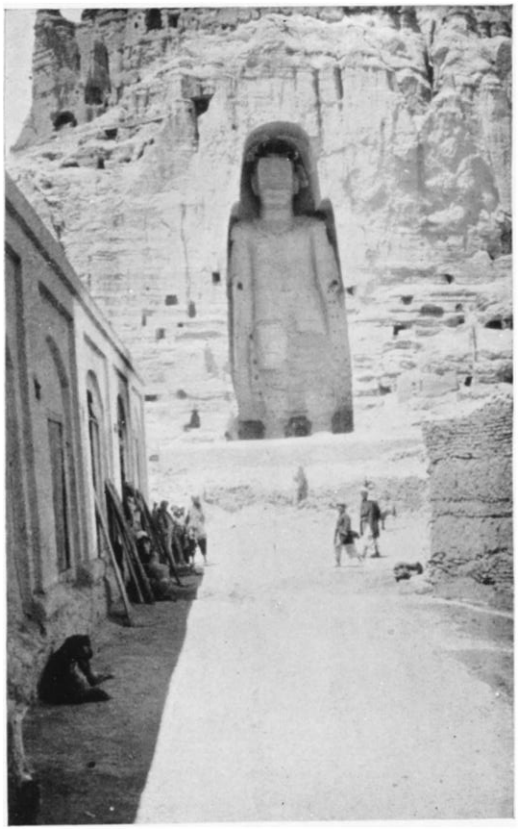
[1] Herodotus, I, 153, and VII, 64.
[2] Herodotus, III, 93. The Caspians also appear in the 11th Division.
[3] 'Archaeological history of Iran,' p. 8.

Bamian valley looking east

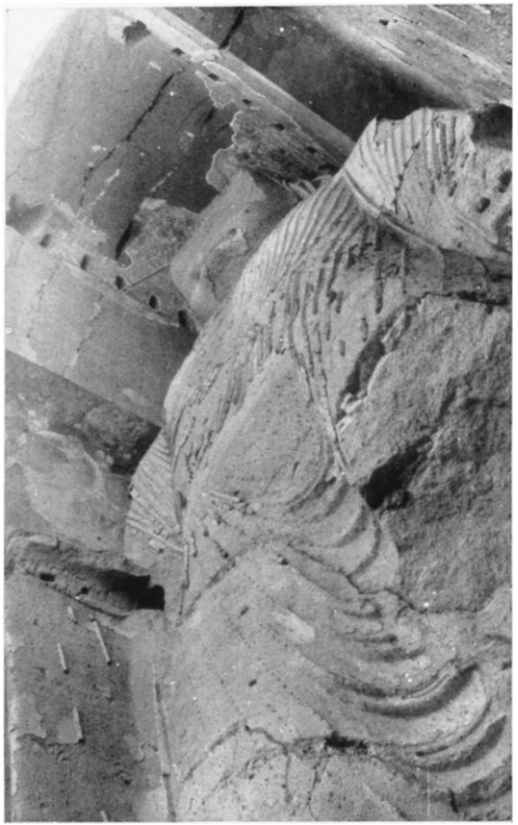


Caves to the west of the Great Buddha, Bamian

Approach to Bamian looking west



Great Buddha, Bamian



Detail of Great Buddha, Bamian

Caves to the east of the Great Buddha, Bamian

but is not in conflict with it. It may well have happened, but the Saka invasion of India still must be discussed as the product of the Parthian conflict with the tribes of outer Iran. The cause of the Saka movements are known and form part of the history of the far more significant invasion of the Kushans. So it is that the author of the Periplus of the Erythraean Sea calls the country about the famous port of Barbarikon at the mouth of the Indus, Scythia, and that Taranath, the Tibetan historian, records legends of the massacring of Persian fire-worshippers in India in the sixth century A.D.[1] Moreover, on the Ajanta frescoes certain ewer forms, as well as the costume of military retainers, have Sassanian and Central Asian parallels, while the personages of the well-known drinking scenes all wear the traditional Scythian pointed cap which, indeed, survives in the lappetted children's caps of modern Kathiawar and Kach.

Archaeological evidence concerning the identity of the Sakas is not plentiful. At Persepolis, Sakas are specifically named as bringing tribute, and at Behistun, an inscription of Darius labels one of the figures of the bas-reliefs, *Saka;* since the figure so labelled is a prisoner, he was presumably a rebel. The epigraphical evidence concerning Darius' dealings with the Sakas is not altogether clear and needs revision, but at Naksh-i-Rustum, in the Great King's epitaph, mention is made of various kinds of Sakas;[2] de la Vallée Poussin places all these people in the country north of Sogdiana, the extreme limit of Alexander's conquest, where he founded his Alexandria Ultima. It is doubtful if Greek Bactria ever extended so far north; but, in any case, Asiatic Hellenism in the Oxus valley must be conceived as facing the independent tribes of the Iranian fringe. Southward, throughout the Kabul valley to Hindu Kush, Mauryan India for a time limited Greek expansion, for Seleucus Nicator had abandoned all this region to Chandragupta Maurya in exchange for five hundred elephants and a diplomatic marriage. It is noteworthy, with regard to this earliest instance of Indian extension westward, that the Girnar inscription, which records the restoration of the dam of the Sudarsana Lake, completed under the great Asoka, gives the name of the Mauryan officer responsible as Tushaspa.[3] In spite of the swing of Indian political influence to the west, the Mauryan Civil Service in India proper obviously included Iranians. Moreover the reflections in early Indian sculpture of elements derived from the ancient traditions of the Persian Middle East are paralleled by what we know of Mauryan court procedure. India and Iran were closely related and it is therefore necessary to set out the geographical basis of their relationship in as much detail as the evidence allows.

Long before the Greeks appeared in Asia, the lower Helmand valley, the ancient Zaranca (Drangiana), and the rich valley of Herat were Iranian strongholds. That is to say, throughout these regions ancient Iranian cities, the settled capitals of Iranian culture, opposed the fluctuating tribal anarchy of the Iranian fringe. Strabo says that Herat (Aria) and Merv (Margiana) were the richest districts of this frontier tract, by which he means that they

[1] Periplus, XXXVIII, Schiefner, p. 128.

[2] Spiegel, 'Eranische Altertumskunde,' p. 233. Minns, 'Scythians and Greeks,' p. 112.

[3] Fleet, *J. Roy. Asia Soc.*, 1909, p. 762. V. Smith, 'Early history,' p. 139 (1924).

were the most highly populated (Strabo, XI, 10). But he not only writes of the settled plains but also of the tent-dwellers of the surrounding mountains, drawing a picture which, on the one hand, allows no room for the doctrinaire opposition of the desert and the sown, and, on the other, corresponds closely with modern facts. From Kurdistan to Afghanistan, through modern Iran, central government and diplomatic relations have always been maintained against a shifting background of tribal life, and no understanding of the practical problems of these countries can be reached unless this is remembered. It is therefore inevitable that both Herodotus and Strabo discuss peoples rather than areas, though their sketch of the regional geography of these peoples is, on the whole, clear enough.

Aria abutted upon Bactria and the ridge of Hindu Kush, which bounded it. Drangiana stretched from Carmania northward, to beyond Koh-i-Baba, where it met Aria. Together, Aria and Drangiana formed a joint revenue unit. Arachosia, the country of the Argand-ab, also belonged to Aria and extended eastward to the Indus. The Sattagydai, the Thatagush of the Old Persian inscriptions, remain obscure, for the name is purely tribal. Herodotus brigades them with the Gandarai, Dadicai, and Aparytai in his statement of Cyrus' revenue arrangements (Herodotus, III, 91), though in his account of Xerxes' army he joins the Gandarai and Dadicai with the Sogdians, Chorasmians, and Parthians as bearing the same accoutrements as the Bactrians. The Sattagydai may have inhabited the upper Helmand valley. Strabo and Ptolemy agree with Huen Tsang [1] that Gandhara consisted of the lower Kabul valley, between the Choastes (Kunar) and the Indus, that is to say, the Jalalabad valley and the Peshawar plain, including the hill tracts lying in between, as far as Bajaur, through which early trade routes ran to India. Since Arachosia included the Ghazni-Kandahar plateau, it would seem that the Dadicai and the Aparytai must be allocated to the upper Kabul valley.

The survival of these tribal names is of the greatest significance, though our knowledge concerning them is admittedly vague. At any rate, they may be used as a corrective to the generalization implicit in the conception of the simple action and reaction of the classical civilizations of Iran and India in this area. The traditional tribalism of the region and its persistent individuality must be given full weight as a third and distinct factor. Just as the Kurds survive to the west of the classical Iranian theatre, so the Pathan tribes survive between Iran and India. History shows that they have known how to extend their dominion, westward to Herat and eastward to Swat, at times adventuring even across the Indus, to found kingdoms and colonies in the heart of India. Upon the foundation of this long-standing tribalism is built the independent kingdom of Afghanistan of to-day. Its green valleys, surmounted by barren mountains and stony downs, are not merely peripheral to Iran or India. Nor have they been merely corridors of advance for invading hosts. As the antiquities of Bamian and Ghor, and the ancient silver mines of Andarab and the Begram treasure prove, they are not *sites de passage*, but centres of culture. It is tempting to treat such an area as a trade-route or line of march, just as it is often convenient to obliterate the individuality of a country under the title "buffer state." The ancient history of the region, the

[1] Julien, 'Memoires,' vol. II, p. 307.

archaeology of its cities and Buddhist monasteries, as well as the persistence of the Pathan tribal confederations, demand a more careful analysis. Survival value in social institutions is always significant, for it is the ultimate product of the human possibilities and geographical necessity.

This is true, not only of the valleys of Hindu Kush, but of Central Asia as a whole. Our knowledge of such matters is, indeed, scanty, and much work remains to be done. The archaeological surveys of von le Coq, Gründwedel, Pelliot, Sven Hedin, Aurel Stein, and Hackin have yet to be correlated. Many ethnological and linguistic problems remain to be examined. It is however clear that we have not only to settle the problems of the contacts of the classical civilizations of Iran, India, and China, but also to envisage the fundamental problem of Central Asian tribalism, that subtle compound of seeming opposites, nationalism and federalism, the tradition of republicanism and the recurrent expediency of personal leadership. At the same time, it must be clearly realized that both the number and quality of the monuments with which we are faced, as well as the precise documents of Chinese diplomacy, clearly indicate that at any rate some of the peoples, who straddled the continent and crossed the great Asiatic divide, were other than uncultured barbarians. Central Asia is not a hiatus in civilization. We confess our own ignorance when we write it off as merely nomadic.

It is unfortunate that the whole problem of the tribal background in Afghanistan has been obscured by reckless etymology. The modern national title of Afghan cannot be derived from Arrian's Arsakenoi and Aspasioi, but there does seem to be some affinity in sound between Arsakenoi, Aspasioi, and the Aśvaka of the *Mahabharata*, who are associated with Gandhara. Moreover, Strabo renders Aspasioi as Hippasioi, and Aśvaka certainly means "horse people." Huen Tsang mentions the large number of horses bred in his Tsao-kiu-tch'a, which is clearly the Ghazni district.[1] Babar speaks of horse-breeding in the Sulaiman Hills[2]; indeed, the Waziri horses maintained their reputation until the last century,[3] Thal-buland-khel being the chief mart of the breed. On the other hand, the Parsuytai, one of the five tribes of the Paropanisadae mentioned by Ptolemy, probably get their name from *Pashto, Pushta*, a mountain; the name of the language, Pashto, itself seems to be derived from the same root. It is interesting that in India the Afghans adopted the identical *nom de guerre*, Rohilla, men of the mountains. On the other hand, Hekataeus wrote of Kaspapyrus as being in the country of the Paktyike and the name recurs elsewhere. In spite of its seeming likeness to the *Pakhto-Pakhtun* of the hard Peshawari dialect, the etymology remains obscure, though it is accepted by such authorities as Grierson and Trump. Pashto, the national language of modern Afghanistan, exists as an ancient scion of the Iranian group; there is no doubt of its antiquity, for it is not of the direct descent. Huen Tsang, once again, supplies a clue, when he reports that the people of Tsao-kiu-tch'a spoke a unique language. It may well have been Pashto. He says that the country had two capitals, cities of considerable size, well equipped and defended. The walled city of Ho-si-na is probably

[1] Julien, vol. III, p. 179.
[2] Beveridge, vol. I.
[3] Bellew, 'Afghanistan and its peoples,' p. 111.

Ghazni itself, while Ho-sa-lo, the second capital, is certainly Mukkur, for Huen Tsang mentions its distinctive water-supply, a spring divided into many channels, by which Bellew camped in 1857.[1]

The existence of walled cities in this essentially tribal area is of particular interest. The Kandahar–Ghazni–Kabul road is of great antiquity and it is clear that in the Kabul valley the tribal organization of the skirts of the hills, the Koh-i-Daman, coexisted with the royal capitals, merchant cities, and religious centres, of which Huen Tsang writes. He says that Tsao-kiu-tch'a had a king and that he was a devout Buddhist, and his statement is corroborated by the distribution of Graeco-Buddhist remains. The traditional tribalism of the region must, therefore, be considered, not as a thing apart, but as cast around a well-found urban core, and, in a sense, dependent upon it. The towns as trade centres were polyglot and international. Round them lay the gardens and orchards of the old Tajik substratum. Beyond lay the dominion of the tribes, occupied with the maintenance of their traditional land, water, and grazing rights, and the inter-tribal balance of power, but jealously watchful as to their rights of taxation over the high road and its caravans. So it was, until recently, that the tribes of the Khyber took their toll of all merchants and travellers. So it is that the tribes of modern Afghanistan, though traditionally and characteristically republican in sentiment, look to Kabul and the Afghan Royal Family for leadership.

(To be concluded)

OBSERVATIONS ON THE STRUCTURE OF BERMUDA

WILLIAM LIVINGSTON

THIS paper is submitted to place on record my observations during the period September 1929 to July 1938, when I was Director of Public Works in Bermuda, engaged on projects entailing extensive excavation and dredging. Although in agreement with many of the conclusions set out by the late Dr. Robert W. Sayles in his treatise "Bermuda during the Ice Age" (*Proc. Amer. Acad. Arts Sci.* 66 (1931) 381–468), I am unable, in view of more recent discoveries, to accept certain of his interpretations and also several opinions expressed by others who have studied and written on Bermuda's surface formations.

The Bermuda islands lie some 675 miles from the nearest land, and form a good region in which to study superficial formations, as these have been relatively little disturbed. The islands were not inhabited until 1609, though exploring mariners had visited them before that time, and the population now numbers about thirty-two thousand, of which half is coloured.

[1] Bellew, 'Afghanistan and its peoples,' p. 196. On the walls of Ghazni, see Cunningham's 'Ancient geography,' p. 42, for the well-known passage from Nonnus Dionysiaca,'XXVI, 30.

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A GEOGRAPHICAL INTRODUCTION TO THE HISTORY OF CENTRAL ASIA

K. DE B. CODRINGTON

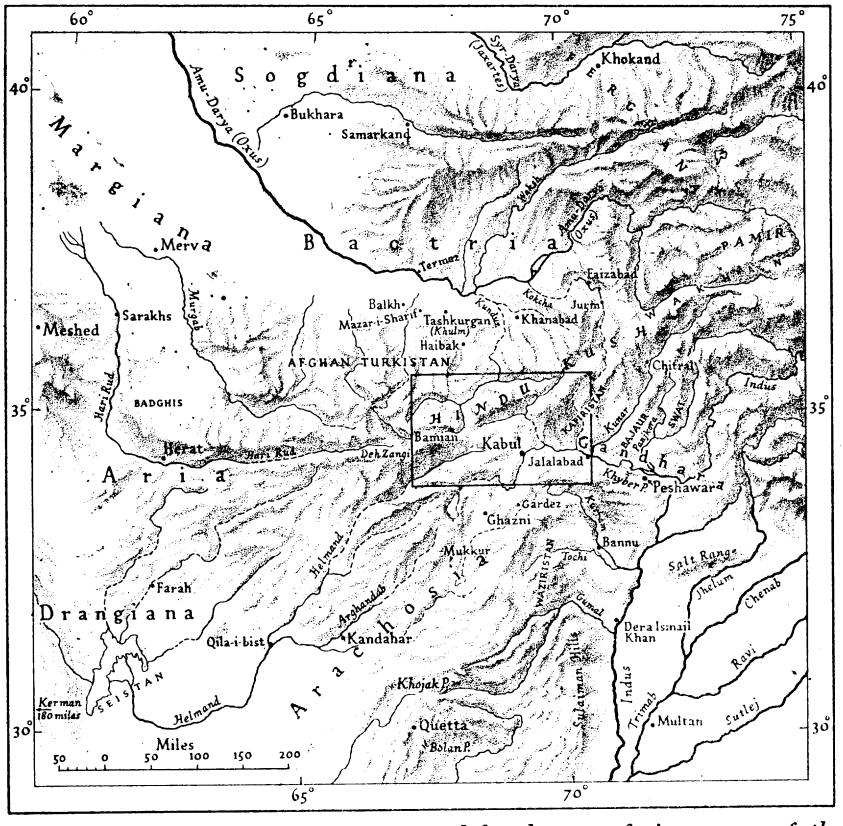
Continuation of a paper from the July–August Journal

THE high-altitude Hindu Kush passes leading into the Kunduz and Ghorband valleys are not the only gateways to India. The history of the Saka invasion of India *via* Seistan demonstrates the importance of the southern routes, which are accessible from the north, once the low-level Sarakhs–Herat gate has been forced. Southward the ancient trade-routes from Baghdad, *via* Isfahan or Shiraz, to Kerman, and so forking to Kandahar and the Bolan Pass, provided an easy and well-organized high-road to India. Nor can Alexander's homeward routes through Gedrosia and *via* the Persian Gulf be forgotten.

In discussing the trade of Asia, perhaps because of the barbarian invasions or of the romance of Alexander, there is a tendency to diminish the importance of the sea-routes; they were however well established, as the history of the Gerhans, the Phoenicians of the East, and of Antiochus III's wars with them, proves. The records make it plain that from very early times the northern Iranian route, the ancient Royal Road, from Tehran to Meshed, found its natural continuation to India, *via* Farah and Kandahar, so turning the gates of Hindu Kush and joining up with the southern Kerman routes. The Gedrosian road led, as it does to-day, through the Quetta valley and the Bolan Pass to the cities of the lower Indus and the great central market of Multan. From Kandahar there is a choice of two groups of routes, the first centred upon the Gumal leading to the markets of Dera Ismail Khan, the second upon the Tochi leading to Bannu, the site of the ancient Akra, and so to the markets north of the Salt Range.

Professor V. Minorsky has recently greatly furthered our knowledge of these regions by the learned notes he has added to his translation of the 'Hudud al 'Alam,' written by an anonymous geographer, who presented his work to the Amir of Guzganan in A.D. 982–3. For him, and he was obviously an inhabitant of what is now Northern Afghanistan, the country had four approaches. All Transoxiana, Ferghana, and Khorasan, and especially the

town of Gurgan in Khwarazm, were gates to Turkistan. Of all the available roads, the Merv–Balkh road, at that time, alone was "the Royal Road." Where it ended among the high mountains, somewhere in the region of Wakhan, was the gate of Tibet; while the gates of India were Bust,[1] the modern Qila-i-bist, where the Arghandab joins the Helmand, and Parwan, at the foot of the ravine and pass of the same name leading down from Hindu Kush to the Ghorband valley, opposite modern Charikar.



The rectangle represents the area covered by the map facing p. 31 of the July–August Journal

Alexander preferred the third available route to India, *via* Kandahar, Ghazni, and the Kabul valley. Kandahar is separated from the Quetta plateau and the Bolan by the Khojak ravine. The Kandahar–Ghazni–Kabul road is open. Moreover between Charikar and Parwan the Ghorband is bridgeable. From Charikar the Indian road follows the left bank of the united Ghorband–Panjshir straight to Jalalabad. At Begram there is a ferry, guarded by the ruined forts where Hackin found his treasure, and a little lower down there is one of several low-water fords. Thus at the Charikar bridgehead two main

[1] Bust was important under the Ghaznavi dynasty (A.D. 997–1040) as the remains of the fine mosque show (*Bull. Amer. Inst. Persian Art*, vol. 4, No. 1).

systems of communication unite, the dramatically direct routes from the Oxus Royal Road, *via* the high passes of Hindu Kush, and the roundabout, low-level, open road, *via* Farah, Kandahar, and Ghazni. Beyond Jalalabad a choice of easy passes leads through Bajaur to the Peshawar plain and its ancient cities, of which Pushkalavati, the Peukelaotis of the Greeks, modern Charsada, was the most important. This was the route adopted by Alexander for his main body. Its popularity survived until Mughal times; but it is noteworthy that the existence of Graeco-Buddhist remains in the Khyber indicates a fair antiquity for that route also. In the upper Kurram valley there are no archaeological remains. Huen Tsang passed through this region on his way southward to Varana. He describes it as being mountainous and thickly forested.[1] It was not until the days of the Mongols that the gate of the Kurram became notorious.

This cursory summary demonstrates a remarkable gap in the communications system of the Hindu Kush region, as we know it from the various literary accounts. It is interesting that we have no record of direct, east and west, contact between famous Bamian and still more famous Herat, although only the twin head-waters of the Hari Rud and the open downs of Deh Zangi intervene. The Emperor Babar once adventured in this direction in the depth of winter,[2] and Ferrier found his way southward across it, but none of the geographers, classical, Arabic, or Persian, mention it. On the southern slopes of the mountains to the south of the Hari Rud, forested areas still exist and, even in the valleys north of Bamian, there are remnants of coniferous woods. Since the gentian still flourishes on the stony downs of the intervening wind-swept plateau, it is possible that they were, also, once wooded. On the other hand, the area has more than once been identified as sociologically primitive, a backwater of peoples. In Istakhri, neighbouring Ghor is called "the country of the unbelievers," and Ferrier, a hundred years ago, found remnants of pagan worship among the Hazaras.[3]

It is not easy to account for Alexander's choice of the southward route to India, in view of the decision and energy with which he organized his expedition into Oxiana once he had arrived in the Kabul valley. If this had been his set purpose all the time, it would seem probable that he was deterred at Herat by rumours of tribal opposition, or it is possible, in view of Quintus Curtius' statement, that his intelligence service failed to obtain information as to the stages immediately east of Herat, along the line of march, which eventually became the Royal Road to Balkh. It is significant that the Bactrian upstart, Euthydemus, was able to hold up Antiochus III's advance into Bactria for a considerable time at Herat. The evidence suggests that it was the Bactrian Greeks who opened up the north and south passes of Hindu Kush in their first imperialistic expansion towards the Kabul valley and India. The victorious rise of the Sakas later made the crest of the great ridge a political boundary, which survived when Oxiana was lost to the Greeks. Hindu Kush, too, not the Oxus, is the southern boundary of Turan to-day. South of it Turki is heard only on the roads or in the *sarais*.

[1] Julien, 'Mémoires,' vol. II, p. 184; Beal, 'Life of Hiuen-Tsiang,' p. 193.
[2] Beveridge, vol. I, p. 308.
[3] 'Hudud al 'Alam,' p. 343; Ferrier, 'Caravan journeys,' p. 231.

It is commonly assumed that river valleys form easy means of communication, but a survey of Hindu Kush indicates clearly enough that this is not always so. Afghanistan is a mountainous country, sparsely threaded by river valleys of incredible richness. Humanly speaking, it is understandable that such valleys, oases of intensive cultivation in the wilderness of rocky heights, should tend to develop individuality, showing organized resistance to outside pressure. The right of taking toll upon passing traffic is universal in the East, and, from the merchant's point of view, has always exerted a strong influence upon the choice of available routes. But the rejection of valley routes is also explicable on purely physical grounds. Many of these valleys are blocked by gorges; many of them are steep and their rivers torrential. The snow lies here at 6000 feet from December to March, and, even when the night temperatures are low, the day temperature curves rise steeply; at 10,000 feet and over, the snow softens under the sun's first rays, causing marked diurnal fluctuations in the volume of the streams. Moreover the summer temperature culminates at the end of July, and in August the season of thunderstorms begins, leading immediately into the rains of October and the first snow-falls of winter. Schomberg has graphically described the difficulties of travel under these conditions. They are avoided only by low-level routes cutting across the lines of the main rivers. It will be found that the alignment of these depends, not only upon the availability of fords, but also on the state of the water at various times of the year; so that, for instance, even the Herat–Farah–Kandahar main road is duplicated and triplicated upstream, where practicable fords are still available, even in the flood season.

The early existence of bridges in Central Asia is clearly indicated, though it is seldom possible to define their position with any certainty. In the Himalaya and farther eastward swing-bridges and rope-and-pulley traverses are used, but these do not extend into Hindu Kush. At the village of Saddo, on the left bank of the Panjkora river, on the Chitral road, a Kharoshti inscription records the building of a bridge in the 104th year of a debatable era.[1] In southern Persia there are plentiful remains of rubble-masonry bridges, dating from early Sassanian times; while later burnt brick came into use, as in the fine Surkh Ab bridge on the Jalalabad–Kabul road, which was built by Ali Mardan Khan in Shah Jahan's reign. In Afghanistan there is also the finely constructed brick bridge across the Kokcha at Faizabad.

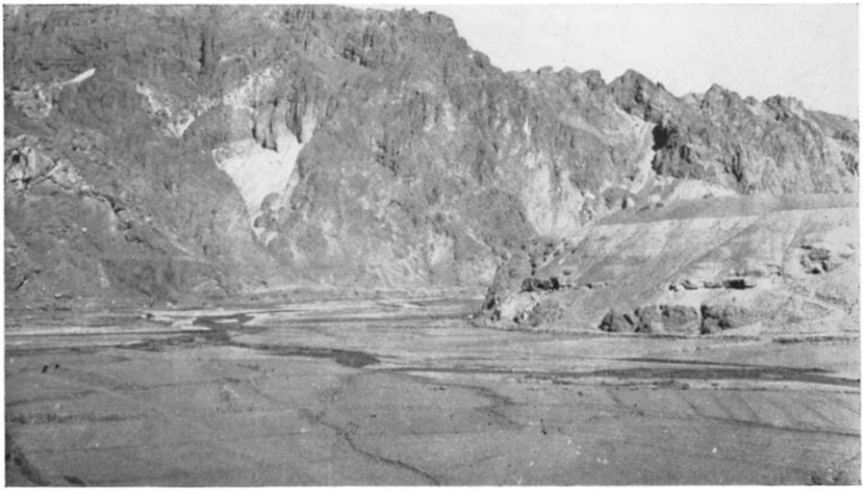
In the 'Pei Shi Ki,' an account of the Kin emperor's mission to Chengiz Khan, the observation is made that in Mussulman Central Asia bridges are built of large bricks, not of square stones as in China. The date is A.D. 1221, after Chengiz had constructed his military road *via* Bishbalik and Talas (Bretschneider, 'Mediaeval Researches,' vol. I, p. 20). This road was later converted into a cart-road throughout its length. The Taoist Professor Ch'ang Ch'un, who visited Chengiz at Parwan in Afghanistan, travelled the whole way by cart, though it is clear that special arrangements had to be made for him. This road is said in the 'Si Yu Ki' to have been completed by Ogotai, the third son of Chengiz, probably in 1219, the Oxus still being served by a bridge of boats.

Apart from engineered bridges of rubble or brick, throughout Hindu Kush

[1] *Epigraphia Indica*, January, 1931, p. 23.

Approach to ferry across Ghorband river at Begram

Ferry across Ghorband river at Begram



Kunduz river, east of Bamian

Lower lake and Ziarat at Band-i-Amir, 44 miles west of Bamian

The two lower lakes at Band-i-Amir

and northward to the Chu and the Ili, the poplar, universally present as a planted tree throughout Central Asia, provides good bridging for spans of up to 40 feet or more, where the cantilever principle is used. But, whatever the material or technique, the volume and speed of the water at flood-level makes it essential that the bridge should be built as far upstream as possible. Below a certain point, fords, ferries, or occasionally boat-bridges, must carry the traffic.

The difficulty of travelling in such a country clearly does not lie in any want of routes. They are plentiful in all directions. In any sarai or tea-shop in the Ghorband valley, the local inhabitants will recite the names of a dozen passes leading northward across Hindu Kush or southward to Kabul. Historians are liable to be mesmerized by the names of historic routes and to write of the Khyber or the Bolan or the Khawak, or of the traditional Silk Route, as if they were established of necessity, without alternatives. On the contrary, Hindu Kush and Koh-i-Baba, like the Sulaiman hills, are plentifully supplied with tracks. The factors limiting the choice of route are however not only the calendar, or the availability of bridges, fords, or ferries. The lone traveller can take his choice freely, subject only to his ability to carry and replenish his own food stores. The donkey or pony rider is freer than the camel driver. The small caravan is freer than the large caravan, the outstanding consideration being not so much a question of rations for the men, as grazing for the beasts. Hence, certain routes are strictly seasonal, and transport is cheaper at certain times than at others, because the beasts are not weakened by dearth of fodder *en route*. But apart from the necessity of water and food for man and beast, the ever-present motive power of human convenience cannot be neglected as a major factor in the choice of routes. Small markets, as well as large, attract trade; goodwill of long standing is implicated. Personal relations in out-of-the-way corners, the existence of a *Ziarat*, or the residence of a *Pir*; that is of a shrine or a religious teacher; the happening of a feast or of a funeral, and even personal likes and dislikes, all bias the choice. Accidents, too, may intervene, as when the Zao Pass on the flanks of Kaisargarh was blocked by the fall of the Dabarrah rock, which still has a name and is spoken of. Taxation, always to be avoided by good business men, banditry of one kind or another, the existence of a single corrupt local official, or of one petty brigand, may cut the life-blood of trade from a route until the case is altered.

Since Afghanistan is a mountainous country, cultivable ground is at a premium, and the available water rights, without which the valley lands are dust and pebbles, set the standard of prosperity. Above on the hill-sides, wherever there is sufficient depth of soil, a scanty harvest of wheat or barley is snatched by means of the natural irrigation of the melting snows. It must be clearly understood that the Pathan way of life includes migration, but is not essentially migrant. The unit of the social structure is the tribe, established in grouped villages, the regional unit usually being the valley. The mode of action of this complex social machinery is republican and takes the form of village and tribal councils (*Jirghas*). That is to say, where land and water are sufficient, the social unit is well established locally and acknowledged land tenures persist. Indeed, ownership of land is, theoretically, a necessary qualification for the right to speak at the *Jirgha*. The Pathan is a

grower of upland corn and irrigated rice, but he is neither a gardener nor a fruit-grower. Where grazing is available, he keeps donkeys and camels, and, as with other peoples in similar surroundings, the necessity of keeping these alive all the year round has produced a kind of migration. So, in Elphinstone's day, the Miankhel migrated annually from Daman to the uplands of Shilgar, where, even in the heat of summer, grazing was plentiful. So to-day, many of the Jalalabad tribes migrate to the grazing grounds allocated to them on the downs of Koh-i-Baba by the Afghan Government, who, after repeated Hazara revolts, have thus nationalized these regions. The tribes travel with their families, their stock, and their tools, and are a major feature of the Afghan roads in spring and autumn. When on the road they are known as *Kuchis*, the marchers, and as such many of them take in their stride the dual boundaries of the Durand Line and the frontier of British India, where they spend the winter. Trade is superimposed upon the basically pastoral pattern of these upward and downward seasonal movements, the textiles of the Indian cities, especially the patterned Peshawri turbans, being prominent among the miscellaneous goods they deal in. The necessities and uncertainties of the road are reflected in their social organization. When professional merchants travel in the East, they do so under the leadership of an appointed *Kafila-bashi*. The tribes, when more than one family take the road together, appoint their *Chil-washti* or caravan-dictator, who, in spite of the realities of Pathan republicanism, holds absolute sway over the long drawn-out strings of camels and donkeys.

Since Afghanistan lies across the trade routes of India, China, and northern Persia, this profitable carrying trade has led to specialization on the part of certain tribes, the Lohanis being merchants in their own right and wholly mobile.[1] On the other hand, the retail trade of Afghanistan is, as a whole, not in Pathan hands. Just as he is not a gardener or an artificer, so the Pathan is not a shopkeeper. Throughout the Pathan hills, Hindu merchants live as protégés of the tribes (*Hamsaya*) and, even in modern Afghanistan, the retail textile trade of Kabul and Charikar largely remains in Sikh hands. Banking and the organization of credit was the monopoly of Hindu Banyas, until the institution of the National and Commercial Banks under the present dynasty. In spite of this modernization of the system under state control, the bankers of Peshawar, Bannu, Dera Ismail Khan, and Multan, still have their agents in the towns of the Oxus valley and even beyond, and until recently it was possible to obtain a reliable credit-note on Bukhara in any of the Indus cities. These Indian merchants did not own their own beasts of transport, but hired them on fixed contract rates from the mobile and semi-mobile tribes. It is therefore necessary to envisage Afghan tribalism, not as a thing apart, locked away in the fastnesses of the hills, but as closely linked with the polyglot, largely international, cities of the valleys and of the rich producer and consumer lands beyond, India, Persia, and Central Asia.

Since the Sakas belonged to the Iranian fringe, and made their way to India through Seistan by the ancient, southern, low-level route with the

[1] Vigne ('A personal narrative of a visit to Ghazni, Kabul, and Afghanistan,' 1843) travelled with a Lohani caravan, and gives a graphic account of their methods.

cooperation of the established Parthian government, it is necessary to consider the first historical impingement of Central Asia, nomadic Turan, upon the well-founded structure of Indo-Iranian political and commercial relations. In its initial stages Saka pressure destroyed Hellenistic Bactria, though it did not touch the Indo-Greek kingdoms south of Hindu Kush. Later these were overrun by the Saka–Parthian movement from the south. It was not until the first century A.D. that India had to meet the Kushan hordes, who, after destroying the Saka–Parthian satraps and the last remnants of the Greek kingdoms, set up an empire which straddled the great mountain divide and so created a new political unity, ranging from the Oxus to the Ganges. In doing so they created a new pattern in Indian history, for the White Huns in the fifth century and the Western Turks in the seventh followed in their steps.

Strabo twice states, categorically, that at the time of Alexander's invasion the Indus divided India from Iranian Ariana, the larger administrative unit, which supplanted the old Persian Arachosia.[1] Later, the Indians recovered a large part of Ariana from the Macedonians. This concise statement is amplified in his second passage: Alexander had deprived the Ariani of certain tracts west of the Indus and had founded settlements there, but Seleucus Nicator gave them up to the Indian king, Sandrocottus, as the result of a marriage agreement, receiving in return five hundred elephants. In this way, the Indians came to occupy in part some of the countries situated along the Indus, which formerly belonged to the Persians. The Ariani were Persians, since Strabo regarded the extension of Indian power westwards as an innovation. It is clear that Pliny, knowing all this, chose his words with care when he came to define the boundaries of India, for they had changed. He says: Most authorities do not accept the Indus as dividing India from the west, but add to it the four satrapies of Gedrosia, Arachosia, Aria, and Paropamisadae.[2] Since Sandrocottus is the Mauryan emperor Chandragupta, and Seleucus Nicator marched westward with his elephants to fight and win at Ipsus in 301 B.C., the history of the transaction, which set an eastward limit to Syrian ambitions in Asia, is well established. Strabo continues: The kings of Syria and Media being preoccupied, first occurred the revolt of the Bactrians, and later, with Euthydemus and his party, the revolt of all the country near that province. Through the fertility and advantages of the country, the Greeks became so powerful that they were able to make themselves masters of Ariana and India.[3]

In view of what happened later, this bald statement may be construed in terms of tribal resistance to the growing Bactrian power, stimulated by envy of its prosperity. Northward lay the intractable tribes of the Iranian fringe; southward the collapse of the Mauryan empire offered opportunities of expansion. To the west the power of Parthia was developing, and, although their kings called themselves Phil-Hellenes, their interest in the Indian and Central Asian trade routes dominated their practical policy, so that in fact their organization formed a solid wedge of self-interest between the Hellenistic west and the isolated Hellenism of Bactria. Arsaces, their leader, was a chief

[1] Strabo, XV, 1, 2, and XII, 2, 9.

[2] Pliny, *Hist. Nat.*, VI, 23.

[3] XI, 9, 2–3. Tirwhitt's conjecture, "MSS. at variance with each other," which is good sense.

of the nomad Parni, a branch of the Scythian Dahae, but their Scythian grossness was rapidly refined by the startling success of their conquests. Northward however the tribes of the barbarian periphery remained unchanged. Later their confederations increased in unity and consequently in power (Strabo, XI, 9, 3). Before Alexander's time the Dahae lay along the shores of the Caspian. To the east were the Massagetae and the Sakas. The Parthians arose from the same milieu and it was at the hand of the new Parthian power, firmly established in the classical heart of Iran, that the Bactrians, in the time of Eucratides (175–155 B.C.), first met defeat in their semi-Greek satrapies of Aspionus and Turuva. According to Strabo, Sogdiana was lost at the same time; that is to say, the tribes were already pressing southward to the Oxus. The first mention of Scythian pressure from the north is, perhaps, Polybius' record of Euthydemus of Bactria's plea in the days of Antiochus the Great's eastern expedition, shortly after 212 B.C. (XI, 34, 4). Antiochus was obviously concerned at Arsaces III's subjugation of Media; he had his eye on Parthia. Euthydemus set his own Scythian problem beside Antiochus' concern about the increasing power of Parthia. The truth would seem to be that the Greeks in Asia had never been united. Whatever Alexander had intended his empire to be, the personal ambitions of the Diadochi left no sense of brotherhood or national mission behind. Seleucus Nicator, in alliance with Diodotus I, had defeated the first Parthian attacks, but the Hellenistic alliance broke down. Diodotus II of Bactria was won over to an Asiatic policy and thus, consciously and effectively, contributed to the defeat of Seleucus II Euthydemus, who had forcibly supplanted Diodotus II, occupied Kabul about 200 B.C. From there he was able to extend his power southward to Arachosia (Kandahar) and then westward to Herat. It would seem that this western extension was not possible from Bactria, but only after the consolidation of his power over the southern trade routes by the refounding of Alexandria in Arachosia as a Hellenistic city. In creating this extensive empire the house of Euthydemus lost Bactria to the rebel Eucratides, and the rivalry of the descendants of the two houses may be traced throughout the history of the Indo-Greek kings. Demetrius, son of Euthydemus, seems to have been the actual conqueror of Ariana. According to Strabo, he and Menander were the pioneers of Bactrian Hellenism in India. Finally, the tribes of the periphery rose in their might and, unable to organize their extended lines of communication, Greek rule vanished for ever north of Hindu Kush. These tribes were the Asii, the Pasiani, the Tochari, and the Sacarauli, and they came from trans-Jaxartes, opposite the Sacae and the Sogdiani.

Strabo's statement that Demetrius conquered Ariana and won the title of "king of the Indians" would seem to suggest that Ariana was, at that time, Indian. In any case, he succeeded to Arachosia as well as to the Mauryan provinces round and about the upper Kabul valley. It is probable that when Aristobulus describes India as abounding in the oak, pitch-pine, and firs, he had the Kabul valley in his mind. Eratosthenes, also, says that firs grow in India and that Alexander built his ships of fir for his descent of the Indus. It is not until Ptolemy that continental India, the true, tropical India, became known to geography. For him, as for Pliny, the four adjoining satrapies of Gedrosia, Arachosia, Aria, and Paropamisadae, mark the limits of India,

ultimo fine Kophete fluvio, that is to say, up.to the Kabul river where it flows into the united Ghorband-Panjshir at the very foot of Hindu Kush. But it is noteworthy that this expanded India was no longer autochthonous, but to a large extent under the dominion of foreign satraps. Through the whole period the control of the Kabul valley seems to have been dependent upon the mastery of Kandahar and the southern routes, not upon that of the Hindu Kush passes.

Apart from their coins, little is known of the India of the Greek princelings. Their sequence and distribution, as argued by Rapson and other numismatists, depends upon the acceptance of types and moneyers and regional symbols as historically significant. Very little is known of the distribution of the coins themselves, and arguments based on such boastful titles as ἀνίκητος and dolphin devices as indicating naval victories in the Punjab are not convincing. The joint Saka–Parthian invasion of India certainly split the Greek kingdoms in two and it is clear that Parthia later dominated the whole tract from Seistan to the Punjab.

Three dates however are of outstanding importance. Demetrius' intrusion from Bactria into India must have taken place about 190 B.C. About 170–175 B.C. Eucratides supplanted him. Shortly after 139 B.C. Mithradates I must have brought Bactria within the scope of the Parthian empire, for in that year Bactria aided Seleucus Nicator against the Parthians. Ptolemy gives little ground for the thesis that Greek cities survived as such in this region. Eucratides lost Herat and Arachosia to Parthia. The traditional "conquest" of India by Mithradates I (171–136) and the warlike activity of Mithradates II cannot be entirely without foundation, though it is doubtful how exacting their supervision of their Indian interests was. It is probable that they encouraged the Scytho-Parthian invasion of India which drove a wedge between the disunited Indo-Greek principalities. That Maues calls himself "King of Kings" is typical of the common failure of Oriental potentates to control their satraps. Later Gondopharnes boasts himself "αὐτοκράτωρ." The Periplus of the Erythrean Sea states that the Parthians were given to fighting among themselves. It was under these conditions, in the latter part of the first century B.C., that Indian influence once more dominated Arachosia and Gedrosia, as Ptolemy and Pliny knew. Indo-Greek numismatics also provide certain concrete data: Pantaleon and Agathocles are the first of these kings to use the Indian Brahmi script. Heliocles is the last king whose coins are found north of Hindu Kush. The coins of Apollodotus are found only south of Hindu Kush. Menander's coins are not found in Seistan or Arachosia.

On the other hand, the Hellenistic period of Indian history is archaeologically represented by three separate and distinct corpora of objects.[1] First, there are the Indo-Greek coins and a certain number of early intaglios and seals. These clearly demonstrate a process of Indianization. Second, many

[1] Sir John Marshall's views (*Arch. Sur. Rep.*, 1930, p. 151) are based upon his excavation of Sirkap. He attaches great importance to the Parthian period and to his analysis of Gandharan masonry. The Survey has since modified its treatment of the evidence, and it is now agreed that Gandharan sculpture owes its classical elements to late Roman influence.

sites in the Peshawar valley, as well as certain sites in the Ganges valley, have produced moulded terracottas of Hellenistic type, which date from the second and first centuries B.C. The technique itself is foreign to India and close parallels with Egyptian terracottas of the period can be made. Third, imported objects, including many bronzes of Roman or Alexandrian provenance, are found in the great city sites of the north-west and at Begram in the upper Kabul valley, and these show close contact with the Roman world in the first and second centuries A.D. At the same time, under the influence of this massive importation, representing the taste of the ruling classes of the merchant cities, the so-called Graeco-Buddhist art of Gandhara came into being. These imported objects include Roman bronzes of the first century A.D. and Syrian glass, which cannot be earlier than the second century. Their importation cannot be associated with the extension of Parthian power into India in the second and first centuries B.C., for none of the Roman objects are earlier than the second half of the first century A.D. Except for the Kurram valley, Graeco-Buddhist stupas and monasteries are found throughout the frontier hills from Swat to Waziristan, westward to Ghazni and Kabul, and northward to the Shibar, Bamian, and Kunduz in the Oxus valley. Under the Kushans, in the first and second centuries A.D., the Kabul valley, once again, belonged to India; their later, and lesser, successors long survived in Seistan under Sassanian influence and political control. It is noteworthy that Sassanian coins of the third century are common throughout the Kabul valley and north-western India to the Sutlej, indicating highly organized commercial, if not political, influence. Strangely enough, Sassanian influence was limited in the Oxus valley, where, from the time of the Kushans, pressure from Central Asia was constant. The 'Hudud records that Merv was Sassanian, Talaqan in Mervarudh being the easternmost frontier of the empire (pp. 332, 335, 337). It describes the ruins of the famous Nau-Behar at Balkh with its remains of fresco-paintings. These do not seem to have been known to Yacubi a century earlier, though he mentions the Balkh marshes and says that the city stood in the midst of sandy wastes. Sassanian antiquities have also been reported to the east of Balkh, at Khulm, but Marquart definitely proves that Sassanian rule only once extended to Balkh, and then only for a short time.[1] However Merv long survived as a firm buttress of the Iranian frontier, as did Herat, which accounts for the fact that the Kushan advance southward from Central Asia in the first century A.D. was deflected into Oxiana. The Sarakhs–Herat low-level route being blocked, the only way open for farther expansion southward lay across Hindu Kush.

Though the Sakas belonged to greater Iran, their advance southward into Bactria and India was motivated by pressure from Turan. Indian history knows of only three barbarian invasions B.C., leaving aside the Yavana Greek infiltration. The Pallavas of the texts are the Parthians and are represented archaeologically by such names as Vanones; the Sakas are the Scythians and are represented by Azes, Maues, Ranjubala, and Nahapana. With them must be grouped the Tukharas, who cannot be identified at all if they are not the Kushans. The suppression of all mention of the Kushans in Sanskrit literature is most interesting, but it cannot be used to prove that they were

[1] 'Eranshahr,' p. 47 *et seq.*

Scythians or the Tochari of Strabo. In the first century A.D. they and their confederates forced their way southward and were able to build an empire in India, which endured for at least five generations and witnessed the formulation of the Buddhist canon and the creation of Buddhist, Brahmin, and Jain iconography. The names of the Kushan kings indicate prolonged Iranian contacts. It has however been suggested that they were Turks by origin. As has been pointed out, the search for ethnic precision in Central Asia is always hazardous, but it can be said with confidence that the Kushans were not Huns, that is to say, Mongols. It is also clear that there was war and not peace in the tribal form of federal alliance, between them and the Sakas and the Wusun, with whom they came in contact on their way south.

The Chinese knew the barbarians of the Central Asian hinterland of old, and, like the Greeks and Scythians, they were concerned with them mainly as horse-riding, meat-eating, kumiss-drinking skin- and wool-clad barbarians. They had flocks and herds and camels, as well as horses, and, though they had no cities or fixed dwellings, each household had its settled grazing rights.[1] To the north-west were the Hiung-nu; to the east were the Tung-hu, who later played a prominent part as make-weight in Chinese balance-of-power politics.[2] As a defence against the hordes, the Tsin emperors built the Great Wall of China in the third century B.C. On the fall of that empire the Hiung-nu were able to extend their power from Lake Baikal to Jehol and southward to the cities of Kansu and Shansi. In the course of this wide expansion of power, they overran the Wusun in the region of Lop-nor and the Yüe-chi in western Kansu. In the time of their great tribal leader Mehteh (Meghder), at the end of the second century B.C., the Wusun had moved westward and were living south of Lake Balkash, while the Yüe-chi extended to the south-west of them up to the shores of the Caspian.[3] By the middle of the second century B.C. the threat of the Hiung-nu confederation was so considerable that the Chinese emperor Wu-ti sent the famous Chang-k'ien to the Yüe-chi to seek an alliance against the common enemy.[4] After ten years of captivity in the hands of the barbarians, he managed to complete his mission, but failed to convince the Yüe-chi of the value of Chinese aid. Eventually he returned to China in 125 B.C. bearing with him horses, alfalfa (the horse-grass), Central Asian grapes, and an accurate knowledge of the country between the Syr and the Amu Darya as far as Balkh. Meanwhile, the Hiung-nu power had fallen away before the first stirrings of Chinese imperialism, provoked by the barbarian threat to seek allies in the old Tungus group of peoples to the east. This time the alliance was successful, and the Hiung-nu, in their turn, were forced to migrate westward, where they played a prominent part in the Asiatic barbarian invasion of Europe. This western movement of the Hiung-nu under Chinese pressure was a defeat, but it was also a retreat in force, and brought about further movements of the mixed peoples west of Tien Shan, who were forcibly displaced. Of this Pan-Asian upheaval the Saka entry into Bactria

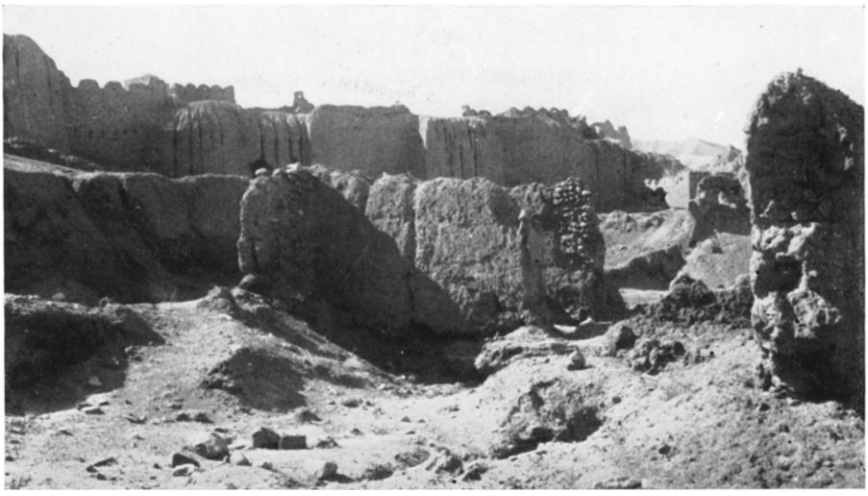
[1] On grazing rights: Parker, 'A thousand years of the Tartars,' p. 5.
[2] 'The heart of Asia,' Skrine and Ross, p. 14.
[3] Radloff, 'Concerning the Uigur,' p. 126.
[4] Chavannes, 'Sse-ma Ts'ien,' I, Introd., p. 89. Laufer, 'Sino-Iranica' throughout.

was an early symptom. The Yüe-chi having elbowed the Wusun out of the pastures of Issyk-kul, were pressing hard upon the Sakas to the south. The Sakas, in their turn, moved on into Bactria, but found no respite, for shortly afterward a temporary Wusun–Hiung-nu alliance forced the Yüe-chi to move still farther south. Eventually, in the rich Oxus territories, the latter were able to reform their political organization under five principalities so successfully that their influence stretched out along the trade routes to India, to which, like the Bactrian kings before them, they eventually shifted the centre of their rule.[1] The Kushans had the long sword, then a new weapon, which was later adopted and put to good use by the Sassanians. They also used scale armour, probably of leather, but there is no evidence that they brought the recurved bow to India.

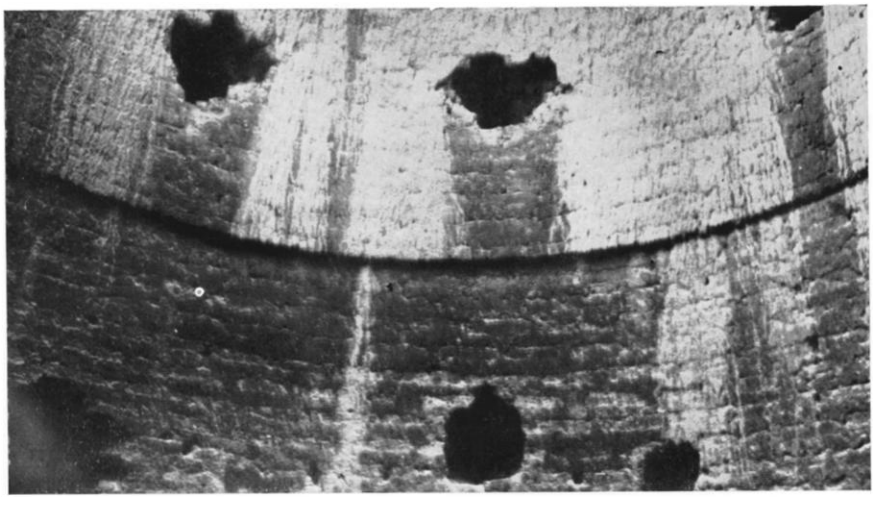
The Chinese annals are curiously precise on certain points of this story, though all but the bare outline of the tribal inter-actions implicated remains obscure. In 125 B.C. the Yüe-chi to the north of the Oxus were nomads. They wandered with their flocks and herds between the confines of Parthia, Sogdiana, and Saka Oxiana. This statement would seem to confine them between the strong Parthian Merv–Herat line and the rich Oxus valley lands east of Termez and Balkh, then held by the Sakas. In Kansu they had numbered two hundred thousand bowmen and they had prospered since. The area must have been richer than it is now to support such a large population. As for the Sakas, they numbered over a million, but were socially primitive. They had no kings, each settlement being ruled by its own local chief. Their defeat was certain, and, after it was accomplished, among the fields and orchards of Oxiana, in close association with the subjugated Saka, the Yüe-chi inevitably abandoned nomadism for the more secure life of settled towns and villages. They penetrated the hills and occupied the upland valleys, eventually, under Kujula Kadphises, leader of the Kushan division of the tribe, spilling over the passes into the Kabul valley. Among the settled Sakas, who thus were absorbed into the Kushan empire, seem to have been the Asiani, whom Trogus Pompeius calls "kings of the Tochari."[2] In other words, the Kushan royal horde, when it finally emerged triumphant in the rich plain of India, was a mixture of peoples, regimented under one of the Yüe-chi families of the old Kansu regime. As has been said, the Mahabharata, which is ignorant of the family name Kushan, treats only of the Tukharas, brigading them with the Yavanas, the Saka, and the Pahlavas, the four historic foreign invaders of continental India. Tukharistan is traditionally the upper Oxus valley, the land where the Kushans first established their power in the old cities of the Sakas. It would seem that in India the regional name occluded the dynastic.

[1] This view is based upon Polybius and the writings of Foucher. It is supported by Barthold 'Le Royaume Grec de Bactriane et son extension' (Ac. de Pétrograd, 1916), and Von Sallet, 'Nachfolger.' It is not possible to look beyond the Scythian invasion of Bactria for any clear view of the state of the country and its inhabitants, though Strabo does say that the pre-Greek Bactrians were more civilized than the Sogdians, who lay between the Oxus and the Jaxartes.

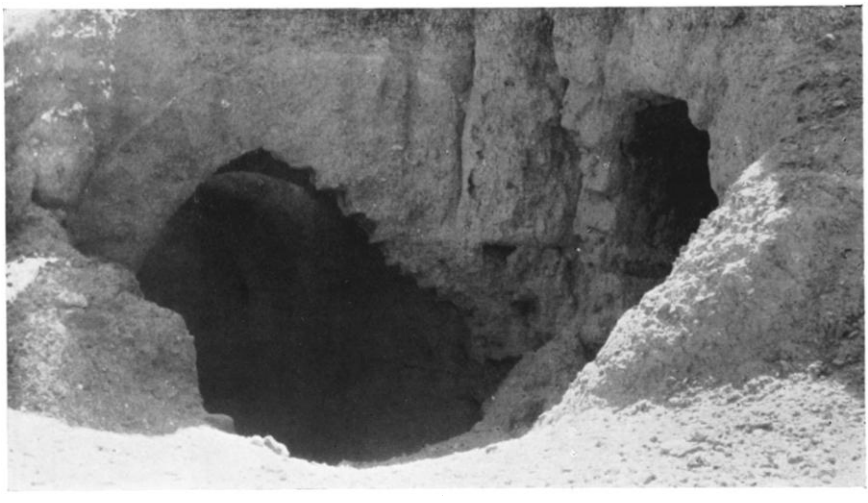
[2] Justin, xxxiv, I, 4. Bachhofer, A.O.S., vol. 61, No. 4, p. 223, accepts the Chinese sources as contemporary, and on the strength of the Trogus passage identifies the Kushans with the Ariani. But the Chinese accounts are not consistent, and their dating is by no means clear, as Laufer constantly points out.



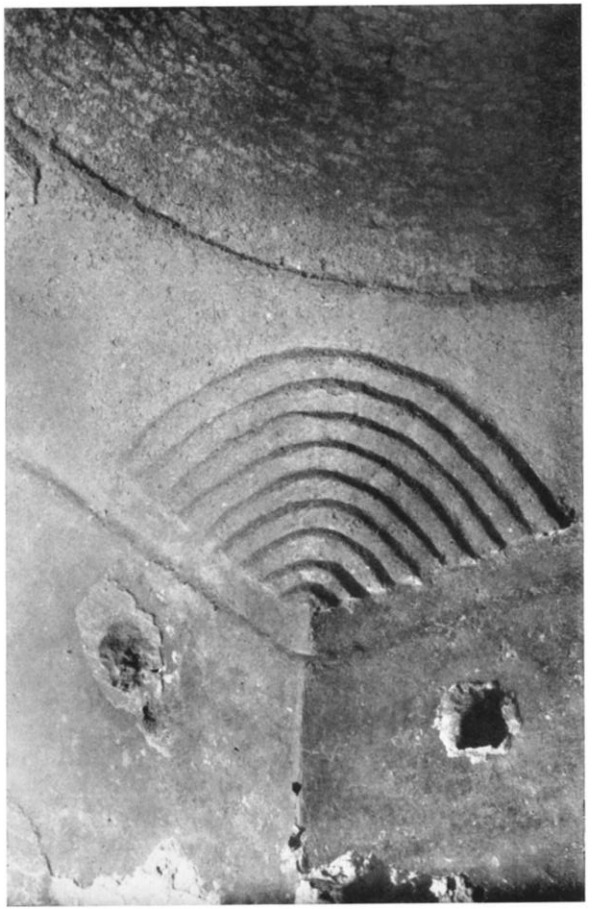
Lower courtyard, Shahr-i-Zohak



Interior of dome, lower courtyard, Shahr-i-Zohak



Arched chamber, Shahr-i-Zohak



Dome with squinch, Shahr-i-Zohak

A. Fresco from ruined dome with squinch, Bamian

B. Fresco, Fondukistan

C. Detail of fresco, Great Buddha, Bamian

A. B. C. Reproduced from copies by the Délégation Archéologique Française en Afghanistan

The history of India remains obscure during the third and fourth centuries A.D. On the edge of India proper, Gandhara and its Buddhist monasteries prospered, and so did Sassanian Iran, up to the desert which divides Seistan from Baluchistan. At the beginning of the fourth century, stirrings of a new kind of nationalism in northern India brought into being the great Gupta empire, before which Kushan dominion crumbled, though it survived in the Kabul valley for a time, and persisted under Sassanian domination in Seistan. The last remnant of Kushan power in the north must have been swept away in the fifth century by the detachment of Ephthalites, who challenged and eventually destroyed the Guptas and maintained their own kings for two generations in Malwa. Known to the Arabs as Haytal and to the Chinese as Ye-tha, the Ephthalites, or White Huns, have been identified with the Hiung-nu. There is little evidence as to their origin, but it can be said that they were typical of the many intruders from Central Asia who are described in the Chinese annals, and that they advanced in two different directions, one body moving towards the Volga, the other towards the Oxus. The White Huns of the Oxus had no difficulty in reducing the decadent Sassanian kingdom to vassalage. All resistance ceased on the death of Firuz in A.D. 484. The Merv–Herat buttress had at last been shattered, and this crucial Sassanian failure inevitably let Turan into Oxiana and beyond. Nor was Hindu Kush a sufficient obstacle to stem the tide. Skandagupta, the Gupta king, had successfully repelled what seems to have been the first White Hun foray into India in 455.[1] They returned in force about the year 470, and this time were successful and stayed. Toramana, their leader, assumed the Indian style of *maharaja*, as three extant inscriptions show, but India was only a province of the Ephthalite empire, which seems to have been governed from Bamian. Bamian lies over 8000 feet up: it is snowbound in winter; the apricot and mulberry do not grow there. It is not the capital of a politically-minded people or the headquarters of wide-flung commercial interests. Nor would the Buddhists have congregated there if it had been thickly populated. Toramana was followed by Mihiragula, presumably the Golla of Cosmos Indicopleustes. The Indian accounts parallel Gibbon's summary of Hunnish characteristics. Mihiragula is repeatedly held up as a Buddhist iconoclast, and consequently the destruction of Gandhara is commonly ascribed to him. The significance of the dominance of the White Huns in the fifth and early sixth centuries is that under them for the first time all the trade routes, both northern and southern, Dzungarian as well as Kashgarian, were under the control of a single federation. This being so, the pepper which the Huns demanded as part of the booty of stricken Rome must have travelled from India by sea. As far as China and Byzantium were concerned, Turan held the trade of Asia to ransom. They failed however to keep what they had won. Their Indian detachment vanishes from history, though petty Ephthalite baronies survived in Hindu Kush, eventually to be absorbed in the victorious hosts of Islam.

Among the Ephthalites' temporary vassals, a power of a very different order was already waxing. The Turks proper, the Tu-kueh, were on the threshold

[1] Bhitari inscription, Fleet No. 13. Cunningham, *Arch. Rep.*, vol. I. "Sung-yun's travels," Beal, 'Records,' vol. I.

of history; that is to say, a new Central Asian federation under Turkish leadership was forming.

According to the Chinese annals, the Turks were of Hiung-nu descent, but that amounts to little more than that the Chinese historians knew them to be neither Chinese nor Iranian. Their clan name was Assena and, being dispossessed of their own lands by the Toba Tungus princes of northern China, they voluntarily became the vassals of the Juan-Juan, who were the enemies of the Tobas and dominated Central Asia from the land of the Kankalis (the High Carts) in the region of Baikal, to the borders of the legitimate Chinese government at Nanking. This was in the first half of the fifth century. Iron and the art of forging iron are referred to repeatedly in the Chinese records. Swords passed as currency and there are stories of swords received at the Imperial court as tribute from the Hiung-nu. Moreover Pliny, rather unexpectedly, includes iron among the exports from China to the West. It is recorded that the Juan-Juan employed the Turks as iron-smiths, but they appear chiefly as traders in silk fabrics and floss-silk for wadding in the Chinese annals of the fifth century. They must have prospered, for in A.D. 546 their leader was in a position to demand a Juan-Juan princess in marriage. The result was war and a complete victory for the Turks. Within a few years they ruled, not only from the Great Wall to the borders of Iran, but also in the far north, whence reports of snow-shoe hunting, dog-sledges, and the moose appear for the first time in the Chinese records. They were horsemen of the Central Asian tradition, armed with horn recurved bows, singing arrows, coats of chain-mail, and the long sword. Their use of the latter indicates Sassanian influence, not Chinese. Although they were nomads, yet, like the old Hiung-nu, each head of a household had his own definite grazing rights. They were not Buddhists but worshipped spirits. They could however write. Mukan, their second great Khakhan, was succeeded by Tapo in 572. His power was such that the Chou and Ts'i emperors gave him their princesses in marriage, together with tributes of fabulous quantities of silk. Unlike the impoverished skin- and wool-wearing barbarians with which the Chinese annals and the accounts of the Chinese pilgrims abound, the Turks were clothed in silk and feasted on flesh. Moreover they were appreciative of Buddhist propaganda. Tapo found a Buddhist teacher among his prisoners of war, and later built a monastery and sent to Honan, not to India, for Buddhist books.

Byzantine history confirms the contemporary records of Chinese diplomacy. Between A.D. 563 and 568 the Turks, in alliance with the Sassanian Khusru Anushirvan, overthrew the hated Ephthalites. The alliance was a pitiful fiction, for in reality the Turkish confederates were masters from the Don to the Great Wall. However the weakness of family jealousy, inherent in the Central Asian tribal system, once again made itself evident, and in 582 the great empire broke up. Even so, the western Turkish principalities, feudally interlinked by descent and diplomatic marriages, maintained a firm hold on the territory between the Syr and the Amu, and the rich valleys that lead down into it. They thus were able to control the great caravansarais of the Chinese trade, Samarkand, Paikind, Kist, and Bukhara, ruling through scions of the

royal blood, or even the surviving petty barons of the older Ephthalite, Kushan, and Iranian regimes. Huen Tsang passed through their domain in A.D. 630, and the passport they gave him ran from Issyk-kul to Bamian, the language, writing, administration, and money of which were all Turkish. He even says that the people of Bamian were Turkish in feature. Kapisa, too, across the great barrier, in the Kabul valley, was under Turkish influence. Its script was Turkish, but its language was different, and the people wore wool and furs, not silk. Huen Tsang says that the king of Kapisa was a Kshattriya, but that does not mean that he was an Indian. Indeed, he specifically calls the Black Mountains east of Kapisa the frontier of India. On his return, he had to modify this statement, for in the interval the Indian kingdom of Gandhara had collapsed, and the king of Kapisa ruled from Hindu Kush to the Indus. This marks the easternmost limit of Turkish power in India. The dynasty was eventually succeeded by, or, rather, merged into, that of the Shahi kings, who ruled at Kabul, but whose coins are plentiful right up to the Sutlej. The Shahis were, in their turn, succeeded by the Brahmin dynasty of Ohind on the Indus, who met its fate at the hands of Mahmud of Ghazni.

It is significant that the first eastward extension of Muslim power came through Seistan. That was in the days of the Caliph Othman and achieved little more than a military reconnaissance of what must have been the main trade route between India and Mesopotamia. To the north lay the Turks and, in point of fact, the final reduction of Central Afghanistan was delayed till the rise of Ghazni, and even then it is clear that the tribes proved recalcitrant. In A.D. 638 Yezdegird had ineffectually appealed to the Chinese court for aid against the rising power. He received a temporizing answer. It is astonishing that the Imperial Court should not have realized the scale and moment of the Muslim thrust. Even Huen Tsang, who must have heard talk of them, never mentions Islam or the Arabs. Yet the Muslim banners actually crossed the Oxus in 675–6, though it was not until 706 that Qutayba was able to establish Arab domination in Transoxiana. China, torn by internal dissension, was by then faced with a fresh source of barbarism, in Tibet. By the eighth century the Tibetans had come to dominate Taklamakan and the old channels of Asiatic trade were thus broken in two places.

Tabari, in a passage which is no more than a casual parenthesis, and is therefore quite unbiased, records the very end of the Turkish dominion. So few western historians recognize the size of Asia. They record Rome as bringing all nations under her sway and Napoleon as dominating the world; but due tribute is seldom paid to the tremendous events of Asiatic history. From Mehteh to the Turkish Khakhans, Asia knew organized empires that could only be challenged by Rome at her greatest. They were fugitive and passed away because the tribal system was in itself essentially unstable. Confederations are effective in action only under personal leadership. Leadership begets ambition and ambition destroys the loyalties that gave it its opportunity. The problem implicit in the history of the continent is still a real one, where the old tribal loyalties survive, and the historic difficulties of the task of governing under such conditions should be admitted in discussing the history of modern Iran or Afghanistan. The chief centre of resistance to Islam was not in the

great cities of the plain or in the rich valleys, but in the broken country on either side of the Oxus, from Chaganian to Badghis and Herat. Here descendants of the Turkish royal house still ruled and could command tribal allegiance in their highland valleys. They fought manfully a hopeless fight. In 710 two Turkish barons, who had already accepted Islam, are described by Tabari as paying homage to the defeated Turkish prince, admitting themselves loyal to the dying regime in the conqueror's presence.[1]

This rich chapter of history, wherein Turan breaks in upon Iran, and itself is overthrown by the Faith in whose eyes all men are theoretically equal, is recorded in a polyglot and voluminous literature, Chinese, Byzantine, Arabic, and Persian. But, as so often happens, all human values are lost in the stilted record of events. Fortunately there is plentiful archaeological evidence to enliven the pedantry, or propaganda, of the texts; indeed, the mass of material is so voluminous that it will be many years before it can be properly sifted and put to historical use. Central Asia not only has cities, but they have also been visited and described many times. Yet the Buddhist frescoes in Berlin, with their graphic representation of contemporary life, are only a fraction of the available evidence. Torn from their context and glazed in a museum, they do not represent in any way the mass of monuments which remain in situ, of which no adequate photographic record is yet available. No one site, no one building or cave has yet been recorded as a whole. Sir Aurel Stein's careful records remain our chief guide, and, even in his case, the objects brought back are divided between the British Museum and Delhi.

In all this mass of material three main periods can be distinguished on purely archaeological grounds, that is to say, allowing the objects to speak for themselves, without literary bias. The first is typified by Stein's Miran site, where Graeco-Buddhist influence from Gandhara appears, almost unaltered, in association with a plentiful supply of dated manuscripts, inscribed in the years between A.D. 263 and A.D. 330.[2] The second is represented by le Coq's north Taklamakan cave- and temple-sites, with their magnificent display of frescoes. In these paintings le Coq rightly distinguishes the Kizil knights of the lapelled coats and long swords, as portraits of donors, representing the ruling society of the day. The third period is that of the Tibetan domination of the eighth century, in which the origins of the familiar Lamaistic Buddhist art of modern Tibet and Mongolia may be clearly traced.

Le Coq failed to distinguish the period of the Kizil knights from the period of Tibetan dominance, which followed it; but new evidence from Afghanistan forces a revision of his treatment of the facts. For accurate representations of the very same knights occur at Bamian and at Fondukistan in the valley of that name, which opens into the Ghorband east of the Shibar Pass, a graphic illustration of the length and breadth of the Turkish empire.

At Bamian they appear in conjunction with late Graeco-Buddhist iconography and with certain, very distinctive, domed chambers with arched squinches cut in the rock. At the nearby ancient fort of Shahr-i-Zohak the

[1] Gibb, 'Arab conquests,' p. 9.

[2] It is not intended to discuss the dating of Gandhara sculpture here, nor to deal with the archaeological facts in detail, which will be treated at greater length elsewhere.

originals of the Bamian caves are to be seen, built four-square, in finely burnt brick, demonstrating the functional purpose of the arched squinches. At Haibak there is another exactly similar cave, while at Kunduz there are the remains of a brick building on identically the same plan. Lastly, the early French excavations at Kabul, itself, unearthed a similar brick building, the discovery of which is however only recorded in a footnote. The Shahr-i-Zohak domes in fine brick differ utterly from the early Sassanian rubble domes, though their arched squinches later appear in the many *Chahar-Taqs* of southern Iran, some of which were fire-temples, but which are generally agreed to be late Sassanian. Masson's find of fifth-century coins at Graeco-Buddhist Hadda has been confirmed by Hackin; while the frescoes and terra-cottas of Fondukistan, where the donors wear the costume of the Kizil knights, show clear Chinese influence. Artistic accomplishment of this order, based on such wide-flung contacts and, indeed, the patronage without which it could not have been born, can only be attributed to the Western Turks, the silk-clad lords of the Silk Route. The Ephthalites were incapable of such work, and once Islam had straddled the Oxus, it was impossible. Subject to a detailed re-survey of le Coq's, Stein's, and Pelliot's material, with all its problems of earlier and later Buddhism, Manichaeism, Nestorian Christianity, and Tibetan Lamaism, it may be suggested that Bamian was new when Huen Tsang saw it and that from Kizil to Kabul, these monuments must be dated *circa* A.D. 570–630. Furthermore, it is possible that the Kunduz, Kabul, and Shahr-i-Zohak squinched domes are the earliest of their kind known. In any case, Shahr-i-Zohak must be regarded as a site of the very greatest importance.

Ibn-al-Athir mentions the Afghans under the year A.D. 976–7. The 'Hudud records them as inhabitants of Saul, which is listed between Gardez, specified as being the frontier town between Ghazni and India, and Ningnahar, the modern Jalalabad, whose king, the author says, made some show of being a Muslim, and had Muslim, Hindu, and Afghan wives. Mahmud enlisted Afghans in his army, but, even in those days, it appears, the Pathan tribal individualism was active, for both he and Sabaktegin sent punitive expeditions against them, as indeed the Emperor Babar did five centuries later. They seem to have been confined to the region of the Sulaiman mountains, for there is no record of them west of the Ghazni–Kandahar road or in the Kabul valley. Indian historians strangely distort their sources when they call the Tajik Ghuris and the Turkish Khiljis Afghans. Indeed, the tribesmen themselves have consistently rejected the name Afghan, preferring the federal title of Pathan. As such, they early won renown as mercenary soldiers throughout Persia and northern India. As mercenaries, side by side with their fellow mountaineers, the Kurds, they served Nadir Shah and were with him at the sack of Delhi. Nadir Shah's death left a vacuum in Asia. It was filled, in these parts, by the rise of modern Afghanistan.

In 1747 Ahmad Shah Abdali was crowned with the willow by the common consent of the Pathan tribes, acting in conjunction with the Tajik and Hazara leaders. In 1929, after the suppression of the rebel, Bacha Sakau, His late Majesty King Nadir Shah was proclaimed king by general acclamation. Between these dates, the Turkomen of Oxiana, the Hazaras, and the Nuris of

primitive Kafiristan have been unified under the Kabul government. The historian has to record nothing less than the making of a nation.

Afghanistan exists to-day as an independent country between Russia and British India. Its boundaries were demarcated by treaty. Holditch, to whom we owe the greater part of our knowledge of its geography, was personally concerned, as an official, with the problems of demarcation, diplomatic and strategic, as well as cartographical. His work was directed to practical issues, on which he held the opinions of his day. He writes with confident authority, reflecting the almost dogmatic objectivity of nineteenth-century politico-geographical theory, fortified by the imposing bibliography of the Ratzelian school. In spite of Vidal de la Blache, Febvre, and Henri Berr, it is still hard to avoid the delusive simplicity of the argument, with all its assumptions:

Races and areas are to be studied comparatively; where differences in men are discernible, they are due to difference of race; where likenesses are found, they are due to environmental necessity. So it comes to be that Central Asia *is* nomadic. Its steppes and deserts of necessity produce nomad tribes, who sack and pillage the rich lands of their politer neighbours, because it is their nature to do so. Anybody who does this sort of thing is a nomad. Peisker, in his brilliant contribution to the 'Cambridge Mediaeval History,'[1] specifically speaks of "the identical origin of all the mounted nomads of historic and modern times." They are the product of "the Oriental background." "Spanish and Italian nomad-shepherds, too," he says, "can have no other origin." Miss Semple, again, stressing the necessities of the Ratzelian environment, writes of "the powerful effects of the dry and stimulating air of the steppes as inducing the migratory habit"; while Huntingdon finds an entire solution of the complex problems of Central Asian history in dessication. To-day we may, perhaps, be allowed to admit that we have no single universal key to life's questions. At any rate, we must abandon the verbal *deus ex machina*, and be content to define our terms as we learn our facts. There is still much research to be done, if misunderstanding is to be avoided.

Central Asia is now united as it has never been before. The strategic railways of Imperial Russia have been put to real economic use, so that Sinkiang, the ancient high-road, is now a back-water, ringed around by the railways which serve the Asiatic Soviets. Since the central government revised its policy towards religions, it is commonly admitted that the organization of the trans-Oxus Soviets has been successful. Afghanistan, lying between Russia and British India, is naturally interested in what is being done in both countries, and, since the Pathan Tribal Agencies lie between the Durand Line and the actual frontier of British India, ranking as British protected territories, especial interest is taken in Indian politics. The maintenance of this Afghan irredenta remains a major problem, for its peoples are solidly Pathan by race, speech, and traditions. Afghanistan is solidly Muslim, and as an orthodox Muslim state can only be compared with Saudi Arabia, having little interest in common with Shiah Iran or heterodox, polyglot India. Now that the Iran railway provides a north and south link between Asiatic Russia and the Persian Gulf, it is unlikely that the capital cost of extending the existing Russian rail-head to Quetta, *via* Herat and Kandahar, will be considered

[1] Vol. I, p. 358.

worth while. Meanwhile, the policy of the Afghan Government is based upon the determination to develop the resources of the country and so, step by step, to raise the standard of living of the people. It is generally admitted that the process must be slow, but it is felt that a great deal can be done with the friendly cooperation of the neighbouring states.

DISCUSSION

Before the paper the PRESIDENT (The Rt. Hon. Sir GEORGE CLERK) said: Mr. Codrington, who has been since 1935 Keeper of the Indian Section of the Victoria and Albert Museum, has had a varied and distinguished career in the Indian Army, and at both Oxford and Cambridge; more recently he has been on a long expedition to Afghanistan. To-night he will give us his geographical results, and, I hope, something of the archaeology which, as we have learned from a very great man and a lamented friend of the Society, Monsieur Hackin, and, more recently, from the Asia Lecture by Mr. Evert Barger, has such singular importance in the study of the development of what we are pleased to call the human race.

Mr. Codrington then delivered the lecture printed above, and a discussion followed.

Mr. R. M. S. MORRISON: I have listened with the greatest pleasure to the most excellent paper by Mr. Codrington, who I can assure you not only knows Afghanistan intimately, but is also extremely well favoured by the Afghans themselves, to such an extent that there must be many who may envy the high esteem in which he is held by all classes in that country.

I do not pretend to be a student of archaeology, although my travels have frequently brought me into touch with those who engage in this study, but I know that Mr. Codrington besides being an archaeologist is also much more, but these are things which perhaps in this Royal Geographical Society he is not able to tell you all about now. In thanking Mr. Codrington for his extremely interesting paper I can do no less than assure you that we have really heard something of considerable interest concerning a land so few Europeans visit from one who is indeed a master of his subject.

The PRESIDENT: Mr. Morrison has just stated that we have heard something from a master. That is obviously true. It would be hopeless to try to comment on a lecture so packed with knowledge and learning and expert research.

The light Mr. Codrington has thrown upon the tremendous problem of the cradle of civilization may to him only be a glimmer; to us perhaps it is little more than a rushlight. But it is in work such as he and others like him carry out that we find we can, from little indications here and there, build up a picture of civilization of which we have previously had no idea. Such papers as Mr. Codrington's paper carry with them the traces of absolute truth. It is on those lines that, after the war, I see a future for us and the work this Society does.

That is all the more reason why we should be especially grateful to Mr. Codrington for the paper he has given us. I hope that when we reach happier times he will continue to work on the great projects which he has shown us this evening and that the day will come when we shall have another and, if possible, even more interesting paper from him.

lications, had to be used as sparingly as possible. Certain consonants peculiar to Arabic and therefore redundant for ordinary transcription purposes (like *ṣ*, *ṭ*, etc.), were used in Turkish very ingeniously for expressing vowel shades that could not be shown by ordinary means. In the map, they are used only exceptionally, as in the transcription for Kuibyshev. But in a name like Magnitogorsk, the first component of which also exists in the Arabic word for magnet, it was natural to make use of the letter *ṭ*.

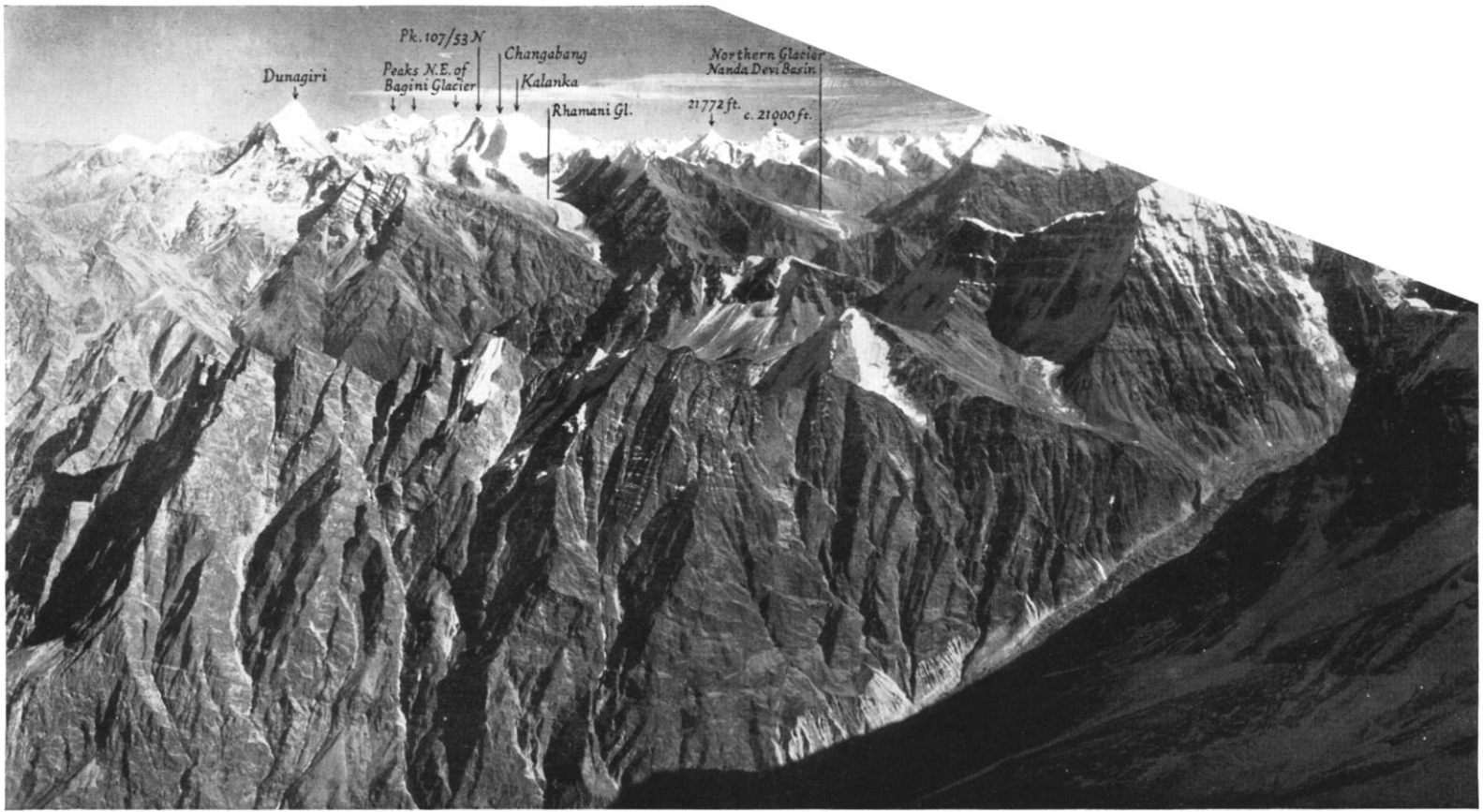
To give a practical transcription which would, as pronounced by the educated Arab reader, come nearest to the pronunciation in the language in question, was considered to be more important than to produce an absolutely consistent system which would inevitably lead to absurdities.

The geographical names in Great Britain, Northern Ireland and Eire, France, Spain, Portugal, and parts of North Africa were originally transcribed by Professor H. A. R. Gibb, who also contributed a number of other important observations. The name-lists for several countries were submitted, wholly or in part, to the following, all of whom made valuable remarks: for Sa'udi Arabia, to H.R.H. Amir Faisal Al Sa'ud; for the Arab countries in general, to Mr. H. StJ. B. Philby; for the Anglo-Egyptian Sudan, to Mr. S. Hillelson; for 'Iraq, to Mr. A. Khalidi, Secretary at the Royal 'Iraq Legation; for Persia, to Professor V. Minorsky, Dr. A. J. Arberry, and Mr. H. D. Graves Law; for Afghanistan, to Professor V. Minorsky; for India, to Dr. A. J. Arberry; for Turkey, to Mr. H. C. Bowen; for China, to Dr. R. Simon. None of them has, of course, any responsibility for the final form in which the names appear on the map.

A FLIGHT IN THE REGION OF NANDA DEVI, 1939

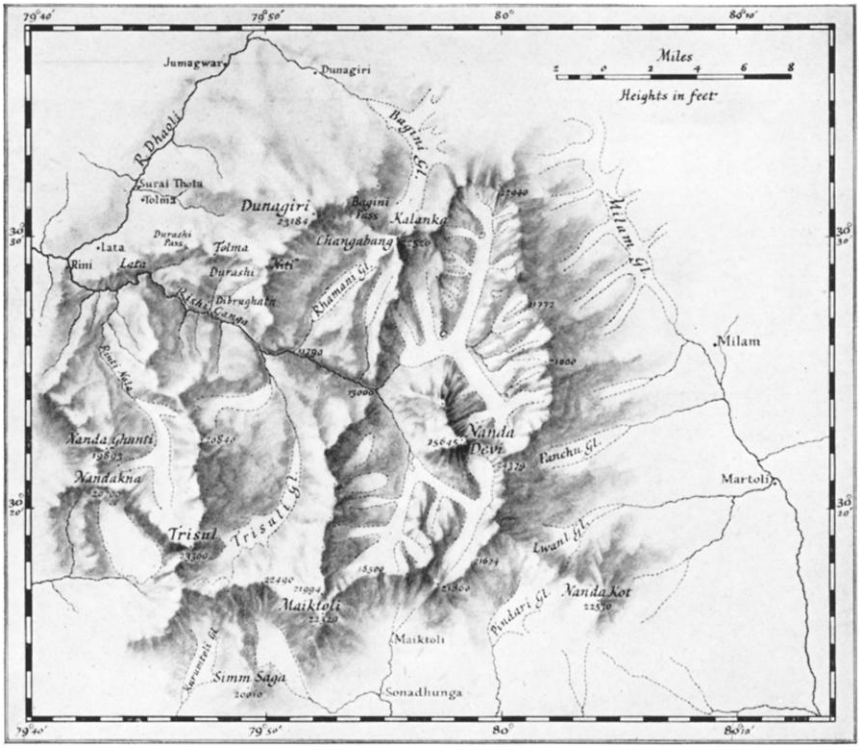
THE Society has been presented by Squadron-Leader A. J. Young with a series of photographs taken on a flight in the region of Nanda Devi. Squadron-Leader T. G. Waymouth, who carried out the flight, and Squadron-Leader Young have described the circumstances. Although this flight was made with the minimum of preparation, it secured some very interesting photographs. In all there are some twenty-nine verticals and one oblique panorama. Accurate records of where the photographs were taken could not be kept, but the panorama has since been identified and is reproduced in this paper with four of the verticals. Mr. Eric Shipton and Dr. N. E. Odell have written notes on the photographs.

On 27 December 1939, a flight was made over the Garhwal Himalaya by Pilot-Officer (now Squadron-Leader) T. G. Waymouth (pilot), Sergeant-Pilot Pinkus (navigator), and Corporal Banister (fitter) in a 2-engine Bristol Blenheim Mk. I. The decision to fly to Nanda Devi was made only just before take-off. Consequently none of the crew were clothed in more than their uniforms and ordinary linen flying overalls; nor were they equipped with oxygen. Despite these severe handicaps they reached a maximum altitude



Phot. R.A.F.

1. Aerial panorama looking north-east from Nanda Ghunti



2. The Nanda Devi Basin, based on a plane-table survey by Eric Shipton and H. W. Tilman, 1936

Phot. Eric Shipton

3. Three peaks at the head of the Bagini Glacier, 1936

(indicated) of between 22,000 and 23,000 feet. At this altitude, though the pilot was fairly comfortable, the navigator was almost overcome by lack of oxygen.

Recently I had the good fortune to obtain the following account of his flight from Squadron-Leader Waymouth.

"In December 1939 I was attached to a squadron stationed at Ambala: the squadron was then equipped with Blenheim I's. December 27 was a cloudless day but rather cold. At that date I had not yet flown twenty hours on Blenheims or twins of any kind and so was anxious to do my second cross-country flight. Being already familiar with the usual cross-countries round the uninteresting Punjab plains, I wanted to fly over new country. After studying the million map, I decided to visit Nanda Devi as I knew it was the highest mountain in British India.

My decision to fly to Nanda Devi was made only shortly before take-off, so we were inadequately dressed for the height to which we had to ascend in midwinter. I was dressed in my blue uniform with nothing over it, but wore a flying helmet because the speaking tubes were handier than shouting. I took with me my folding 4.5 Zeiss Ikonta and also at the last minute had a vertical camera fixed into the Blenheim.

We took off, as far as I remember, just before 1000 hours. I flew on 91° (magnetic) and the distance to Nanda Devi was, I think, 190 miles. I gradually gained height and flew over Dehra Dun at about 15,000 feet. Nanda Devi itself was easily visible above the dust haze at 8000 feet from a good 150 miles. It was then the second high peak from the south, Trisul being the southernmost. We reached the neighbourhood of Trisul in about fifty-five minutes' flying from Ambala. I flew over the snowfields dazzling white in the clear morning sun. The peaks and chasms appeared to be scudding along just underneath me.

The cold was intense and we had no oxygen. It was the cold that kept my senses sharp. While approaching Trisul [1] and at about 19,000 feet I did a steep turn to the right and told the navigator to take a vertical photograph with the Service camera fixed in the belly of the aircraft. The result was an oblique of a range of high mountains (Pl. 1). Trisul was a disappointing mountain to fly over as it was rounded and dwarfed by Nanda Devi's giant peaks. Sergeant Pinkus continued to take photographs of interesting points directly underneath us and I took a few snapshots of the twin peaks and a close-up of the summit of Nanda Devi. The photograph is a little distorted as I took it from about 23,000 feet and so had to tilt the camera. We flew over a very high ridge due east of the peak itself, and the difference in the aspect of the mountain from the north was impressive; whereas the southern face was bright and sunny and almost harmless looking, the northern slope was dark in the shade and not so covered in snow—altogether uninviting. It was round that part that we flew over some huge glaciers and Sergeant Pinkus took some vertical photographs of them. Looking north-west from this height there were range upon range of white mountains for hundreds of miles. To the north, the mountains in the very far distance were free of snow and many of them looked surprisingly rounded. To the east visibility was not so ex-

[1] See Shipton's identification: the pilot was probably over Nanda Ghunti.

cellent as the sun was intensely bright. We were feeling perished with cold and as we had been flying round the top of Nanda Devi, and for close on half an hour over 20,000 feet, I decided not to risk the effects of this great height without oxygen any longer. We flew over a huge razor-like ridge at over 21,000 feet which, I am not absolutely certain of this, seemed to link Trisul and Nanda Devi.

The whole time we were over 20,000 feet I was frankly concerned lest the lack of oxygen might suddenly overcome me at the controls. I purposely concentrated on taking deep breaths, but I cannot say whether this helped or not —but I felt it was helping me. The sky overhead was blue and cloudless and there was a westerly wind blowing.

There was a river gorge going westwards from the Nanda Devi group which seemed the lowest part, so I flew down this with mountains 'brushing my wing-tips.' But it was pleasant coming down to 10,000 feet or so. The river gorge had a couple of rather sharp left-hand turns, otherwise the return flight was uninteresting. We did not fly over Dehra Dun on the way back, but came out over the Ganges at Hardwar. It was good to thaw out. The return to Ambala took about fifty minutes and the whole flight lasted two hours ten minutes.

I went to bed that afternoon with a splitting headache that persisted next day. Corporal Banister obviously enjoyed the flight except for the cold. I asked Sergeant Pinkus how many verticals he had taken and he said 'Six or seven.' Actually he had taken over fifty exposures most of which were very good, and I expect the few he remembered taking were at lower heights.

I rarely mention this flight, as the inevitable question is asked, 'Supposing something had gone wrong when you were up there, were you justified in running the risk?' The answer is an unreserved Yes. I had full confidence in the aeroplane, and in any case the justification lies in that it afforded an interesting and new navigation exercise."

Mr. Eric Shipton's identification of the panorama (Pl. 1), also accepted by Dr. Longstaff, proves that Waymouth was flying over Nanda Ghunti, not Trisul, when the photographs were taken. The two peaks are only some 4 miles apart, and Waymouth was using the 1/M map, which is never easy to relate to the ground, especially over Himalayan country. These maps are used on major cross-country flights when navigation from one point to another is involved rather than for map reading. Also, he was flying at a height which would tend to confuse the identity of even the larger peaks, owing to their comparative insignificance when surrounded with other great mountains.

Judging from Waymouth's account, it seems probable that his route led him from Ambala direct to Nanda Ghunti, thence over the head of South glacier, swinging round to the north, over the col between Nanda Devi and Nanda Devi East and over Shipton's Great North glacier. From here, it seems to me probable that he flew round Nanda Devi, headed up the South glacier, thus completing the circuit of the mountain, and that his "huge razor-like ridge at over 21,000 feet," by which he made his exit from the Sanctuary, was probably somewhere in the neighbourhood of Sunderdhunga Col. From here, Waymouth probably flew down the Pindar river, its sharp

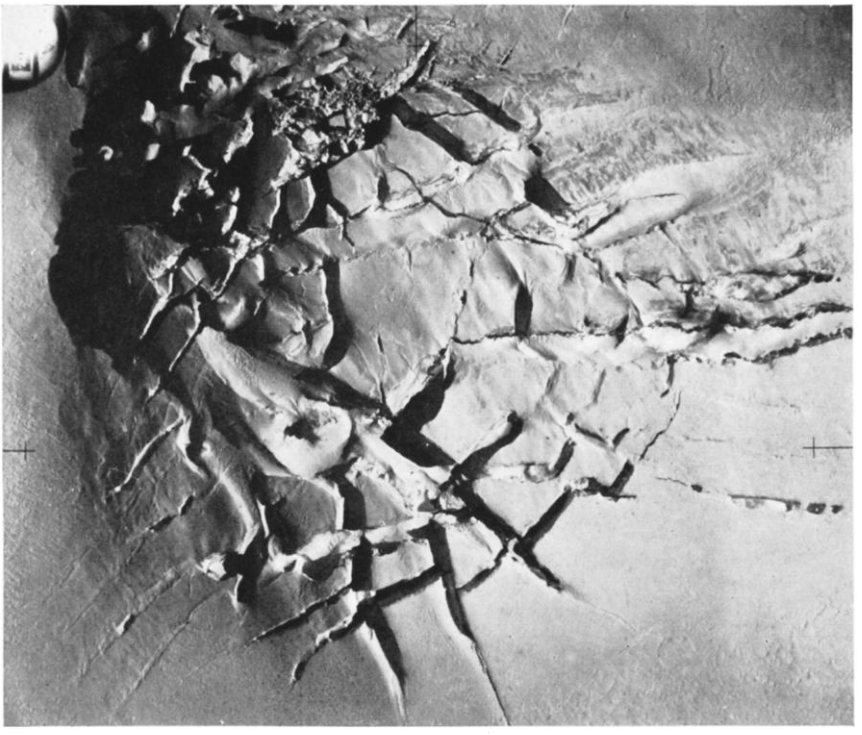
Phot. R.A.F.

4.

Phot. R.A.F.

5.

Stages in the falling away of a snowfield, to the west of Nanda Devi, about 21,000 feet



Phot. R.A.F.

6. *Falling away of a snowfield, to the west of Nanda Devi, about 21,000 feet*

Phot. R.A.F.

7. *Snow-fluted slope, possibly on Nanda Ghunti*

turns 4 miles above Harmal and at Hat being his "couple of rather sharp left-hand turns." He would then have joined the Alaknanda river at Karnaprayag and followed it down to Hardwar, whence he returned to Ambala.

NOTES ON THE ILLUSTRATIONS

Identifications by Mr. Eric Shipton

Pl. 1. The panorama was taken almost immediately over Nanda Ghunti (G.T.S. peak 75/53 N, 19,893 feet), looking in a north-easterly direction. The first major peak on the left skyline is Dunagiri (see photograph by P. R. Oliver, *Alpine Journal*, 46 (1934), facing p. 144). The next three are peaks lying immediately to the north-east of the Bagini glacier (G.T.S. peaks 21,341 and 23,220 feet are two of these). This can clearly be seen in a photograph taken by me in 1936 from the Bagini pass (Pl. 2). The sharp rock peak to the right is G.T.S. peak 107/53 N to which a height is not given in the Trig. Pamphlet. The next to the right, and slightly in front of the last-named peak, is Changabang, from the foot of which the Rhamani glacier can be seen flowing. Behind that and slightly to the right is Kalanka (Changabang and Kalanka can be seen in my photograph *Geogr. J.* 90 (1937), facing p. 106). Far to the right of that is G.T.S. peak 28/62 B (21,772 feet). Right of that is a peak approximately 21,000 feet, a pyramid-shaped peak which I climbed in 1936, it also lies on the north-eastern rim of the Nanda Devi Basin. The glacier under these peaks is the Northern glacier of the Nanda Devi Basin, to the right of which can be seen rising the North-West ridge of Nanda Devi. The valley in the immediate foreground is the Rinti Nala, the glacier which flows down between Nanda Ghunti and Trisul. Rising above this glacier on the extreme right of the photograph is the Eastern Summit of Nanda Ghunti, G.T.S. peak 75/53 N, lying immediately north of Nandakna. The valley dividing the foreground from the background is of course the Rishi Ganga.

Notes by Dr. N. E. Odell

Pls. 4, 5, *and* 6. I have seen something similar to these photographs in Arctic glaciers. The crevasses, which presumably are all part of the same system, are mostly filled with winter snow, but show secondary tensional cracks. The radial cracks which cut across the crevasses I suggest are due to a sinking or collapse of the glacier surface consequent upon movement of the ice-sheet over a basin in the rock floor. This may have been augmented by rapid drainage of sub-glacial melt-water; but it is not easy to assess the mean gradient of the surface.

Pl. 7. This certainly shows a steep snow-fluted mountain side, possibly on Nanda Ghunti. It is a typical example of Himalayan fluting, which is partly erosional and partly in all probability due to deposition of rime.