

INNERMOST ASIA by Sir Aurel Stein

Oxford, 1928

Vol. II.

p. 904-5:

...our march ... brought us ... down to the shore of the Hamun, the great terminal basin of the Helmand. ...

Of the fluctuations which the extent of the Hamun annually undergoes I could judge by visual evidence when on December 1st I made by final march to Nasratabad, the capital of the Persian portion of Sistan. For after regaining the direct road marked by the telegraph line about a mile to the north-east of the ruined tower of Mil-i-Nadī, it was possible for us to ride across that waistlike contraction of the Hamun which is regularly under water from early February till the autumn. During a few winter months, however, the shrinkage of the lake allows traffic to proceed here without having to be ferried across on reed rafts, as is necessary during the rest of the year. Thus for some ten miles we followed a narrow track winding through thick reed beds, just like those I well remembered in the riverine belt of the dying Tarim and the westernmost lagoons of Lop-noor. Large herds of cattle were grazing in what during the greater part of the year is a haunt of fish and water birds.

On arriving where this "Naizar" thinned out and gave place to a stretch of bare lake shore, I could not help being struck at once by a negative but very significant observation. I mean the total absence of that saline efflorescence which is so characteristic a feature of the ground near the Lop-noor marshes and all the terminal river-courses of the Tarim basin. It makes Sistan differ greatly in the surface appearance of its soil from the vastly greater basin of Chinese Turkestan, which it otherwise resembles in many physical respects. This difference deserves to be briefly noted here for two reasons. On the one hand it must draw our attention at the outset to the important consideration that the Hamun marshes, which the Helmand delta, comprising the cultivable portion of Sistan, adjoins on the east, do not form the true terminal basin of the river; for they are swept out and kept fresh by the drainage which large floods of the Helmand, recurring at intervals of several years, pass through them into the salt lake of the Gaud-i-Zirrah, some sixty miles lower down in the desert. On the other hand this geographical fact helps us to understand better both the fertility of the soil in the Helmand delta and the great number of ruins attesting the former prosperity of Sistan.

P. 906:

Geographical position has made Sistan a link between Western and Eastern Iran. ... Nature, by placing Sistan on the main line of communication between Persia and the western marshes of India, has invested it with an importance which, whether for peaceful trade intercourse or invasion, has asserted itself all through history and made itself felt to the present day. Nature has given to Sistan the fertilizing waters of the Helmand, the greatest river of Iran south of the line which extends from the Hindukush to the Caspian, and has thereby provided resources which, if fostered by peace and efficient administration, would suffice to make the province the granary of central Iran and the seat of a flourishing civilization.

Pp. 930-32:

The Band-i- Sistan and the Ancient Name of the Helmand.

The Band-i-Sistan is the great barrage situated about 8 miles south of Shakristan at the point where the Helmand bifurcates into the river branches irrigating the present cultivated portion of Sistan. It may well claim some antiquarian interest; for it is certain that irrigation in Sistan and with it the occupation of the land by a settled agricultural population, must throughout historical times have depended upon the maintenance of great weirs or barrages similar in type to the present Band-i-Sistan. Like every terminal rivercourse where it enters a deltaic area, the Helmand is periodically liable to great shifts of its channel. Such shifts are marked by the abandoned dry beds of the Sanarud and Rud-i-biyaban or Rud-i-Trakun. That the latter has carried water at widely different periods into the southern delta of Sistan, now wholly desert, is proved by the ruined sites which I shall have occasion to discuss below.

But whichever channel receives the fertilizing water of the river, the use of this for regular cultivation over a wider area can be assured only if control is maintained over its discharge by means of a barrage. The necessity for this arises from the fact that the drainage which the Helmand brings down from the mountains greatly diminishes after the cessation of the spring rains and the completion of the melting of the winter snow. At the same time heat and winds during the summer and autumn cause excessive evaporation in the plain and thus reduce the water-supply still farther. Hence, whatever changes

may take place at intervals in the direction of the main channel of the river, owing to the gradual rise of the bed through silting and from concomitant causes, the distribution from it of the available volume of water over the cultivated area must always for a great portion of the year depend entirely upon the maintenance of weirs.*/

The Band-i-Sistan is but the latest of a series of such works which at different periods and in conformity to changing conditions served that purpose. Local tradition, supported from late mediaeval times onwards by historical records, assigns to these earlier works positions higher up the river as far as the point known as Bandar-i-Kamal-Khan. There the river, after emerging from the well-marked trough that it has followed all the way below Kala-i-Bist, makes its great bend to the north, and there its delta may properly be considered to start. The interrelation between these older barrages and the areas that were once cultivated on the Afghan side of the river and now are all desert marked by extensive ruins is a subject of district historical and archeological interest. Its investigation must be left for some qualified student in the future who is able to combine personal examination of those numerous ruined sites with the study of the abundant materials collected by Sir Thomas Ward, the great irrigation expert of the Sistan Mission. It may, however, be stated with some confidence that those ancient works are not likely to have differed in essential features from the present Band-i-Sistan, upon the skilful construction of which in each succeeding year the prosperity of Sistan proper wholly depends.

... the barrage consists of an earth embankment about 6 feet across on the top, strengthened with fascines of tamarisk brushwood, a material as abundant along Sistan watercourses as it is on the banks of rivers in the Tarim basin. Used also as a revetment it enlarges the band to about 21 feet in width at the bottom. This has annually to be built in the late summer or early autumn, when the water has fallen quite low. It is then thrown across almost the whole width of the Helmand-i-Kalan or "great Helmand," from which the two branches of the Rud-i-Pariun and the river of Nad-Ali take off some 10 miles lower down. Only a small channel is left for the water to pass down the main bed, the rest being turned into the Rud-i-Sistan, which irrigates the major portion of the Persian Sistan. By March or April the great spring flood of the river sweeps away the whole dam, and the chief concern of the

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people is then to prevent the two eastern river branches from breaking out of their channels, destroying the heads of the local irrigation canals and inundating the cultivated land towards the northern parts of the Hamun. The rebuilding of the dam was said to keep about a thousand labourers hard at work for twenty to thirty days. Comparing the huge volume of the Helmand in flood with the very limited flow that it carries in the late summer and autumn, a competent judge considers this time-honoured method of creating a temporary main distributary head as that best suited to the hydrographic conditions and the nature of the ground in the delta. If under efficient administration the "duty" of the water received from the Helmand were raised to the level attained in Egypt and parts of India, works of the Band-i-Sistan type might well suffice to secure irrigation for all the cultivable soil in the delta.

PP. 943-4:

The southern delta of the Helmand to the remains of which, so far as they be within Persian territory, we now turn, is at present wholly desert ground. Ruins and other relics of widely different periods marks its intermittent occupation since prehistoric times, and the desert conditions that now prevail make it possible to trace these periods with comparative clearness by archeological evidence. On the topographical side, inquiry into the past of this area is facilitated by physical features better defined than those to be reckoned with in respect of the wide expanse of alluvial plain and shifting Hamun marshes that constitute the much greater northern delta. The division between the two deltas is formed by a well-marked gravel-covered plateau. It is a north-western extension of the "Dasht" barrier along the left bank of the present Helman course, and stretches right up to the edge of the southern portion of the Hamun near the village of Warmal.

From the southern scarp of this plateau, rising here about 50 feet above the level of the ground liable to inundation from the Hamun, an alluvial plain extends to the deep-cut channel of the Shelagh, a distance of about 30 miles. The latter, in years of exceptionally high floods from the Helmand, such as recur at intervals, carries water from the Hamun into the terminal depression of the Gaudi-Zirrah. The above-mentioned plain, all fertile silt, was capable of being irrigated, over a maximum width of about 15 miles from east to west, by canals which once took off from the mouth of the old bed of the Helmand known as the

river of Trakun or Rud-i-biyaban and now quite dry. This is shown by the map as diverging from the present Helmand river-bed about 36 miles due south of the Band-i-Sistan at a point called Band-i-Kamal Khan; after passing westwards in a winding course through the barrier of the Dasht it debauches in several outlets north and south of the ruin known as Yak-gumbaz, close to the boundary line between Persian and Afghan territory.

Direct historical evidence that this old Helmand bed carried water to the southern delta can apparently not be traced back farther than the time of Timur, and that, too, only if we may trust the traditional location near the Bandar-i-Kamal-Khan of the weir known as Band-i-Rustam which Timur is said to have destroyed. But there is, as we shall see, good reason to assume that this area had been occupied for centuries earlier, and also that this occupation, whatever its extent may have been, did not imply simultaneous abandonment of the northern delta. Information, recorded without definite indication of its sources, but probably correct, points to the continuance, down to the close of the seventeenth century, of at least partial cultivation of the area commanded by canals from the Rud-i-biyaban. According to local tradition a change came about during the reign of Malik Fath Ali (A.D. 1692-1721). The Rud-i-biyaban then ceased to receive an appreciable volume of water, and cultivation along it became restricted to the wide trough of the old river-bed, being dependent on canals that took off from what has remained ever since the only active course of the Helmand. Towards the close of the eighteenth century Malik Bahran Khan, then ruling over Sistan under Afghan suzerainty, among other irrigation works assured a supply of water to the old channel of the Rud-i-biyaban sufficient to permit the renewed cultivation of portions of the southern delta near Hauzdar and Machi in the north and Ramrud in the South. But the recovery of this ground was of short duration, and early in the nineteenth century the whole of it was finally abandoned to the desert, together with what cultivation had survived along the Rud-i-biyaban near the ruins of Trakun and Gina on the Afghan side of the boundary.

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