

"Seven Sisters" caves it will be carried by a suspension bridge of novel design, 200 feet long. At another place is a swing bridge, suggested by the famous rope bridge of Carrick-a-Rede; here it is no "rock in the road" of the salmon, but a deep gully into a wide cave, "in the road" of the climber. From the path, seals have been seen almost every day in early August; on one day porpoises were rolling about close inshore, and otters are known to have haunted the place from time immemorial. Some of the fish bones found in digging out a cave which was hidden by a great slip of basalt about forty years ago may be due to otters. Others of birds and mammals certainly are not, but have the appearance of the broken bones so plentiful in the prehistoric middens of Antrim and Down. These were found under from 400 to 500 tons of boulders, partly consolidated with earthy matrix, taken out of the cave, and are now in the hands of the Cave Fauna Committee investigating the Irish cave-deposits. The northern end of the path may not be completed this season, heavy gales having much delayed the work, and the tunnel which it will be necessary to excavate in hard rock at a place where the cliff overhangs very much will take some months to complete.

The first part of the path, that along the picturesque under-cliff south of the cliffs section, was completed last year; there the Upper Chalk may be seen in large masses, broken up and slipping over the soft underlying Lias Clay, some sections of which are exposed, with, in a few places, good sections of Chloritic Chalk, Yellow Sands and Marls, and Glauconitic Sands. Details of these sections with lists of their fossil fauna will be found in Dr. Hume's classical paper on the Cretaceous strata of co. Antrim (*Q. J. Geol. Soc.*, November, 1897, pp. 557-560, pl. xlii. and xlv.). The Basalts, I am afraid, have not received the attention here which they deserve, but now that these inaccessible cliffs, tier upon tier of thin lava flows weathering in the most varied manner, can by this new path be easily reached from the land, it is to be hoped they will be visited by many geologists in the near future. The *Memoir* of the Geological Survey, Ireland, No. 29, gives a brief description of them, with section at south termination. One may dine in London or Manchester, and by the short sea route *via* Stranraer breakfast in Larne or Whitehead, and be right under these cliffs long before noon. Mr. Wise has kept well in mind the motto of the Belfast Field Club, of which he is a member, "Preservation, not Extinction," and the herring gulls which nest along the cliffs here in large numbers were disturbed as little as possible; some even nested on the partly made path. He has been careful to preserve the natural weathered surface of the rock all along the path; it has only been broken where absolutely necessary for safety, and geologists are kindly requested to follow this example. They will find abundance of good material quarried out at many places quite close to the path, including good samples of the vesicular portions of the flows, with the original vesicles now filled with various zeolites.

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#### A GREAT PERSIAN TRAVELLER.<sup>1</sup>

THE fascination which countries "old in story" exercise on many minds is more easily recognised than explained. But the existence of this fascination being once admitted, it is not difficult to understand why a peculiar glamour should attach to Persia, a land of which the history extends almost as far back as any authentic record of the human race, other than that derived from fossil bones or implements, can be said to exist. Nor is this the only attraction which Persia possesses, for although it is inhabited by the most civilised people of Asia, the greater portion of the Persian plateau was, until the last thirty years of the nineteenth century, almost unexplored by Europeans, and even at the commencement of the twentieth century no railway has crossed the Persian frontier, and the only road constructed for wheeled carriages, that from Resht to Teheran, is of

no great length and is said to be in bad condition. In many respects the Persia of the present day resembles western Europe three hundred years ago, or perhaps in some respects even earlier. The general mode of travel is on horseback, the traveller's baggage and all merchandise are carried on pack animals, the roads are insecure and robbers abound. Even in the latter half of the nineteenth century, in eastern Persia and Baluchistan, raids by armed bands were of common occurrence, whilst less than thirty years ago Turcoman hordes from the north swept over northern Persia as far as the gates of Yezd and Isfahan, and murdered, plundered or dragged away as slaves the unfortunate inhabitants whom they encountered. Almost to this day the history of the tribal chieftains and of the provincial governors in eastern Persia and Baluchistan resembles that of European princes in the middle ages, when it was a rare exception for any man of note to live or die peaceably.

But a great change is gradually being effected in Persia, as in so many other countries. The Turcoman forays were summarily ended by Skobelev's sweeping destruction of the raiding clans at Geok-tepe, a consummation aptly compared by Major Sykes to the more recent annihilation of the Soudanese slave-drivers at Omdurman. The "chapaos" of the Baluchis have been checked by the division of Baluchistan between Persian and British rule, and the frontiers between Afghanistan, Persia and British Baluchistan have been defined and mapped. The central government in Persia has gained power, and has been able during the last half century, despite many shortcomings, to do something for the protection of the people and the encouragement of agriculture and trade.

The author of "Ten Thousand Miles in Persia" has consequently had the advantage of studying the country at an interesting time. Few of the travellers in Persia since the time of Alexander the Great have had better opportunities or been better qualified than Major Sykes, who is an energetic explorer, a good linguist and a sympathetic student of Persian life and history. Several portions of his travels in eastern Persia and Baluchistan have already been briefly described in the *Geographical Journal*, but fuller accounts are given in the present work, together with numerous notes on the physical geography, history and people of the countries traversed. The various journeys of the author are not confined to eastern Persia. At one time or another he has traversed all the principal routes, including the well-known road from the Persian Gulf to the Caspian by Shiraz, Isfahan and Teheran; but, as he points out in his preface, he has touched but lightly on the provinces and cities of Persia that were fully dealt with in Lord Curzon's work, and has chiefly treated of those parts of the country, in eastern Persia and Baluchistan, that were previously less well known. A very large part of the book treats of journeys and researches of various kinds in the province of Kerman and in Persian Baluchistan, but in the execution of consular duties interesting visits were made to Sistan and Kain in one direction, and to the Persian Gulf, Basra (Bussorah) and Shuster in the other.

The additions made by Major Sykes to our knowledge of the geography of eastern Persia and Baluchistan are numerous, and they have in many cases greatly changed the map. For instance, by ascertaining that the stream flowing past Bampur does not reach the sea by the Rapsb, but is, like so many other Persian rivulets, evaporated in a "kavir," or salt marsh, he has added at least 20,000 square miles to the Persian inland drainage area, from which no water flows to the ocean. He has also aided materially in completing the investigation of the great desert region of Khorassan, called Dasht-i-Kavir or Dasht-i-Lut in maps. He shows that the name

<sup>1</sup> "Ten Thousand Miles in Persia, or Eight Years in Iran." By Major Percy Molesworth Sykes (Queen's Bays), H.M. Consul, Kerman and Persian Baluchistan. Pp. xv + 481; with numerous illustrations and map. (London: John Murray.)

of Lut by itself is that generally used in the region, and that this name is identical with the scriptural Lot. It may be remarked that in some cases the views put forward by Major Sykes as to the origin of geographical terms differ from those of his predecessors. This is especially noteworthy in the case of Makrán, the well-known name for the Baluch seaboard. Instead of adopting Sir T. Holdich's explanation that the term is derived from *Mahi-Khuran*, or fish-eaters, the Ichthyophagi, as the inhabitants were called in the days of Alexander the Great, Major Sykes looks upon it as connected with the people once known as Maka, the Mykians or Mycæans of Herodotus.

One of the most interesting tracts examined by Major Sykes is the Sarhad, or cold country, of Persian Baluchistan. A large portion of the population of Persia consists of

ascended and measured both the great peaks south of Kerman, which rise to between 13,000 and 14,000 feet.

Amongst the principal historical questions on which fresh light is thrown by the present work are the travels of Marco Polo and the remarkable march of Alexander the Great, with an army, through Baluchistan, from the Indus to Persepolis. This march, one of the most extraordinary military enterprises ever undertaken, must always remain a puzzle to all who have any acquaintance with the country traversed, for a more hopeless desert than the greater part of Makrán at the present day does not exist. In reference to this march, and to the remains of ancient cities and the evidence of abandoned cultivation in so many parts of Persia, Major Sykes supports the view already adopted by many other travellers in

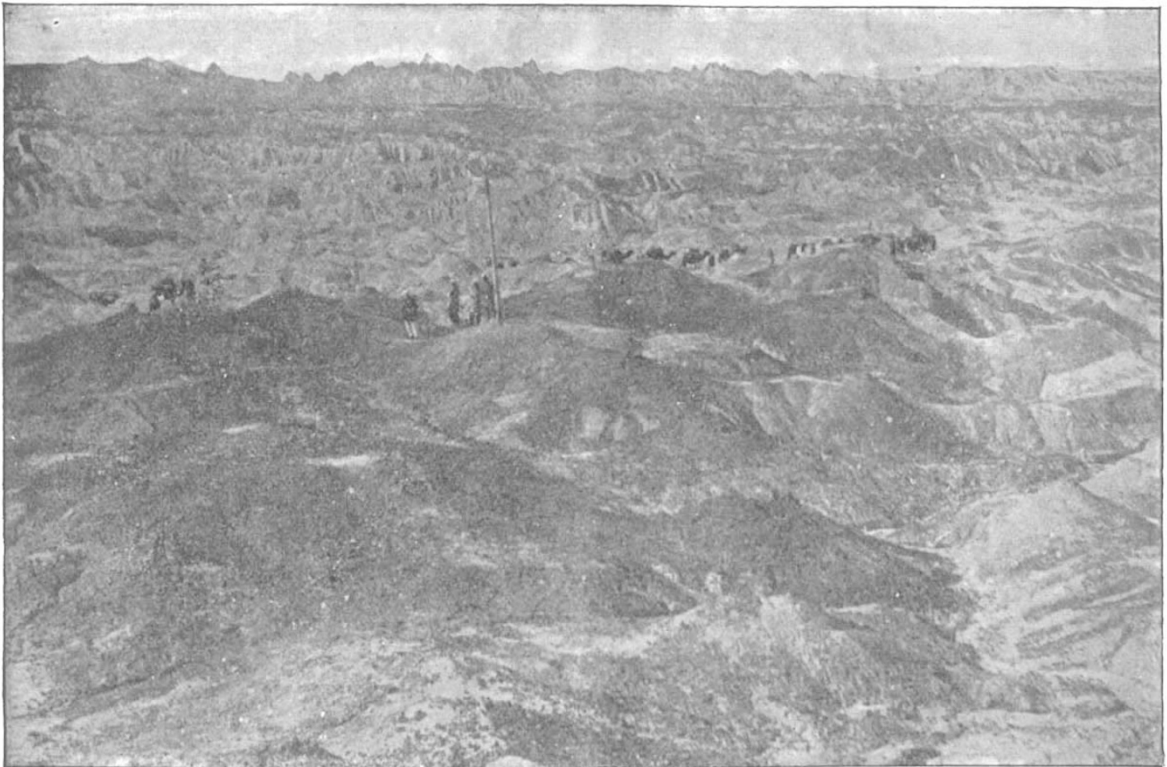


FIG. 1.—Makrán Scenery.

wandering tribes, who pass the winter in a Garmsir or warm tract, and drive their flocks and herds in summer to a Sarhad or more elevated region. The Baluch Sarhad had only been visited by one traveller before Major Sykes entered it, and it is remarkable for including within its limits two extinct and dormant volcanoes, the Kuh-i-Basmán, 11,000 feet high, and the Kuh-i-Taftán, more than 12,000 feet, both of which were ascended. There is a great area covered by volcanic formations in south-eastern Persia, the lofty peaks of Kuh-i-Hezar and Kuh-i-Shah, south of Kerman, consisting, in part at all events, of basalt and similar rocks, although these mountains are certainly not volcanoes of recent origin, like those of the Baluchistan Sarhad, some 200 miles further west. Major Sykes, however, is not a geologist, and adds but little to our information on this point, although he

Persia and in Central Asia generally, that the whole area is undergoing gradual desiccation, and that the rainfall must have diminished considerably in the course of the last two or three thousand years. This view has recently been strongly enforced by Mr. Vredenberg's interesting observations in Baluchistan, of which an account has appeared in the *Memoirs* of the Geological Survey of India (vol. xxxi. pt. 2). The diminution of the rainfall may be connected with the disappearance of certain great Central Asiatic lakes, of which important remnants exist in the Caspian and Aral Seas. In one passage Major Sykes is inclined to attribute the diminished rainfall to the destruction of forests, and even appears to believe (p. 365) that India, if all the forests were swept away, would become as barren as Persia. This is rather an exaggerated view. The destruction of every tree in



India would not prevent the rain of the south-west monsoon from falling, although it might somewhat diminish the amount, and it would in other ways seriously affect the fertility of the country. It may fairly be doubted whether, at all events within the last three thousand years, anything deserving the name of forest existed in eastern Persia.

The numerous illustrations in the present work, chiefly reproduced from photographs, convey an excellent idea of the barren Persian and Baluchistan hill scenery and of Persian towns and people. On the whole the scenery of Baluchistan, and especially of Makrán, of which two examples are here given, is perhaps better depicted than are the plains of Persia. The enormous distances to which these plains extend probably preclude their effective representation by photographic means, but it is remarkable that none of the views,

Elburz Mountains, to Quetta, where, east of the town, there is a well-marked glacis-like slope on a smaller scale.

Major Sykes is no zoologist, and it is therefore not surprising that some of the names of animals to which he refers require alteration. It is not quite correct to call the Persian wild goat an ibex, a term belonging to goats with very different horns; but a greater mistake is made in the foot-note at p. 47, where it is stated that "the Jabal Báriz range separates the habitat of the *Gazella Benetii* (it should be *Bennetti*) from that of the *Gazella fuscifrons* of the plateau of Irán." The gazelle of the "plateau of Irán" is *G. subgutturosa*; *G. fuscifrons* is a variety of *G. Bennetti*. Again, on p. 289 an amusing account is given of the capture of a *hake* at the island of Hormuz, in the Persian Gulf. The *hake* is a fish peculiar to the North Atlantic.

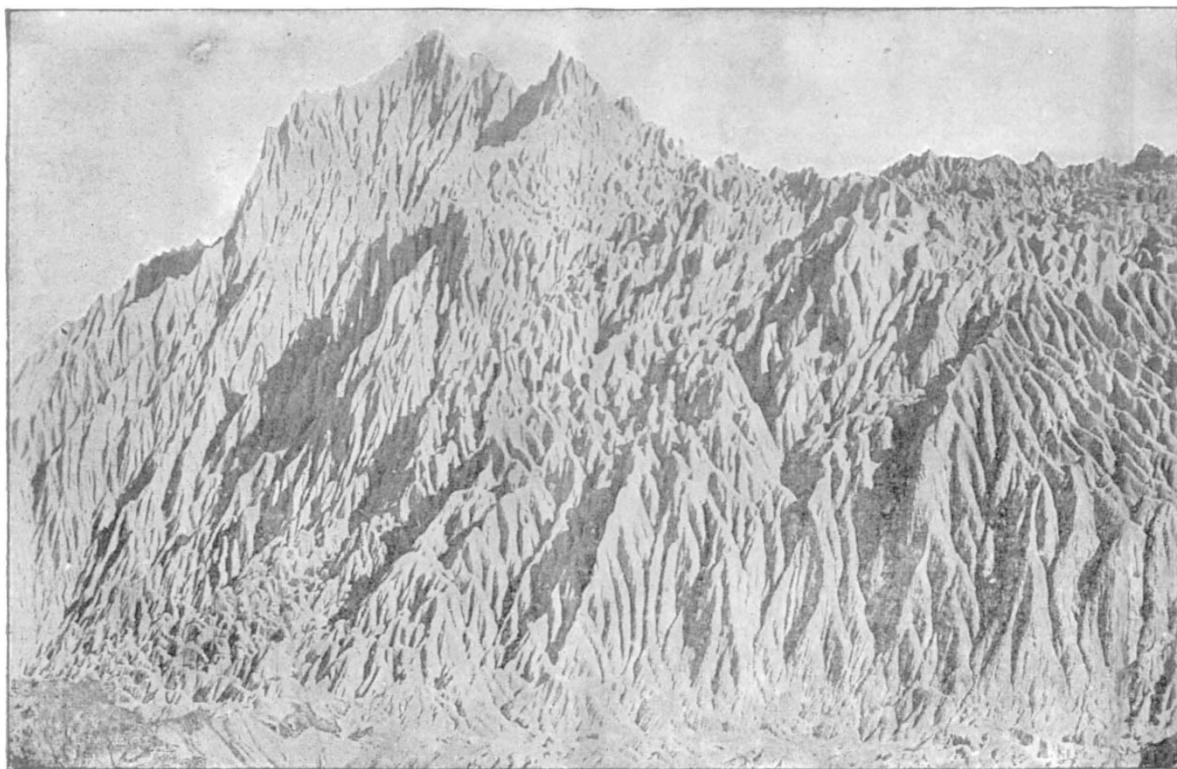


FIG. 2.—Clay Formation, Makrán.

numerous and varied as they are, gives any idea of one of the most striking characteristics of Persian scenery, the gravel slopes, often many miles wide, that surround nearly all the great plains and often occupy the broad valleys that extend from the plains far into the hills. As the waterless plains themselves are often, in parts, occupied by "kavir" or salt marsh and in other parts by drifting sands, whilst the broken hill-ranges that cross the country are only passable in places, it is on the gravel slopes that the principal trade routes run, and it is in them that are tunnelled the "kanauts" or "karezes," the artificial subterranean channels from which the water-supply for towns and for irrigation is largely derived. Throughout the Persian plateau these slopes are a most striking feature; they are seen from Teheran, north of which city one, on a large scale, extends to the

But if Major Sykes's pages add but little to our knowledge of geology, botany or zoology, they abound in fresh information concerning the curious mixture of Asiatic races which inhabits the wilds of Baluchistan, on the physical geography of the eastern Persian area and on the history of the towns and provinces. The author's views as to the political relations existing between Persia and our Indian Empire are of importance as expressing the opinions of an officer who has had exceptional opportunities of forming an accurate judgment. In one respect Major Sykes has proved himself a model diplomatist, for he appears to have succeeded in establishing friendly relations with almost all the officers of the Persian Government with whom he came in contact.

W. T. B.