

A Trans-Saharan Caravan Route in Herodotus

RHYS CARPENTER

PLATES 78-79

TOWARD the close of the long and justly famous description of Egypt which fills the Second Book of his History, Herodotus promises (II. 161) to supply further information about the Pharaoh Apries "in my chapters on North Africa" (*ἐν τοῖσι Αἰβυκοῖσι λόγοις*). The promise is kept toward the end of Book Four, with the closing sixty chapters devoted to Libya. But since the author's chief center of interest here was the foundation and early history of Cyrene, only thirty chapters—and these of less than average length—refer to the more general topic of North African geography and ethnology. Even this much-abbreviated survey is uneven in quality, reflecting discrepancies in the sources of information. Greek ships, probably based on Cyrene, had evidently been coasting as far west as the Tunisian border; but beyond that point the Punic curtain seems to have been dropped against the Hellenic trader. This would explain the detailed listing of the coastal inhabitants of Cyrenaica and Tripolitana as far as the island of Jerba and the Shatt-el-Jerid (with which Lake Tritonis may be identified), in contrast to the highly sketchy and unsystematic treatment of the long stretch of Africa Minor through Tunisia, Algeria, and Morocco. This regrettable lack of information was due, of course, to the rigorous Carthaginian domination of the western Mediterranean and the inimical character of Punic and Greek relations during Herodotus' lifetime.

But it is neither the very concise description of the inhabitants of the shoreland between Egypt and Tunisia (in chs. 168-180 of Book Four) nor the highly inadequate glimpse of the great western world beyond (in chs. 187-196), but the brief interlude of five chapters (181-185) inserted between them, with which the present study is concerned. It is in these that there is to be found—unmistakably clear, yet hitherto overlooked—our earliest account of the great equatorial trade-route across the Sahara.

This Saharan interlude in Herodotus' "Libyan chapters" is introduced by a remarkable and, if accepted literally, quite impossible bit of geography, which runs as follows:

"These, then, who have been listed are the pastoral Libyans of the coast; behind them in the interior is Wildbeast Libya; and beyond this there runs a ridge of sand, extending from Egyptian Thebes to the Stelae of Herakles. In this ridge at roughly ten-day intervals there are mounds of salt in coarse lumps and from the summit of each of these from the midst of the salt there spurts cold sweet water. Around about there dwell men, the last inhabitants desertward beyond the region of wild animals."

The ridge, or cliff, of sand (*ὄφρυν ψάμμης*) suggests some sort of inland scarp or range of dunes oriented parallel to the general trend of the coast at a considerable distance from it. At the widely separated termini which Herodotus sets, there is no such formation, either in the vicinity of Egyptian Thebes or the Gibraltar Strait: since these are some 2500 miles apart, such a geological formation would indeed be a prodigy. And yet, precisely inland from the Cyrenaic headland, there really exists just such a desert escarpment running unbroken for several hundred miles from the western edge of the Delta to the frontier of Tripoli. A recent geographer in a remarkable volume devoted to the Sahara speaks of "the great escarpment which forms the southern boundary of the Marmarica, a very long continuous cliff which extends from Siwah to the delta of the Nile . . . continued westward by the one which forms the southern limit of the Cyrenaica," adding that behind this escarpment there is a

"narrow sand-free passage which puts into communication two separate portions of the desert otherwise practically sealed from each other. . . . Southward from this route and coming into immediate contact with it, extends the worst and most awesome part of the Libyan Desert."¹

In this corridor or "sand-free passage" between the escarpment and the huge sandy waste of the Libyan *erg*, there lies a string of inhabited oases—Aujila, Jalo, Jarabub, Siwah, and Gara (pl. 78, fig. 1)—and these are remarkable for their abundant and excellent water. All these oases of the Marmarica Depression are limestone sinks or troughs, very little above (and at Siwah actually as much as 80 feet

¹ E.-F. Gautier, *Sahara: the Great Desert*; translated by D. F. Mayhew. New York, Columbia University Press, 1935.

(The quotations are from pp. 157 and 160.)

below) Mediterranean sea level, in which the groundwater from beneath the long stretches of sand comes to the surface as artesian springs, only to spread out and evaporate under the desert atmosphere into a saline accretion or crust. This string of oases, well-known to ancient visitors to Ammon's Oracle at Siwah, entirely substantiates the Herodotean account—except that they do not continue westward all the way to Morocco! In the other direction, east and south from the Oasis of Ammon, a second string of oases—Baharia, Farafra, Dakhla, and Kharga—dots the wide wasteland of the Egyptian Desert west of the Nile valley, thus connecting, however intermittently, the Marmarica Depression with Upper Egypt opposite Thebes (pl. 79, fig. 2). Of the southernmost pair of these oases, the same geographer observes (p. 153) that

"in the vicinity of Kharga and Dakhla the water sometimes gushes from artesian springs whose outlet is the crater-like center of a small clay knoll, a form which first captured the attention of Herodotus."

What with the saline incrustations and the artesian jets, there is thus considerable justification for the picturesque description of "mounds of salt from which cold pure water spurts," even though the immediately following account of the Fountain of Helios in the Oasis of Ammon with its daily round of paradoxical thermal changes must be judged more indulgently with some appreciation of the violent fluctuations of heat and cold which day and night bring to the desert and the consequent contrasts which subsurface water of constant temperature necessarily affords to the surrounding air.

Herodotus' sweeping generalization that all the watering places are about ten days apart agrees very closely with modern travelers' estimates for the journey between Aujila and Siwah and that between Siwah and Bahariah. Our author was, however, flagrantly in error when he stated that the Oasis of Ammon (i.e. Siwah) could be reached in ten days *from Thebes*. Though the matter is not of great moment, the mistake is explicable on the supposition that Herodotus' informant told him that the Oasis of Ammon was ten days distant *from Egypt*,² and he himself, recalling that Cambyses' ill-fated expedition against the shrine of Ammon had been despatched from Thebes (III.

26) and that the ram-headed god of this sanctuary was a subsidiary of the Theban cult of Ammon (IV. 181), had conflated these three items, being unaware of the discrepancies in distance.

It is much more important that Herodotus should have asserted that the long road through the desert began at Thebes. For there is no other passable way westward from Egypt except through skirting the tremendous Libyan waste by following the corridor behind the escarpment; and though Siwah can be reached directly from Memphis *via* the Wadi Natrun, and Baharia from the Fayûm, the traveler from Upper Egypt must make use of the Kharga-Farafra string of oases, even as Cambyses' expedition did when it marched from Thebes to Khargah ("the town of Oasis, seven days' road from Thebes through sand") only to be overwhelmed by sandstorm somewhere near Farafra ("at about midpoint between this Oasis and that of the Ammonites"—III. 26). As Gautier has pointed out, just as straightly as the Nile Valley is encompassed on the east by the Red Sea, so on the west it is shut off

"by the solitudes of the Libyan Desert and the Erg . . . an erg, the most gigantic and uninhabited on the face of the earth," (so that) "this single chain or system of oases marks the one open route in existence by which the length of the Libyan Desert may be traversed."

The starting point of this sole avenue of escape westward from Upper Egypt was actually at Abydos, somewhat north of Thebes, which, as Gautier also remarks,

"is the exact spot where the great routes of the Arabian Desert, coming from Kosseir, Myos Hormos and even Berenice on the east coast, converge on the opposite bank."

This is the geographical reason why

"the environs of Abydos are the foremost site of Egyptian prehistory . . . and Ammon Ra . . . was the only one in the whole Egyptian pantheon whose cult, by way of the oasis route, was disseminated through the Sahara."³

Herodotus never visited the Sanctuary of Ammon in the Siwah Oasis; but at Cyrene he had talked with other Greeks who had been there:

"I heard the following account from men of Cyrene who said that they had been to Ammon's oracle

from the Oracle of Ammon to Memphis at 12 days.

² *op.cit.* 155f and 146.

² It was a matter of ten days from Siwah along the Wadi Moghara to the Egyptian border in the Wadi Natrun west of the Delta. Pliny (N.H. v. 50) expressly estimates the journey

and talked with the Ammonian king, Etearchos." (II. 32).

Hence was derived his knowledge in IV. 181 of the ram-headed image of Zeus in the Ammonian shrine and the paradoxical temperatures of the Spring of Helios; and to the inadequacy of this same information at second hand may be ascribed his failure to realize how much farther it was from Siwah to Kharga on the route to Thebes. So far, then, except for the minor errors noted, all is in order with the Herodotean account of the great desert road.

Nor were Herodotus' Cyrenaic informants in any doubt or any error about the next stage westward behind the long "ridge of sand." For they told him (II. 32) how King Etearchos of the oasis of Ammon had been visited by men of the Nasamones, "a Libyan nation that inhabits the Syrtis and a stretch of territory to the east thereof," and again (in IV. 172) how these Nasamones inhabited lower Cyrenaica along the Gulf of Sidra (which is to say, approximately the district around modern Ajedabia) and thence

"at harvest time they leave their herds by the shore and go inland to gather the dates at a place called Augila, where the palms are particularly heavy and abundant in their growth."

The place is still called Aujila and is still famous for its date palms; and still today from the regions nearer the sea the pastoral nomads converge on Aujila and the other Saharan oases when the dates are ripe, to claim their share of the harvest.

This was all the information that Herodotus possessed; but it was accurate, and it was sufficient to establish the next stage of the caravan route in the account which we are studying:

"After the Ammonians, by another ten-day journey along the ridge of sand, there is another salt mound like the Ammonian, and water, with men dwelling around it. The name of this spot is Augila; and it is to this place that the Nasamones come periodically to harvest the date palms." (IV. 182).

Still today the caravan-track westward from Siwah follows the arc of the great escarpment through the smaller oases of Jarabub and Jalo to the low-lying and comparatively fertile oasis of Aujila with its luxuriant date palms. The distance is about the same as (or a trifle more than) that from the Baharia Oasis or the Wadi Natrun to the Oasis of Ammon, some 80 to 90 hours of modern going with a string of camels, or almost exactly ten days' march.

So far, there is still no error in the wonderful old traveler's account. But from here on, we must watch him with the greatest care, for his desert track is passing out of the world of Greek cognizance.

The next, or third, stage on the route (he asserts) again involved a ten-day journey and again brought the wayfarer to a salt mound and fresh water and an abundance of fertile date palms and human inhabitants; for here "dwell the Garamantes, an exceedingly numerous people, who raise crops by spreading earth over the salt . . . and hunt the cave-dwelling Ethiopians with four-horse cars." (IV. 183).

Herodotus to the contrary, the long escarpment which the caravan route has been following dies out beyond Aujila in the huge but ill-defined depression which seems to be an inland extension of the great Gulf of Sidra. Beyond, to the west of this very decided break, the cliff resumes again in a much modified form as the southern face of the long arid plateau of the Hammada-el-Homra in the Tripolitan hinterland; and in its western outrunner, the Hammada of Tinghert, it finally dies away in the heart of the Algerian Sahara (pl. 78, fig. 1). From here on there is *erg* and wasteland aplenty, but no straightaway route or obvious passage "to the Stelae of Heracles." The Herodotean desert road from Thebes to Gibraltar does not exist and never could have existed. In the face of this indubitable discouragement, most commentators dismiss all beyond the third resting stage as mere invention—whether Cyrenaic or Herodotean, hardly matters.

However, most of these same commentators have been ready to admit that the third resting place was a reality, since the Garamantes are an historical people of the hinterland of Tripoli. And indeed, there cannot be any doubt either about where they lived or about where Herodotus located them.

If we follow his text literally by journeying from Aujila westward for ten days and move at the same rate as previously, we shall have covered some 250 miles and find ourselves amid the dark rocks of the Jebel-es-Soda or the bleak red upland gravel stretches of the Hammada-el-Homra. And since there are neither oases with water here nor settled population, we must suppose that the direction due westward is mistaken and that the route must either have veered northward into Tripolitana or southward toward the Fezzan.

And in fact, if we had continued in the direction already followed between the oases of Jarabub and Aujila, slightly west of southwest, we should have been heading straight for the nearest of the long valley-like depressions, well watered and filled with millions of date palms, which are collectively called the Fezzan and which constitute the most fertile district to be found anywhere in the heart of the Sahara. That Herodotus was correctly informed that this was where the Garamantes lived, is fortunately proved by his seemingly casual and gratuitous remark that this third resting stage among the Garamantes "is the nearest point to the Lotos-eaters, from whom it is a thirty-day journey." Now, as far as Herodotus is concerned, there can be no dispute about the habitat of the Lotos-eaters; for in ch. 177 of this same Book he set them upon "a foreland projecting into the sea" in the land of the Gindanes; and anyone who checks the geographic detail of the *periplous* in this section of Herodotus will discover that the dense groves of date palms which cover the projecting foreland just east of the town of Tripoli must be the spot where the Lotos-eaters led the indolent and self-contented existence of those who partake of the sweet fruit of the African date. A thirty-day trek inland from Tripoli should represent (through broken upland and desert country) a distance of somewhat more than 500 miles. Perhaps it is partly coincidence; but Gustav Nachtigal, the intrepid first European penetrator of the Tibesti mountainland of the hostile Tibbus, on the start of his expedition in 1869 took precisely thirty days of marching time from Tripoli to reach Murzuk, the modern chief town of the Fezzan.⁴ Since Pliny and other Roman writers refer to the district thus reached as Phazania, and to its inhabitants as Garamantes, it would be unreasonable to refuse the conclusion that this conspicuous group of oases forms the third step in Herodotus' desert route; and I do not believe that any student who has seriously and competently considered the evidence has ever reached any other decision. But not enough consideration has been given to the corollary observation that, in swinging southwestward into the Fezzan, this route has deviated from its

original direction (dictated by the need of skirting the huge Libyan dunes) and is no longer headed for the Gibraltar Straits and the "Stelae of Heracles" as Herodotus supposed.

His mention of the Lotos-eaters in this connection may have been intended to tie this inland track with his preceding coastal description of Libya; but the form in which this remark is introduced suggests that it was known to his informants that the Fezzan oases were a junction-point for two caravan routes, one from the Nile, the other from the Mediterranean, uniting here for joint continuance into the desert. No modern geographer, if asked whither that continuation led, would for a moment be in doubt of the proper answer: during uncounted centuries the Sahara has been crossed by heading south from the Fezzan over the high barren upland which stretches like a saddle between the great peaks of the Ahaggar and the Tibesti ranges (pl. 78, fig. 1). Within hundreds of miles east and west, there is no other practicable passage to equatorial Africa. That this was indeed its course in Herodotus' account (even though he himself was unaware of it) will become apparent from internal evidence.

The modern commentator who hopes to assure greater accuracy by transferring data gleaned from ancient sources to modern survey maps, noting the consequent mileage and compass directions, may often be harming rather than helping his chances for uncovering the truth, because he has introduced concepts and criteria unfamiliar to antiquity. Though recorded in stades, distances were seldom measured, but roughly computed from time elapsed in travel. How inaccurate the result might be is apparent to anyone who considers Herodotus' account (in IV. 86) of how he calculated the length and breadth of the Black Sea. Similarly, directions did not derive from compass or chart, but were deduced from the general trend of routes and the relative location of regions. Thus Herodotus supposed (in VII. 176) that the coast-road through Thermopylae ran north and south because he knew that by it one journeyed from Thessaly through Locris into Central Greece. More specifically, east and west in a fifth century writer

⁴ Nachtigal followed an easterly route which corresponds with that indicated by Pliny as passing by the *Mons Ater* (a term whose direct translation into Arabic yields the Jebel-es-Soda of today). This route, being well supplied with watering places was, until the construction of modern motor roads, the easiest and most frequent approach to the Fezzan; although in Vespasian's reign a shorter but more difficult alternate *ad*

caput saxi over the Hammada-el-Homra became known, which seemingly corresponds with the route used by Barth in 1850. (The pertinent references are to G. Nachtigal, *Sahara und Sudan*; and H. Barth, *Travels and Discoveries in North and Central Africa, 1849-1853*. Pliny's account may be found in N.H., V. 36 and 38.

never mean the cardinal axes but, as such phrases as *πρὸς ἀνατολὰς* and *πρὸς τὴν ἡῶ* indicate, are only vaguely oriented on the range of shifting points on the horizon where the sun rises and sets. "West," therefore, since it could not be precise within 50 degrees, was obviously not an accurate indication of direction at all. When travelling, one went from landmark to landmark along a general course vaguely fixed in relation to the moving sun. On such a system, the direction in which one starts is apt to be mistaken for the direction in which one continues. So Herodotus, having been informed that the great inland escarpment which he calls a "ridge of sand" ran westward from Egypt behind Cyrene, argued that on this account it must ultimately reach the Atlantic (*διήκει δ' ὧν ἡ ὁφρύη μέχρι Ἡρακλέων στήλεων καὶ τοῦ ἕξω τουτέων*—IV. 185). Just because there never was such a road of communication between the Nile and Morocco, it is not sensible nor good scholarship to refuse all credence to Herodotus' report: the rational and proper procedure is to accept the route as actual and try to discover where it went.

As for the ten-day intervals and the marvellous regularity with which the mound of salt and the fresh water and men dwelling around repeat themselves through two months of travel, one must remember that fifth century Greece ascribed to the Creator its own love of symmetry and geometrical form. Oases amid the waterless waste are in themselves so miraculous that their orderly arrangement behind a straight-ruled line of desert cliff demanded little more of Greek credulity.

But we have not yet finished with the Garamantes, who occupied the third resting place on the route.

"They sow crops by spreading earth on the salt" (IV. 183). This can only mean—and be intended to mean—that the inhabitants of these oases neutralized the salinity of the soil, due to continuous evaporation of the undrained surface-water in the landlocked *wadis*, by digging and spreading fresh alluvium from the *wadi* floors and stagnant pools. Precisely in this way the inhabitants of the Fezzan today succeed in cultivating various kinds of grain and even a small amount of cotton to supplement the magnificent staple harvest from their date palms.

"Among them are found the backward-grazing cattle. These are so called because they have their horns bent so far in front that they cannot graze if they move forward because they strike their horns

against the ground. In other respects they do not differ from ordinary cattle except that their hide is abnormally thick and harsh." (*ibid.*)

It is of course possible that Herodotus or some informant of his has here been the victim of a pleasantry; and I dare say that it is not only the English schoolboy who has chuckled at the absurdity of this yarn and the gullibility of its recorder. However, as so often elsewhere in the History, the facts substantiate Herodotus:

The lateral valleys of the once active river courses in the higher regions west of the Fezzan preserve numerous ancient rock-carvings on their smooth walls; and similar records from the past have been found in the Ahaggar and Tibesti mountains. Their date is difficult to establish; but there is reason to believe that the majority are not very old, as such drawings go. Because they include representations of crocodiles, giraffes, and hippopotami, these do not automatically relegate them to a remote geologic past. Among the animals thus represented there are cattle with long horns curving forward in front of their eyes (pl. 79, fig. 3) of a race which is now extinct in North Africa, having succumbed to the ever-increasing desiccation of the Sahara. This same climatic process has exterminated the other animals mentioned, with the exception of such stray survivals as the stunted crocodiles discovered by modern explorers in rare upland pools. Whether this strikingly fine bovine is the *bos ibericus* with which it has been identified, is beyond my competence to say; but it closely resembles some of the curved-longhorn cattle in the Spanish rock-shelter drawings, animals which presumably were brought over from North Africa by the mesolithic invaders of the Iberian peninsula at some period near 6000 B.C. That such an animal could have given rise to the report of "backward grazing" cattle is evident; and that it may still have been common as late as the fifth century B.C. is suggested by other drawings, such as the one next to be discussed, which occur in the same region and are executed in the same technique.

"These Garamantes hunt the cave-dwelling Ethiopians with four-horse cars." The spectacular archaeological confirmation of this thoroughly implausible statement is sufficiently familiar in certain quarters; but it is not widely known among classicists and will certainly bear reproduction here (pl. 79, fig. 4). Since the horse-drawn car did not reach Egypt until it was introduced by the Hyksos,

it could hardly have reached the inner Sahara except through the coastal Libyans and hence not until the New Kingdom. Such a drawing, accordingly, cannot be more than a millennium older than Herodotus and may well be fairly close to his time. In the light of such a document, it is completely impermissible to deny credence to his explicit and unambiguous statement that the Garamantes used such vehicles.⁵

"These cave-dwelling Ethiopians are the swiftest footed of all men of whom we have report. They live on snakes and similar reptiles. They use a language unlike any other, much like the twitter of bats."

It is most probable that the ancient Libyans were of white (i.e. non-Negroid) Berber stock and spoke a Hamitic group of dialects related to the important non-Semitic component of ancient Egyptian. Berber dialects are still to be heard in most of the North African oases, including Siwah, Aujila, and at Sokna in the Fezzan; while the vast area southwest of the Fezzan, all the way to the bend of the Niger, belongs almost exclusively to the Tuareg, who are as pure Berber as exist anywhere. There is therefore considerable probability that the Garamantes of classical times were Libyan Berbers. Ever since its formation at the close of the last Ice Age, the Sahara has created a tremendous barrier against the equatorial Negro races; but the breaches in the great desert rampart—notably, the Nile valley and the caravan route of Herodotus, leading from Lake Chad to the Gulf of Sidra—have always permitted a certain amount of infiltration. Until the eastern Arab joined the contest, the history of the Sahara might be presented as an unending conflict between the Libyan Berber working southward and the equatorial Negro filtering northward. More recently, for several centuries the Tuareg (and in certain districts the Arabs) have harried, plundered, and enslaved the southern Negro population without respite or truce. It is in terms of this racial opposition that we may best interpret the Garamantian hunt in pursuit of the fleet-foot Ethiopian.

There is, however, a third ethnic factor, beside Berber and Negro, in the central Sahara. South of the Fezzan, there rises the great triangular moun-

tain mass of Tibesti, whose volcanic peaks are the highest points of the desert, with summits more than 10,000 feet above the Mediterranean level. Here today dwell the aloof Tibbus, maintaining an isolation of custom, language, and race which is truly remarkable. Though darker skinned than the Berbers, they are said to be no more than modified by Negroid admixture; and in the build of their bodies and their unbelievable hardness, endurance, and agility are set apart from other Saharan people. Nachtigal suggested that these Tibbus of the Tibesti are descendants of the fleet-foot, reptile-eating, rock-dwelling "Ethiops" whom the Garamantes pursued in Herodotus' narrative. And if the Tibbus are the remnants of a more widespread indigenous Central Saharan folk, Nachtigal may have been entirely correct in his surmise. In any event, it is toward their remote and barely accessible mountains that Herodotus' caravan route next led:

"From the Garamantes after another ten days' journey there is another salt mound with water (*sc.* oasis) and around it there dwell men named Atarantes" (IV. 184).

There is trouble here with the final word of this passage, since most of the major manuscripts do not read "*Atarantes*," but "*Atlantes*." Modern editors, following the authority of late classical writers, have preferred the alternate *Atarantes*, observing that the name *Atlantes* is also used by Herodotus for the inhabitants of the next following station under Mt. Atlas and that this might have occasioned the confusion. I imagine that "*Atarantes*" is more nearly correct (though not necessarily what Herodotus himself wrote down). Etymologically, the word *Atarantes* opens up some interesting vistas.

All over North Africa where the Berbers have been, the word *Adrar* survives as a place-name for isolated uplands. Any good gazetteer will list at least half a dozen conspicuous instances, spread all the way from the Atlantic Rio de Oro to the Fezzan, near which there is the Adrar-of-the-Tassili and the Tadrart (which I take to be a feminine, perhaps diminutive, form of the word with the typical Berber feminine fore-and-aft *t* affix). "*Atarantes*" in Herodotus may accordingly be a Hellenized form signifying "people of the Adrar," or Highlanders. And since the Saharan plateau rises

⁵ Like the long-horned cattle, horses apparently disappeared from the Sahara with the increased desiccation of the entire area; and since camels, previously very rare in the Sahara, were introduced on a considerable scale during late Roman imperial times, it is likely that they supplanted horses during that period. With a more favorable shift of climate, the

horse seems to have been reintroduced to the desert by the Arabs about the time of their great penetration of the Sahara in the 11th century of our era. More recently they have again lost ground; and today, horse and camel alike are being shouldered out by the jeep and half-track car.

everywhere on the south out of the depressions in which the oases of Fezzan lie, the next caravan stage beyond the Garamantes must be located in the uplands.

"Atarantes" would thus be a collective topical and not a racial or tribal term; and herein may lie an explanation for Herodotus' peculiar statement that these Atarantes

"are the only nameless people known; for though, taken all together, they are called Atarantes, no individual one of them has a name."

However, Herodotus does not appear to mean that there are no tribal names, or names for racial subdivisions, but quite specifically that the individual members of this people make no use of any distinguishing personal appellation. And if this is so, once again we are led to the Tibbus of the mountain stronghold of the desolate Tibesti massif. In *Sahara und Sudan* (450f) Nachtigal relates the strange attitude of the modern Tibbus in regard to individual personal names. A Tibbu married woman (who, like the Carian women in Herodotus, may not eat with her husband) turns her face away when she speaks to her man and will not utter his name in the presence of others. Save in direst emergencies, the woman's sisters and parents will not allow the man's name to pass their lips. In consequence, when a young man marries, his name is thenceforth so seldom uttered that it virtually disappears, to be replaced by some circumlocution. When his children are referred to, he himself may be mentioned as So-and-So's father; but when these children in their turn marry, the males must join their Sire in anonymity.⁶ If such a practice obtained in antiquity among the ancestors of this people, it is easy to understand how neighboring races might say of them that they had no individual names.⁷

As for Herodotus' final comment that these Atarantes

"execrate the sun overhead and foully reproach him for afflicting them and their land with his burning heat,"

it may be remarked that the caravan route is here crossing the tropic circle as it approaches the descent to the southern Sahara and that there are today no oases and not much water on the waste

upland between Tejerri and Tummo, this being the most exposed and exhausting part of the whole passage across the desert, as attested by the skeletons of animals and wayfarers who have succumbed to its rigors.

The next station has been a major source of confusion among the commentators; yet it and the station thereafter are in reality decisive evidence for the orientation and objective of the great route. That Herodotus himself misapprehended the geographical implications, does not invalidate the accuracy of the information which he had gathered:

"After another ten days there is another salt mound and water and men dwell around it. Adjoining this salt there is a mountain, the name of which is Atlas. This is slender and perfectly round and so high that it is said that its summits cannot be seen because neither in summer nor winter are they free of clouds. The natives call it the Pillar of the Sky. The men at this mountain take their name from it; for they are called Atlantes." (IV. 184)

A slender, circular, and very lofty peak, which wears a cloud the year round, should be an active volcano; but before such an inference is reached, it would be well to remember Herodotus' disturbing trait of drawing on his Homeric memories for picturesque or vivid detail to adorn his narrative. Thus, in the proem to his History he gives a mythologically impossible version of the story of Io, in which Phoenicians from their ships drawn up on the Argive strand peddle their wares and kidnap unsuspecting native women (I. 1.) while in a variant (I. 5) Io is seduced by a Phoenician shipmaster. Rather obviously, all these details have been borrowed from the swineherd's autobiography in the *Odyssey* (XV. 420ff). Again, in ch. 152 of Book II, the account of the Ionian and Carian freebooters in the Delta who save their skins by becoming the Pharaoh's mercenaries does not agree with the Assyrian record in which Gyges of Lydia dispatches such mercenaries specifically to aid Psammetichos in his revolt; but it does conform very exactly in its stirring detail with Odysseus' feigned account of his raid on the Delta (Od. XIV., 257-286). So in the present passage the verbal parallels with Circe's description of the mountain above Scylla's lair are too exact to be fortuitous,—

⁶ Similarly a man who has killed another must abandon his original name and assume another, which will of course be subject to the customary taboo in the mouths of his relatives by marriage.

⁷ Perhaps it is not obligatory to restrict this name-taboo to

the Tibbus, since an almost identical custom has been reported for the West Algerian Berber tribe of the Beni Snus. Cf. E. Destaing, *Études sur le dialecte berbère des Beni-Snous* (Paris, 1907), 291.

ὁ μὲν οὐρανὸν εὐρὺν ἰκάνει
 δῆϊν κορυφῇ, νεφέλῃ δέ μιν ἀμφιβέβηκε
 κυανέῃ· τὸ μὲν οὐ ποτ' ἔρωει, οὐδέ ποτ' αἰθρῇ
 κείνου ἔχει κορυφὴν οὐτ' ἐν θέρει οὐτ' ἐν ὁπώρα.
 (XII, 73-76).

And when Herodotus gives the name of the mountain as Atlas and adds that the natives call it the Pillar of the Sky, we must not overlook the reference in the *Odyssey* (I. 53f) to Atlas

"Who knows the depths of all the sea and holds
 Tall columns keeping earth and sky asunder."

But there is no justification here, any more than in the story of Psammetichos' Ionian mercenaries, to reject the whole account as mere Homeric reminiscence without foundation in fact; for why should Herodotus have recalled (consciously or unwittingly) Scylla's cloud-capped mountain and the sky-pillars of Atlas unless there was something in his information similar enough to bring these things to mind? If we believe in Herodotus' caravan route at all, we are entitled to expect that some twenty days' travel beyond Fezzan, there should be a conspicuous and memorably high volcanic peak—though whether it carried a cloud because it was an active volcano or merely because its isolated altitude made it a cloud-catcher, and whether its local name in any way resembled the Greek word "Atlas,"⁸ must be left undetermined.

The peak itself is indubitably there. Nachtigal was apparently the first modern European to behold it. Shortly before sunset of July 11, 1869, from a stony wasteland rather less than 2000 feet above sea-level, he suddenly caught sight of the huge mass of the Tarso heights, which he judged to be "several thousand metres" above him, filling the eastern horizon, and rising over this the "giant cone" of Emi Tussidé. Actually, the peak was still more than thirty miles away with its isolated, round volcanic top clearing its wildly rifted shoulders by fully 2000 feet and the desert to its west by nearly 9000 feet.⁹ Perfectly symmetrical in form, alone on its distant horizon, after the featureless monotony of weeklong plodding over dreary gravel and rock up to the southward watershed, the sight of Emi Tussidé must be the most memorable landmark of the Sahara crossing. If the oasis dwellers with whom the Cyrenean Greeks came into contact knew anything to tell of the great caravan route which passed through their stations, the great mountain

would certainly be included. And as we shall see a little later in this study, some youthful Nasamones of Aujila had actually passed that way into the Tropics and come back home to recount their adventures. In this way Herodotus had heard of the great mountain; but since the travelers had set out *toward the west* from Aujila (in order to pass through the gap between the Jebel-es-Soda and the Haruj-el-Aswad to reach the Fezzan depression of El-Hofra), Herodotus mistakenly supposed that the great mountain lay thirty days *west* of Aujila and must therefore be situated near the Gibraltar Strait. It is strange to reflect that Herodotus may have been the first to identify the African "Pillar of the Sky" with the giant of Greek mythology and by mislocalising it near the Gibraltar Strait to have been responsible for the ultimate attachment of the name of Atlas to the Moroccan range. And perhaps, if the ancient Mauretanians used the same name as the modern Moroccan Berbers for this mountain mass, the words *Idraren Draren*, in which the ubiquitous "*adrar*" is twice contained, may have encouraged such an identification on the part of Greek geographers.

To all this there is a pertinent objection to be made. The present caravan track between the Fezzan and Lake Chad (by which alone the eastern Sahara is regularly crossed from north to south) leads from Tummo down through the saline Kavar to Bilmo and thus descends from the uplands too far to the west to allow any sight of Tussidé or the Tibesti massif.

To such an objection the reply might be made that Herodotus does not say that the great mountain was actually on the caravan route, but that it adjoined it (*ἐχεται*), and that, whether visible or not, the existence of the high Tibesti mountains must have been known to every wayfarer. (In Nachtigal's day the inhabitants of the Fezzan knew a good deal about the Tibbus and the Tibesti, even though they refused to accompany the explorer thither.) But I do not think that this is the correct solution to the difficulty.

At Cyrene, Herodotus had heard another account of passage through the desert, but had obviously not realized that it referred to the same track which we have been tracing, and introduced it quite independently elsewhere in his *History*. The exploit of the five young Nasamones is one of the most

⁸ Conceivably Libyan-Berber "*adrar*" could become "*Atlas*" in Greek mouths; even more readily *At(a)rantes* > "*Atlantes*" could yield this result.

⁹ The most recent survey sets the altitude of Tussidé at 3265 metres, which is almost precisely the same as that of Sicilian Etna.

frequently quoted and colorful tales in Herodotus, but its modern commentators have not been very felicitous in its elucidation. Familiar though it may be, it will bear re-examination:

"This is what I heard from men of Cyrene who said that they had visited the oracle of Ammon and engaged in conversation with Etearchos, the Ammonian king. Now the talk somehow turned to the Nile, how nobody knew its source, and Etearchos said that some Nasamonians had once come to his court . . . and being asked if they had any novel information about the desert parts of Libya, they said that some of their own chieftains' sons had become rather out of hand and attempted all sorts of daring deeds and, in particular, had chosen five of their number by lot to explore the wastes of Africa and see whether they could behold something more than those who had hitherto gone farthest.

". . . So these youths, well provided with water and food, set out and first passed through the inhabited zone and thus reached the region of wild animals and thence penetrated the desert, directing their path toward the West."

And here we may interrupt the narrative to observe that, since the Oasis of Aujila was Nasamonian territory, it is fairly obvious that the youths' ambition to see what lay beyond the furthest known was equivalent to following the caravan route to discover its final goal. The passage from the inhabited region through the zone of wild animals into the desert is narrated from the Cyrenean viewpoint, since Aujila already lay inland behind the "ridge of sand"; but in any case the start "toward the westwind" must have brought the travelers to the Fezzan. Did they strike out thence into the unknown or merely follow the trans-Saharan track? Their own story should supply the answer:

"After having passed through much sandy territory, after many days they beheld trees growing in a plain; and advancing, they were helping themselves to the fruit on these trees when small men, of less than moderate height, set upon them and took them captive. The Nasamones understood nothing of their speech nor their captors of the Nasamonian. They led them through enormous swamps, beyond which they reached a town where everyone was of the size of their captors and black of color. A great river ran past the town, flowing from west to east, and in it were to be seen crocodiles.

"Let this suffice for the story related by Ammonian Etearchos, save that he declared (according to the Cyrenean account) that the Nasamones reached home again and that the people among whom they had been were all sorcerers. Etearchos, too, conjectured that the flowing river was the Nile; and this is indeed reasonable."

The tree-clad plain, the huge swamps, the great river with its crocodiles, all combine to prove that the youths must have penetrated the sub-equatorial rain-forest south of the Sahara. But where was the scene of their encounter with the little black men? The suggestion, occasionally made, that the town was Timbuktu and the river flowing "from the evening toward the rising sun" was the Niger is ill-considered and betrays little familiarity with the Sahara as revealed in the abundant and readily accessible modern geographical literature. It is true that it would have been physically possible to cross from the Fezzan southwest to the great elbow of the Niger, since the Tuareg today occasionally do so; but it would have involved a journey of considerably more than a thousand miles diagonally across the desert through difficult gorges and broken mountainland; and the geographical setting does not correspond with the narrative, because the Niger at Timbuktu is still on the desert verge and is not preceded by a "plain covered with trees," its inundations do not constitute "enormous swamps," and it is extremely unlikely that Negrilloes, the "little black men of less than medium height," were ever found so far to the west of their present haunts in the Belgian Congo and French Equatorial Africa. But the trouble is that, except for the Niger, there seems to be no great eastward running river at the southern edge of the Sahara, large enough to be mistaken for the Nile.

Yet the river is there—or at least it *was* there in Herodotus' day. Not many centuries ago, the whole territory northeast of Lake Chad was a great shallow and swampy sea, covering an area roughly the size of Belgium and Holland together. This was maintained by the overflow from Lake Chad (then much more extensive than at present) through the long river-valley of the Bahr-el-Ghazal—not the better known "Gazelle River" which is the chief western affluent of the Nile, but an homonymous watercourse which is today only a dry depression extending for some 300 miles, but which was erstwhile a great tropical river (pl. 78, fig. 1 and pl. 79, fig. 5). The scant surplus waters of Lake Chad in the rainy season are still supposed to flow along it beneath the surface of the soil. Less than a century ago, Nachtigal saw the first 80 miles of its bed flooded and heard on every hand that, only a few generations earlier, boats could travel its entire length from Lake Chad to the lowlands of Bodele. In the words of the latest investigator,

One may conclude that until the early centuries of the Christian era this low-lying and now completely waterless region of the lowlands of the Chad may have been a great zone of lakes and marshes dotted with sandy or rocky archipelagos."¹⁰

The countless unfossilized skeletons of fish which still strew the vast Bodele basin, the occasional skeletons of elephants in a region where neither grass nor water is any longer to be found, the rock-drawings of Yarda where hippopotami are represented, and the numerous ruins of settled villages, especially where the Bahr-el-Ghazal falls into the Jurab (to quote the same authority), all testify to the remarkable change which has overtaken this huge landlocked sink at the southern edge of the great desert (pl. 79, fig. 5).^{10a}

Accordingly, since there is excellent reason for supposing that in antiquity a great tropical river ran northeast into Borku, south of the great Tibesti mountains, spreading out into a vast swamp-land, I suggest that it was here that the Nasamonian youths were captured by the little black men and taken through the intricate tropical marsh to some settlement on the bank of the river, whence they beheld crocodiles in the stream (and to judge by the archaeological and palaeological evidence, also hippopotami in the water and elephants on the shoreland).

Such a conclusion is tantamount to the assertion—in itself entirely reasonable—that the Nasamonian band merely followed the same trans-Saharan route which we have been tracing; but it supplies the interesting modification of supplying a reason for supposing that in antiquity when the Bodele basin was still fertile, this much nearer exit from the desert was the terminus of the Saharan crossing, rather than (as in modern times) Lake Chad. But such a course would have skirted the Tibesti massif close to the west of it, using Emi Tussidé as its

¹⁰ Col. Jean Tilho in *Geographical Journal* LVI^a (1920) 258. Cf. also G. Nachtigal, *Sahara und Sudan*, 77f.

^{10a} In fig. 5 a modern geographer has indicated with a line of dots and dashes the presumed extent of inundation of the Chad-Bodele Depression in the not too remote past—an area not far short of 100,000 square miles!

¹¹ To King Etearchos' final remark that the people whom the Nasamonian youths reached "were wizards, one and all," the appropriate comment is Nachtigal's report on the inhabitants of the Logone region beyond Chad—"Niemand zweifelt daran, dass jeder Makari-Mann ein Zauberer sei." (*Sahara und Sudan*, 533f).

¹² The most striking instance of this principle occurs earlier in Book IV (ch. 42) when, in narrating the exploit of the Phoenician ships which circumnavigated Africa at the command of the Pharaoh Necho (ca. 600 B.C.), H. reports as something which he himself did not believe, that "while sailing

landmark (pl. 79, fig. 2)—which brings us back to the caravan route of Book IV, from which we digressed to consider the Nasamonian exploit.¹¹

"After ten days' journey there is a salt-mine with men living by it. Their houses in every case are constructed of blocks of salt (*ἀλίνων χόνδρον*). For this part of Libya is rainless, otherwise, when it rained, the house-walls would disintegrate. The salt there is dug out in two kinds, white and blueish (*πορφύρεος*)."

I have nowhere noted any observation that this highly peculiar description of the final desert-station on the caravan route is, in itself alone, proof positive that we must discount Herodotus' belief that the route continued westward to Morocco, and that in reality it had an equatorial trend. What is equally important, the picturesque and improbable detail, perhaps hardly credited by the writer himself, supplies a touchstone for the accuracy of his information.¹² Just as dates are the prime object of trade and export from the North-Saharan oases, so salt has always been the staple product of commerce in the southern Sahara to furnish sub-equatorial Africa with the vital commodity which Nature has denied to it:

"Les gisements de sel sont nombreux en Sahara et font défaut au Soudan. . . . Les Sahariens trouvent dans ces gisements de quoi solder leurs achats de vivres, et le transport de sel occupe des tribus entières, comme celui de la datte dans le Nord."^{12a}

On the present trans-Saharan route from the Fezzan to Lake Chad the next halt after crossing the great shoulder between the Ahaggar and the Tibesti mountains is the little string of oases of Kawar, among which are the extensive salt works of Bilma. Nachtigal speaks¹³ of "inexhaustible salt-mines" here, from which "almost all of Bornu and the Hausa states" are supplied, and describes the salt-laden caravans "with some 3000 camels in each"

around Libya they had the sun on their right." In the Mediterranean the sun, being always to the south of one, is "on the left" for a ship sailing west, and no one in Herodotus' day could ever have suspected that this would not be the case in the southern hemisphere where the sun moving across the sky to the north of one, would be "on the right." No one could have invented such a claim because it would never have occurred to anyone as a possibility; and consequently the modern commentator who doubts the Phoenician circumnavigation of Africa is needlessly sceptical—especially as the ocean currents are for the most part extremely favorable to such a voyage undertaken clockwise.

^{12a} Aug. Bernard, *Afrique Septentrionale et Occidentale: Sahara*, in Vidal de la Blache and Gallois, *Géographie Universelle*, vol. XI, Part 2, Paris, 1939.

¹³ *Sahara und Sudan*, 533-5.

which travel thrice a year; while Barth supplies an even more detailed and impressive account of this rather surprising industry. The salt is produced in two grades, the finer being snow-white, the poorer of a greyish or grey-green cast. Although the salt is formed into slabs and blocks,¹⁴ neither Nachtigal nor Barth reports any houses built of these; but much farther to the West, where the salt for the Nigerian trade is worked and transported to Timbuktu, Ibn Batuta some centuries ago beheld the walls of a town which he calls Teghazza entirely constructed from slabs of salt. The story in Herodotus therefore rings true.

Gautier (in *Sahara: the Great Desert*, tr. Mayhew, p. 179) writes of the Bilma mines that

"The salt is found here in a very pure state and is carefully prepared by traditional methods. . . . These salt works, situated on the finest caravan route of the Sahara, contribute much to its traffic."

And indeed it may be entirely possible that the trans-Saharan route itself originally came into existence through a junction between the search for salt, penetrating the desert from the South, and the cultivation of date palms, invading the desert from oasis to oasis from the North. Once such a meeting was established, all manner of equatorial commodities would have moved over the route, to be exchanged for Mediterranean manufactured wares; but on this highly important economic aspect the text of Herodotus unfortunately maintains complete silence; for of all this traffic—perhaps because it was diverted to Phoenician trading-posts on the Barbary coast—Herodotus heard and knew nothing. Cyrene at any rate was not involved.

If my suggestion is accepted, that in antiquity the Saharan crossing was directed not at Chad but at the considerably closer Bodele basin, by passing farther to the east under the Tibesti massif it would have missed (pl. 79, fig. 2) the Kavar oases and the Bilma salt mines; but this hardly invalidates the evidence. For salt abounds almost everywhere in this huge territory south of the Tibesti, being merely the final product of the desiccation of all the lost desert streams which in the remote past descended from the surrounding highlands. And actually at Budu in Borku, some four days' march from the last and highest of the Tibesti peaks, on the way to the Bodele basin, Nachtigal found salt being extracted and spoke of huge deposits from which Wadai and

Kanem were even then being supplied. As at Bilma, there were two grades, the better pure white, the poorer greenish grey.¹⁵

Here the itinerary in Herodotus abruptly ends; but here too, in the Bodele basin (or, by the modern route, after ten days more beyond Bilma) the Sahara itself ceases. Beyond, greening steppeland gives place to tree-dotted expanses and these in turn to woodland and marsh. It is the end of the road. Without counting rests and pauses, it has demanded two full months of arduous travel.

To be sure, Herodotus adds a postscript to the effect that

"Beyond this ridge of sand, toward the South and the Libyan hinterland, the country is waste and waterless, without animal life or rain or wooded growth; and there is no drop of moisture in it." (IV. 185)

But this remark is misplaced; for it expressly refers to the "ridge of sand" or great escarpment with which the description of the route opened, and consequently it properly applies only to the region behind the first stages of the route along the oases inland from Cyrene. In short, it is a summary description of the fearfully dry and tremendously formidable Libyan Desert, of which—almost as though in direct echo of Herodotus—Gautier writes:

"There, in the great Libyan Erg, we find what is probably the most imposing mass of dunes on the whole face of the earth. They cover a vast area, some 750 miles in length by 250 to 300 miles wide. It is a region more unknown than the Antarctic, and unknown because it is impenetrable. . . . Within the confines of the Libyan Desert we find an extreme rarity or even . . . a total absence of wells, pasturage and running water."¹⁶

It was precisely the impassability of this huge barrier of dunes (pl. 79, fig. 2) which forced the route from the upper Nile at Thebes and Abydos to swing north as far as Siwah, thence west to Auja and southwest to the Fezzan, before it could at last head south for the green world beyond the titanic waste of rock, gravel, and sand which we call the Sahara.

Five centuries after Herodotus, his trans-Saharan route was still open. This time, instead of Nasamones, it was a detachment of the Roman army in occupation of Tripolitana which explored it. As early as 19 B.C., Cornelius Balbus, proconsul of Tu-

¹⁴ In Bernard, *op.cit.*, pl. LXXIIA (p. 389) there is a photograph of the slabs of salt turned out at Taudeni on the other, or Occidental, trans-Saharan route. It would be feasible to

use these for building.

¹⁵ *Sahara und Sudan*, 110-112.

¹⁶ *op.cit.* 103 and 106.

nesia, had occupied the Garamanian capital (by which we may perhaps understand Ghadames on the Mediterranean side of the Hammada-el-Homra, some 300 miles inland from Tripoli and well to the north of the Fezzan). Later, under Vespasian, a punitive expedition of three months' duration, under the command of a certain Septimius Flaccus, seems to have occasioned the Roman occupation of the entire Fezzan. And finally—though we are not told at precisely what date—a certain Julius Maternus set out from Garama (which should certainly be one of the Fezzan oases, though not necessarily to be identified with modern Jerma) and marched southward to "Agisymba where the rhinoceros foregather." The expedition occupied a full season of four months. Of "Agisymba" I know

¹⁷ The geographer Ptolemy, from whom the information about Flaccus and Maternus is derived (Book I, ch. viii), thought that Agisymba must be south of the equator (I, ix and x); but he is extremely critical of his own source of in-

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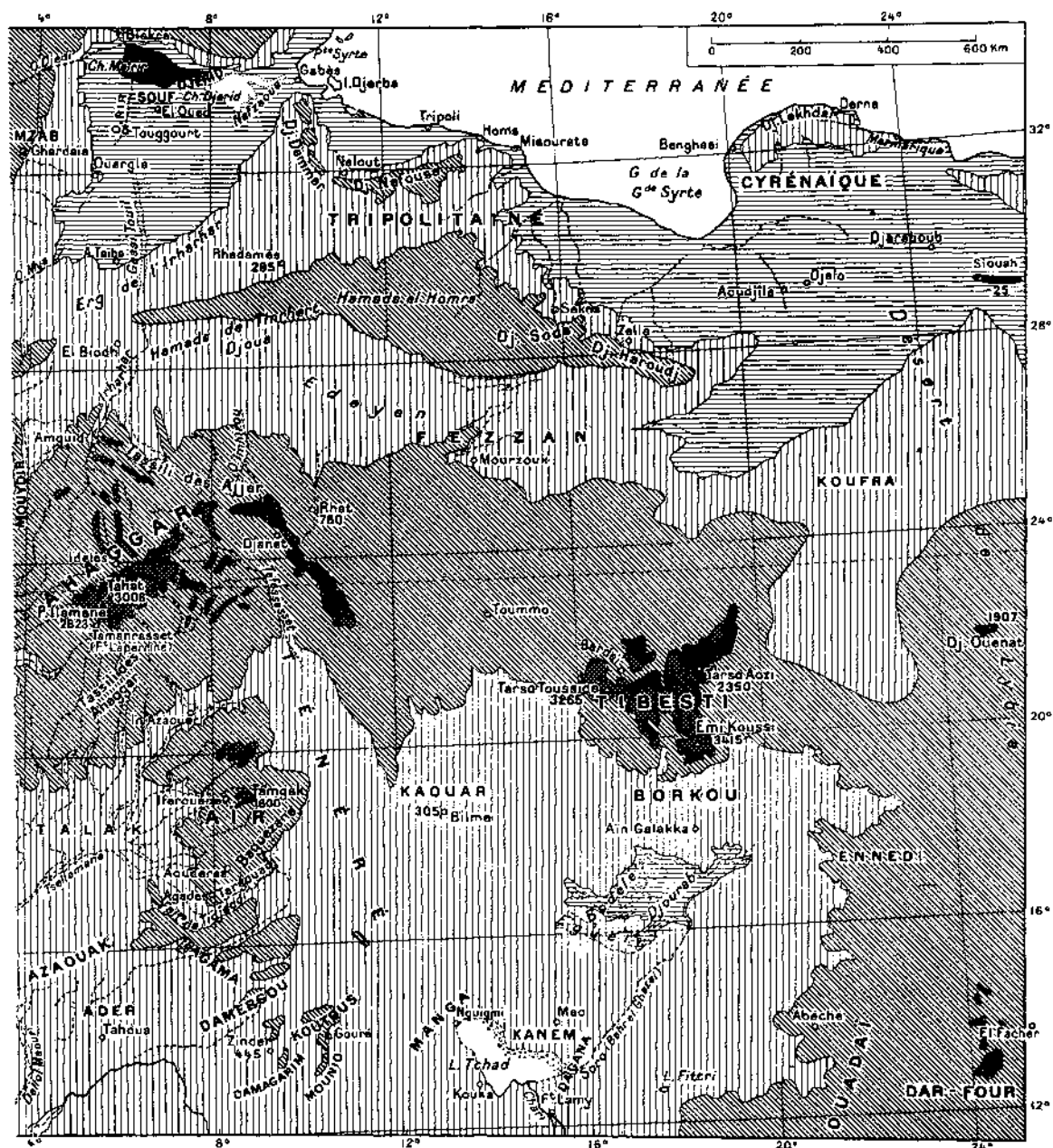


FIG. 1. Map of the Eastern Sahara
(From Vidal de la Blache and Gallois, *Géographie Universelle*: Vol. xi, Part 2,
Africane Septentrionale et Occidentale: Sahara, by Augustin Bernard)

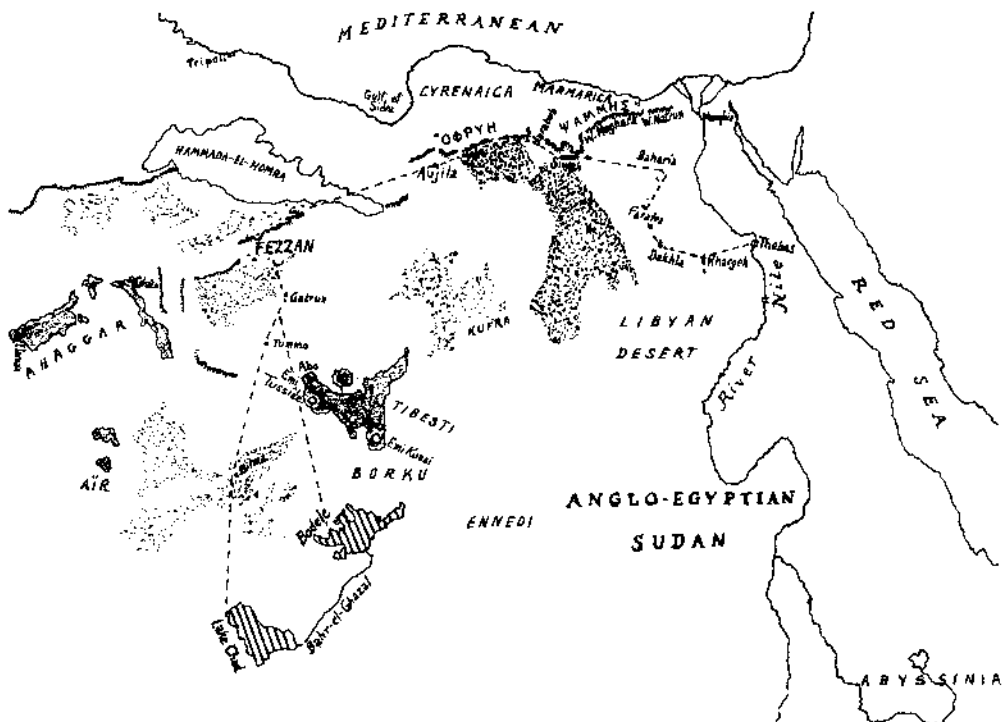


FIG. 2. Sketch Map of trans-Saharan Route from Thebes via Fezzan to Equatorial Africa (Stippled areas are sand)

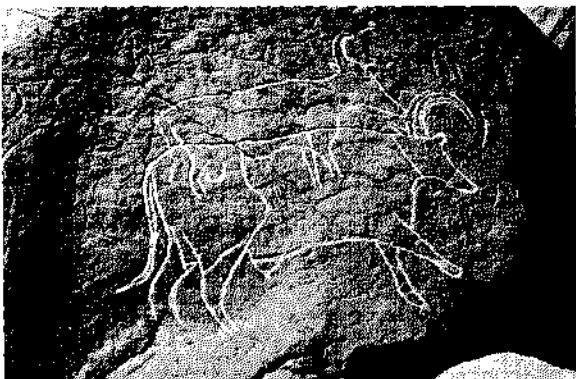


FIG. 3. Ancient rock-carving of long-horned cattle

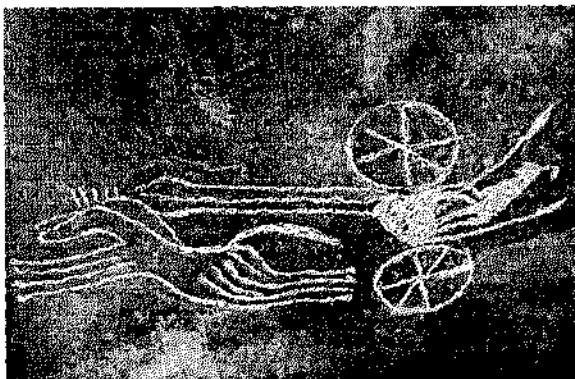


FIG. 4. Drawing of horse-drawn car

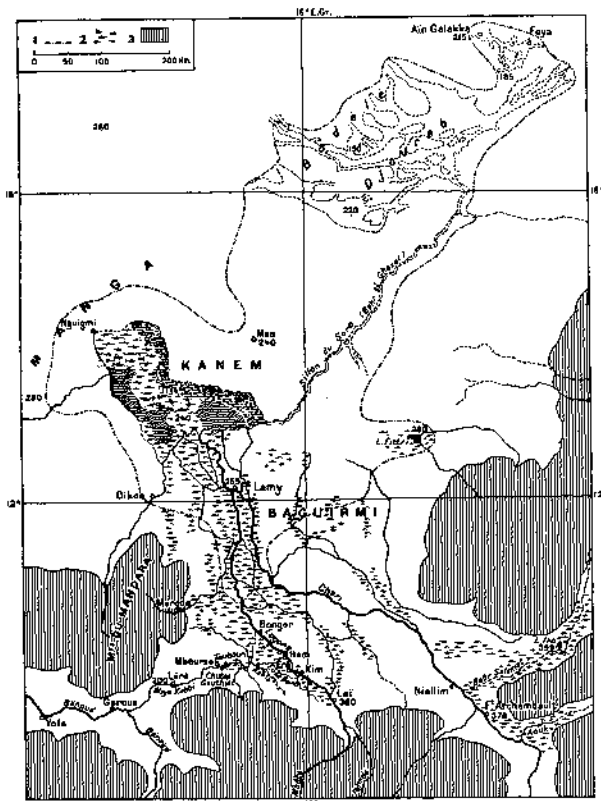


FIG. 5. Lake-Chad-Bodele Depression with Bahr-el-Ghazal (from Aug. Bernard)