



**PORT
DUMAYGHAH**
Lat. 26°38' N.
Soundings in Fathoms.

W. J. Turner, Del.

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I.—*Itineraries of the Second Khedivial Expedition: Memoir explaining the New Map of Midian made by the Egyptian Staff-officers.* By RICHARD F. BURTON.

[WITH MAP.*]

“Tanta ad pericula et impendia satis fuit causa sperare quod cuperent.”—
PLINY, ‘Nat. Hist.’ xxxiii. 21.

PART I.

The Return to North Midian, and Cruise in the Gulf El’Akabah.

Introductory Remarks.—In the following pages I offer to the Royal Geographical Society the Route-book and Itineraries of the Expedition of 1877-78, in its threefold division, which formed our second journey to Midian; and here it is proposed to dwell especially upon the lines of road; the positions, the geography of the country; and, briefly, upon all that constitutes pure topography. Thus the present Journals will serve as letter-press to the map drawn up from the flying surveys of the three Egyptian Staff-officers who were detailed by the Khediv of Egypt to lay down the limits of His Highness’s easternmost provinces. The papers, therefore, will in no wise assume the character of a popular volume.

A popular account of the First Khedivial Expedition has already appeared in ‘The Gold Mines of Midian,’ &c. (London: C. Kegan Paul and Co., 1878). The ethnological information, such as descriptions of the tribes collected by the second, has been reserved for future publication; the notes upon the little collection of antiquities and human crania have been

* From ‘The Land of Midian (Revisited),’ C. Kegan Paul and Co., 1879.
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forwarded to the Anthropological Institute; and the coins of Midian to the Royal Asiatic Society. 'The Land of Midian (Revisited),' my last two volumes (London: C. Kegan Paul & Co., 1879), contain a *relation historique*, a general account of our last journey, without, however, entering into scientific notices or topographical details.

And, first, a few observations upon the country which has, I may say, been explored by the two Khedivial Expeditions of 1877 and of 1877-78.

The Land of Midian is by no means one of the now numerous "geographical expressions." The present tenants of the soil give a precise and practical definition of its limits. Their "Arz Madyan" (ارض مدين) extends from El-'Akabah north (Raper: n. lat. 29° 28') to El-Muwaylah, with its Wady, El-Surr (n. lat. 27° 40'), a total latitudinal length of 108 direct geographical miles.* South of this line, the seaboard of north-western Arabia, as far as El-Hijáz, has no generic name. The Bedawin are contented with such vague terms, derived from some striking feature, as "The Lands of Zibá," of "Wady Salmá," of "Wady Damah," of "El-Wijh,"—to denote the tract lying between the parallels of El-Muwaylah and of Wady Hamz (حمض) in n. lat. 25° 55' 5". Thus the north-south length of the southern moiety would be 105 direct geographical miles, or a little less than the northern; and the grand total would be 213 miles.

The breadth of this easternmost province of Egypt is the distance from the sea to the maritime mountains. In "Madyan" (proper), the extremes would be 24 and 35 miles. For the southern half these distances may be doubled. The Bedawin are here again definitive in their limits: all the "Tihámah," or lowlands and their ranges, belong to Egypt; east of it, the Daulat Shám, the "Government of Syria" claims possession.

I have taken the liberty of calling the whole tract Midian: the land above El-Muwaylah (Madyan proper) I would term "North Midian," and that below it "South Midian." In the days of the ancient Midianites the frontiers were so elastic that at times, but only temporarily, they embraced Sinai, and were pushed forward even into Central Palestine. Moreover,

* Let me protest at once against the assertion contained in an able review of "The Gold Mines" ('Pall-Mall Gazette,' June 7, 1878). The writer makes ancient Midian "extend from the north of the Arabic Gulf (El-'Akabah(?)) and Arabia Felix (which? of the classics or of the moderns?) to the plains of Moab"—exactly where, if it ever did, it assuredly does not now extend.

I would prolong the limits eastward as far as the Damascus-Medinah road of Sultan Sulayman the Magnificent. This would be politically and ethnologically correct. With the exception of the Ma'ázah country, the whole region belongs to Egypt; and all the tribes, formerly Nabathæan and now more or less Egypto-Arab, never question the rights of His Highness the Viceroy, who garrisons the seaboard forts. Of the other points, historical and geographical, I am not so sure. My learned friend, Aloys Sprenger, remarks: "Let me observe that your extending the name 'Midian' over the whole country, as far south as the dominions of the Porte, appears to me an innovation, by which the identity of the race along the shore of the Gulf of 'Akabah, and of the coast down to Wajh and Hawrá, is prejudged. Would it not be better to leave Midian where it always has been, and to consider Badá* the centre of Thamuditis, as it was in the time of Pliny and Ptolemy, and as it continued to be until the Balee (Baliyy), and other Qodhá'a (Kudá'a) tribes, came from Southern Arabia, and exterminated the Thamudites?"

This is, doubtless, a valid objection; its only weak point is that it goes too far back. We cannot be Conservatives in geography, nor attach much importance, in the nineteenth century, to a race, the Beni Tamúd, which had wholly disappeared before the seventh. On the whole, it still appears to me that by adopting my innovation we gain more than we lose; but the question must be left to a higher tribunal, the geographical world.

In our days two great Sultánís ("highways") bound Madyan the less and Midian the greater. The western, followed by the Hajj el-Misri (Egyptian caravan), dates from the age of Sultan Selim Khán (ob. A.D. 1520), El-Fatih, or the Conqueror, who, before making over the province to the later Mamlúk Beys, levelled the rocks, cut through ridges, laid out the track, dug wells, and defended the line by forts. Before that time the road lay, for convenience of water, to the east or inland; it was, in fact, the old Nabathæan highway which, according to Strabo, connected the southernmost port, Leukè Kóme, with the western capital, Petra. Farther east, and far beyond the double chain of maritime mountains, runs the highway followed by the Hajj el-Shámi (Syrian or Damascus caravan), which sets out from Constantinople, musters at Damascus, and represents the puissance of the Porte. According to the Akhbár el-Duwal ('Notices of Kingdoms' †) by Ahmed el-Dimishkí

* See chap. xv. of the 'Land of Midian (Revisited);' and Part III. sect. 3 of this paper.

† Not "tidings of changes of fortunes," as interpreted in the 'Journal of the Royal Geographical Society,' vol. xx. p. 319.

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(finished A.H. 1008 = A.D. 1599), the successor of Sultan Selim I., Sultan Sulyman Khan (ob. 1566) laid out this road, built the castle of Tabúk, and placed there a guard of twenty janissaries to protect the spring from the Bedawin. On both these main lines water is procurable at almost every station, and to them military expeditions are perforce limited. The parallelogram between the two, varying in breadth, according to Wallin, from 90 to 120 miles (direct and geographical), is irregularly supplied with fountains, wells and rain-pits, which can always be filled up and rendered useless by the Bedawin.

I now proceed without further preamble to our march.

I. *Departure of the Expedition.*—On Wednesday, December 19, 1877, the second Khedivial Expedition to the mines of Midian landed from His Highness's gunboat the *Mukhbir* (Capt. Mohammed Síráj), at a gap, called a port, in the reef of El-Muwaylah (N. lat. $27^{\circ} 39'$, and E. long. $35^{\circ} 28'$). This fort and station of the Egytian Hajj ("Pilgrim caravan") was described some 31 years ago by that excellent Arabist, the late Dr. George Aug. Wallin; he travelled in 1847-48, and he published in the 'Journal' of the Royal Geographical Society, vol. xx., 1850. As will be seen, he is in error when "finding no mention made of Muweileh (El-Muwaylah) in Arabic manuscripts, nor any traces or traditions among the existing generation in the land, pointing to a high antiquity," he professes himself "inclined to consider it a town of modern origin" (loc. cit. p. 300). Equally mistaken, I believe, was the learned Vincent (Periplus, &c.), who attempts to identify it with the great naval and commercial station of Leukè Kóme, a term applicable to almost any settlement on this coralline coast. The "White Village," however, lies, as will be seen, much farther south.

Before leaving the coast I must briefly introduce the second Khedivial Expedition to the reader. The *personnel*, not including the Commander, was composed of eight Europeans: M. George Marie (engineer); Mr. Charles Clarke, Telegraph Engineer (commissariat officer); M. Lacaze (artist and photographer); Mr. David Duguid (chief engineer of the gunboat), temporarily attached to us; and Mr. Philipin (smith), with three Greeks—at least two too many:—Anton (dragoman), Giorgi (cook), and Petros (waiter). There were five Egyptian officers—Ahmed Kaptán Musallam, Commander Egyptian navy (astronomical observer); and two on the staff (*Arkán-Harb*); Lieutenant Amir, who had accompanied the first Khedivial Expedition, and Lieutenant Yusuf Taufik (mappers and surveyors); Darwaysh Effendi, Lieutenant in the Piyádah (line), commanded the escort; and sub-Lieut. Mohammed

Farahát, the Ma'adanjyah and Haggárah (sappers, miners and quarrymen).

The men were three privates of the staff, including Ali 'Brahim, a hard-working and valuable servant; and Yúsef el-Fázi, his mate, a quartermaster, lent by the gunboat; the latter was generally useful as an English sailor. The escort, under an Egyptian sergeant and four corporals, was composed mostly of emancipated negroes, with a few Súdánis collected from every tribe in the basin of the Upper Nile. These men were armed with Remingtons, except the trumpeter, who carried a navy Colt; and they numbered twenty-five, not including the pistoleer or the Buluk-amin (writer). I also engaged five Básh-Buzuks from the little garrison of El-Muwaylah, because the irregulars are familiar with the country, and friendly with the Bedawin. The sappers, miners and quarrymen, who were unarmed, amounted to thirty-three, without reckoning the sergeant, the corporal and the carpenter. Thus the total was sixty-five men, or seventy, including officers.

The Ras el-Káfilah, or commander of the caravan, was the Sayyid 'Abd el-Rahím, who escorted us during the first journey; and he generally had with him, besides my old friend, Haji Wali of Zagázig, three Bedawi Shayks; for escort and service the latter received each an honorarium of one dollar per diem. The camp-followers were few: a Sais or groom, who superintended the care of our ten mules; Ali Mullah, a Barbari, servant to Haji Wali; Husayn Genínah, a boy who waited upon Lieutenant Yusuf; and "Hamad," an itinerant coffee-vendor, who attached himself to us at El-Muwaylah. I hardly need notice the cameleers and their varlets, who were always being changed.

The transport difficulties were increased by the rivalry of the two tribes that contended for the honour and profit of fleecing us. The first were the Beni 'Ukbah, or "Sons of the Heel," who claim, after Arab fashion, the land on which the fort El-Muwaylah is built. Their Shaykh, Hasan ibn Salím el-'Ukbi, who had been honoured with an order from the Government of the Viceroy, declared himself willing to supply any number of camels at the rate of 1 dollar a-head for the four very short marches between El-Muwaylah and the Jebel el-Abyaz, my present objective. But a former employé, 'Abd el-Nabi of the Tagaygát clan of the great Huwaytát tribe, refused to march with the Beni 'Ukbah; demanded a third more pay; and, professing readiness to carry me and mine gratis, would not move under 1 dollar 25 cents. In April 1877 he had proved himself a manner of noble savage, a good man and true. But my kindness had spoilt him; and the

only remedy was to send him about his business as soon as possible.

It is usual in Arabia to engage camels by the stage, not by the day. For instance, the pilgrims pay according to tariff 1 dollar per long march of 12 hours, and the same is the hire for a dromedary post. But this would have been hardly fair to the Arabs, when we intended to make weekly and even longer halts. At last I agreed to hire each camel for 5 piastres on idle and ten on working days: the piastre being assumed at $97 \cdot 20 = 1$ sovereign.

II. *Itinerary from El-Muwaylah to Magháir Shuayb.*—December 20th, 1877.—The day was spent in starting a dromedary post, in housing and ticketing our stores entrusted to a magazine-man at the Fort of El-Muwaylah, and in settling various disputes.

Dec. 21st.—The large, straggling and most disorderly caravan, carrying 20 tents and 50 large boxes, required about 80 animals, without counting a certain number of dromedaries (*Hijn*) for riding purposes. The half-loads brought up the total to 106; and the greedy drivers demanded pay for 120. It would irk the reader to recount the normal troubles of such marches. Suffice it to say that the men were as wild and unmanageable as their beasts; that the latter were half-starved; that nothing could be worse than their gear, and that the caravan for the first four days was the most disorderly mob that I have yet seen. Of course it gradually improved, and at last we could load in fifteen minutes; this day the process had wasted five hours.

The trumpet sounded the "General" at 3 A.M., and the start took place sometime about 8 A.M. We marched past the old tomb of Shaykh Abdullah by the way of the Egyptian pilgrimage along the shore. After 2 hours the road forks; I wanted to take the left, but was led to the right: despite my express orders to encamp for the night near the seashore ruins of Tiryam, we were guided to its *nakhil* or *palmetum*, distant 1 hour 30 minutes walk up the valley, and described during my first expedition.* There is nothing Arabs and Egyptians will not do in order to pitch tent as near water as they safely can. The broad dusty track, laid out by camels' feet, subtended the long projection Ras Wady Tiryam (head of the Tiryam Valley), shown in the Ad. Chart: it rests upon a base of knobby hills and hillocks from 50 to 150 feet high, dirty-yellow grit of modern formation, scattered with sand and metallised with rusty ironstone, which here and there appears

* 'The Gold Mines of Midian,' p. 272.

in blotches. Despite the heavy rains of December 9-10, 1877, the land was utterly dried up: we saw a single troop of gazelles, a few sea-fowl, and a little long-eared hare like a *leporide*, now in the British Museum. The hardy thorns, acacias and mimosas; the juicy salsolaceæ and suædæ, *salsicorniæ* (*perfoliata*), and *scelanthus* (*quadragonus*); the *centaurea* and the *Statice pruinosa*, or sea-lavender, were the only vegetation which had resisted the long drought. Beyond the point we turned abruptly towards the sea, thus taking 5 to do the work of 3 hours. The distance by the Ad. Chart is 11 direct geographical miles: we estimated our *détour* at $15\frac{1}{2}$ stat.; and the odometer, an Austrian *messrad* or wheel (Willmann, Wien), which lost no time in breaking down, showed 22 kilom. 700 metres. Most of the instruments, I must here explain, were bought at Cairo, which appears to be the general receptacle of European rubbish, all sold at double the Paris prices. Consequently they were as useless as they were costly. The mercurial barometer (Elliott Bros. 24) lent to us by General Stone (Pasha), Chief of the Staff, Cairo, when opened contained amalgam, not mercury; the *baromètre anéroïde* was found in its box with the chain-hook broken; the maxima and minima thermometers were absolute trash, and the two watches, "Dents" made at Geneva, presently refused to go. Fortunately I had my little travelling set by Casella; and even his maxima and minima were too delicate to resist camel-jolting. General Purdy Pasha of the Egyptian Staff, who remained upwards of two years surveying Dar For, found, after many a trial, that chronometers in those countries travelled best in panniers on donkey-backs. In India we sling them, Banghy-fashion, over men's shoulders; but here and in Africa, the patient coolie's place is taken by a rough and reckless article, utterly unworthy to be trusted with anything more delicate than a cooking-pot.

Dec. 22nd.—Of the three first marches I have little to say: they are already described in 'The Gold Mines of Midian.'* We spent the early morning in digging at the small square fort which occupies rising ground on the left jaw of the Wady Tiryam, and which protected the townlet to the north. These ruins, like most others in Midian, are denoted by pottery, coarse and fine, which may be of any age, and by scatters of blue-green glass, thick and thin: the latter is comparatively modern, and very different from the almost decomposed fragments, iridescent with damp, which are found below ground. The

* For the future I shall call it vol. i., and my second work vols. ii. and iii.

diggings showed stony substructures, but their produce did not explain whether the enceinte is old or mediæval, one of the fortlets thrown up to defend the Hajj route.

The Expedition left Tiryam at noon, following the Pilgrim-track, and, after 35 miles, passed on the right a low range of sandstone-hills, the Jebel Rázi (راضى): the broad-mouthed Fiumara of the same name supplies, near the sea, a pit of sweet water. As usual along the whole coast of Madyan (north Midian, or Midian Proper), except in one place where the mountains fall sheer into the Gulf of 'Akabah, the surface shows much more Wady-land than divide, and some of the former, like the Wady Garágarah (جراجري),* are of great width, measured by miles. Wady Sharmá appeared from afar black with thorn-trees and 'Abal (عبل)† (*Suaeda montica*?), a salt-bush eaten by camels. All these settlements being apparently laid out upon one plan, maritime "residences" for the rich, and inland quarters near sweet water for the slave-miners: I hoped to find ruins at the Sharmá Valley-mouth distant 7 to 8 winding miles from the date-grove at the gorge. Accordingly, the Shaykhs were directed to march towards the shore. As yesterday they had disobeyed, so to-day they obeyed orders, much to our detriment; and, after a long and weary round, when already nearing our destination, they all assured me that there were no remains on the seaboard. I sent MM. Clarke and Duguid to ascertain the truth, and they found only a line of high loose sandy dunes. If the Sharmaites built anywhere on the coast, it must have been on the south-eastern side of the great 'Aynúnah Bay, the place called Musaybat Sharmá, provided with a brackish well, and some two hours distant from sweet water. The march to the "nakhil," or Date and Dom-grove of Sharmá, which does not appear in the Admiralty Chart, occupied 4 hours, 3 hours being the number assigned to the pilgrims. The distance, assuming the mules to walk $3\frac{1}{2}$ stat. miles for the first half and 3 for the second, would represent 13 stat. miles.

Dec. 23rd.—We set out late this morning in consequence of a visit to the foot-hills behind the sea-cliff, which showed a small outcrop of copper. The swampy Wady Sharmá, whose gap is about $\frac{2}{3}$ of a mile wide, cannot be ascended by camels; and the same is the case with the Wadys 'Aynúnah and Makná. On

* Plural of "Jarjúr," a large, bulky or big-bellied camel.

† "Abal" in classical Arabic means a plant with slender sprigs, twisted or imbricated leaves. "Abál" is the mountain-rose, eglantine or sweet-briar: according to some, the rod of Moses was an "abúlah."

the return march, Mr. Clarke and Lieut. Amir went directly down the gorge, finding, after 20 miles ride, an S-shaped channel, with water at the head, rising from under the rock, and producing a fetid growth of sedge and the rushes called El-Kasbá (قصب) (*Arundo donax*) and El-Birdi (a flag). Farther down, the line is choked with palm-trees and their dry fronds. The travellers came in, after half an hour's wade, wet through, and dragging their dromedaries, which had much trouble to follow them. Perhaps the most effective of M. Lacaze's sketches, and certainly those most admired at the little exhibition which was opened at the Hippodrome, Cairo, was the water-scenery of Wady Sharmá. It was a surprise to all, and a practical rout of all preconceived ideas upon the subject of arid Arabia.

There are two camel-roads from Sharmá to the Jebel el-Abyaz, the focus and centre of the quartzose outcrop in this part of Midian. The southern was inspected by M. Philipin; it runs over parti-coloured hills, black and white, red and green; about half-way is a well, but the total distance measures 6 instead of 4 hours' march. The northern and best road, which we now took for the second time, crosses the two branches of the Sharmá water, ascends the right bank, and leaves to the left an ancient Bedawi cemetery, with the ruins of a heptangular demilune, possibly intended, like those above Wady Tiryam, to defend the western approach. Flying surveys of the lower and the upper fort were made by Lieuts. Amir and Yusuf, who alone are responsible for their correctness. The former measured in circumference 2085 yards (*not* several kiloms., vol. i. p. 269). The north-east part of the enceinte showed signs of metal-working, and here desultory digging yielded ashes, charcoal, and broken pottery.

After 35 minutes' riding along the seaward face of the coral-line *berge* which forms the old coast-line, and which from afar looks regular as artificial earthworks, we turned to the right through a "Báb," or gate, measuring 70-80 yards (*not* "200 mètres"), cut by a torrent which evidently has not flowed for years. Once it must have discharged into the splendid Bay of 'Aynúnah, which, nameless and placeless on the chart, was so scandalously libelled by the Greek Agatharkides, as preserved in Diodorus Siculus and Photius.* The western spit is called *El-Malláhah* ("of the salinas"), salt being still washed there. The anchorage behind it is the Musaybat Sharmá. By this

* Vol. i. p. 183.

way, doubtless, ancient Sharmá communicated with the Gád (جان)* or Marsá Khuraybeh, under the eastern spit, before noticed as the maritime settlement of 'Aynúnah. It is open only between the west and the north-west; here, too, reefs and shoals allow only a narrow passage, but admit the largest craft. Its breadth across the mouth measures over 3 miles, and the depth inland, useful for refuge, is very nearly 2 miles. When the silver-ores of the country about the Jebel el-Abyaz shall be exported, this fine port will be the terminus of the tramway. The depth may average 10 fathoms; and our Sambúk, El-Musahhil (Rais Ramazán), a native boat of 50 tons, which acted tender to the *Mukhbir*, rode in perfect safety close to the shore of the Musaybat Sharmá.

The tram should be simple and economical, like "The Economical," proposed by Mr. Russell Shaw, or "The Pioneer," invented by Mr. John L. Haddan, M.Inst.C.E. It must be able to turn sharp curves and follow the valley-line now to be described. We wound up the gut, whose bright yellow sands were set off by the bounding hills and hillocks of gloomy bottle-green porphyritic trap which, throughout this part of Midian, cuts through every kind of rock, quartz-veins included. After an hour and a half's ride, ruddy porphyritic trap and pink grits, an old decomposition, begin to prevail, and give a somewhat livelier aspect. In places there are outbreaks of syenite-like granite, rich in orthose and poor in mica. Here is "El-Muhásir,"† a long oval basin measuring some $5\frac{1}{2}$ by $1\frac{1}{4}$ miles, between north-south (160° - 340° mag.) and east-west (30° - 250°). It is the head of the Wady Sharmá proper; and the tail of the Wady el-Maka'dah (مقعد), "of the sitting-place"). At this point both watercourses anastomose with the Wady Umm Níran and the Wady 'Aynúnah; in fact the whole country is a network of these fumaras and nullahs, dried-up river-fissures, watercourses, and torrent-beds. The compass showed the head of El-Malláh at 250° (mag.), and that of Sharmá, distinguished by a long line of reddish sand, bearing 160° (mag.). Here vegetation—*Artemisia*, *Caidbeja*, *Centaurea*, &c.—was more abundant, and we found a small flock of sheep and goats, the Bedawi in charge asking Cairo prices, \$3.50 for a mere lamb.

From El-Muhásir we entered the Wady el-Maka'dah that leads to our destination. Now the light-red and dark-green

* "Jádd" would mean land or palm-groves worth so much. "Jáddah" is the beaten part of a road or a high road.

† Meaning "the besieger," or one that surrounds.

sides, often clifty, of the great Wady are varied by grey granites of fine and coarse elements, profusely streaked with white quartzose veins; whilst the "hard heads" and boulders, in and near the bed, are weathered into quaint shapes of skulls, human and bestial. On the left bank was El-Dabbah, a remarkable rock, looking like a ruined tower. We observed that the hillocks beyond the right bank showed sundry outcrops of snowy quartz, and a lump rose in the valley-side about an hour from our destination. The Bedawin call this rock *Marú**

(مرؤ), hence the *Jebel "Marwah,"* near Meccah, and the famous old *Marwah* gold-mine, which we shall inspect at the end of the journey. The whole formation, of which the *Jebel el-Abyaz* is the pivot, must be called the *Jibál el-Bayza* (*White Mountains*).

The heat of the sun became troublesome, where the abrupt bends and the long legs of the Wady excluded the sea-breeze so pleasant near the mouth. The ride, however, was cheered by the noble background of the picture, the *Jebel Urub*.† This sharp-edged main wall is capped with what we called "the Pinnacles," finger-like projections, finials to a huge slab, with an eastern face absolutely perpendicular, and measuring by the eye at least 1000 feet. South of it appears a great nick, the *Wady Simákh* (of *Sumach*?), with its huge valley seaming the plain; and yet farther south are "the Buttresses," three enormous flying *arcs-boutants*, with capped heads like logan-stones; they seem to support the rampart, and make a splendid show. The Wady was bare of grass, which does not begin to clothe the ground till February. In one place the rain had formed a veinlet in the lowest part of the sole, and everywhere the sand was damp a few feet below the surface. Had I received the *Norton's Abyssinian pumps* applied for at *Cairo*, we doubtless should have struck water; two pits 6 feet deep yielded no results, and yet in most Wadys a tenacious clay, well fitted for building purposes, underlies the sands. After 4 hours' ride (= 12 stat. miles), we camped upon our old ground at the head of the *Wady el-Maka'dah*, 800–900 feet above sea-level, the mean of 19 aner. obs. (Dec. 23–30) giving 29.10 for the alt. of the camp. We are now on the north-eastern face of the *Jebel el-Abyaz*, or "*White Mountain*," described in my first volume

* "*Marw*" (*Arabic and Persian*), according to the dictionary, is a species of hard white flint full of fire. The form "*marwat*" applies to a single piece; it is also the name of a hill in Meccah.

† All the Bedawin thus pronounce this name; but it may be a corruption. *Arnab* (ارناب) in *Arabic* is a hare or a long-tailed field-mouse; and these trivial terms are popularly applied to the largest natural forms. So *Camarones*, "the *Shrimp mountain*" of old, the "*Theon Ochema*," in *West Africa*.

(chap. viii.). Its distance from the port, with a most liberal allowance, would not exceed 14 stat. miles.

We stayed six days (December 24 to December 30, 1877), at the Jebel el-Abyaz, and water was a serious difficulty for a caravan numbering a hundred mouths, all included except the mules. None was procurable nearer than the great Fiumara Simákh; an hour and a half's march for camels. The gorge is called El-Asaybah (أثيبه)*; the rhumbs to it from camp were 120°, 90°, and 20°, with a short climb to 120° (all mag.). Under the circumstances the supply, merely rain-water, was so scarce that we could not wash our specimens before returning to Wady Sharmá. Flocks of sheep and goats suggested that there were pools or springs nearer camp; but if so the secret was well kept. At this season the Bedawin content themselves with "Themáil," temporary deposits formed by the showers; and, moreover, like the North American "Indians" of the Far West, they cunningly hide their treasure. The very children instinctively affect ignorance of water. The reader, however, must not confound with the true Bedawin these ignoble half-Fellahs, these "jumpers of walls" (*Nuttát el-hayt.*)

The scarcity of water, so common in mining regions, should present no difficulties at a distance of 14 miles from the sea. The poorer ores could be washed in situ by the *cribles continues à grilles filtrantes* (MM. Huet et Geyler), which uses the same fluid again and again (pp. 378-382 'Géologie Appliquée,' by M. Amédée Burat: Paris, Garnier, 1870); while the richer, that are worth transport, could be "tram'd" down to the sea.

The delay gave us time to correct the errors of our flying visit, and to collect the quantities of specimens required by H. H. the Viceroy. The Jebel el-Abyaz, a saddle-back with pommel and crupper disposed east-west, is 250 feet (not mètres), above our tents at the foot; the aneroid below, showed 29·10, and above, 28·85 (to 28·90), diff. 0·25. The vein of argentiferous, cupriferous, and titaniferous iron, forming a conspicuous black notch on the western side, does not bifurcate, as we supposed, in the interior; the fork which appears in the hinder part is of green porphyritic trap, heavy and also apparently metalliferous, when in contact with the granite. This *Grand Filon*, as we had called it, was analysed at Cairo by M. Gastinel-Bey; and the results per cent., were—

(Titaniferous) iron	86·50
Silica	10·10
Copper	3·40 (2½ per cent.)
And silver $\frac{1}{10000}$, that is from 10l. 10s. to 12l. per ton.	

* "Isábah," in Arabic, would mean filling a well or cistern.

The Jebel el-Abyaz, the type of the many detached formations scattered over the slopes between the sea and the Gháts (maritime mountains of Midian), is composed of coarse grey granite, everywhere cut by *filons* and *filets*, primary and secondary, of amorphous quartz, with a brilliant snow-white fracture, varying from a thread to many yards in thickness.

Standing upon the crest, which runs west-east and then bends southwards, you see five dykes or outcrops of dull-green porphyritic trap to the east and one to the west, cutting right through the hill from north to south; and showing upon their decayed crests concentric circles like ropy lava. The sandstones of the middle height are superficially revetted with iron; and about the base fragments of hard felspathic stone and lithographic calcaires are rich in dendrites.

The complication of the country is everywhere so great that each day brought its novelty; and months would be required to exhaust the study. As the subject is rather geological and mineralogical than geographical, I shall not attempt a detailed notice, but simply extract from my diary notices of the minerals observed at the "White Mountain."

Christmas Day.—Carbonate of manganese; quadrangular crystals of carbonate of lime; copper-ore from the hillocks to north and south-east of camp.

Dec. 26th.—Ahmed El-'Ukbi brought in fine specimens of iron-ore (hematite) from between the Jebel el-Abyaz and the Wady Gharr or Upper Wady Sharmá. M. Philipin also collected at the head of the Wady Simákh a heavy, coarse, black sand, partially crystalline with yellow-brown quartzose fragments. Our engineer vainly attempted to analyse the metallic residue. We afterwards found it in almost every Fiumara-mouth, between the coast-range and the sea; and running north as far as El-'Akabah, whilst, with few exceptions, all our washings of red earth, chloritic sand and bruised conglomerate, supplied this and nothing else. It is equally abundant, they say, in Africa, opposite Arabia. We could only suspect that it was the produce of the granites and syenites, especially the former. Colonel W. A. Ross (author of 'Pyrology') presently determined by the magnet and blowpipe that the mineral is iserine, or magnetic ilmenite (titaniferous ironsand), containing about 88 per cent. of iron (magnetic and sesquioxides), with 11 per cent. titanitic acid. Other assayers have suspected a trace of lead.

Dec. 27th was a day of discovery. We all mounted mule to inspect the site whence some specimens of pavonine quartz had come into camp. Following the Wady 'Efriya (عفريا)* round

* "I'riyah" means a lion's mane, a cock's hackles, or a bad violent man.

the north and east of the Jebel el-Abyaz, and leaving to the left the Jebelayn, or "twin-peaks" of grey quartz, which bear from the pivot 71° and 96° (mag.), we fell into the great Wady Simákh, that drains the gap or cut between "the Pinnacles" and "the Buttresses" of the Urnub Range. After riding some 2 miles to the south-east (123° - 129° mag.) we hit upon two wall-like fragments of dark, dusty, iridescent and metallic quartz, emerging from the plain, and bearing 324° from each other, that is north-south—an important point according to some miners—with 36° of westing. The dip was western, 15° - 20° . These are the conditions which, I believe, Australia loves, and which enabled Ballarat to make her fortune. The veins break out of the normal grey granite dyked by porphyry; and even superficial specimens show a fine coppery and pavonine lustre. Half a mile beyond it lie two other *filons*, the last bearing 307° from the Jebel el-Abyaz, 317° from the two wall-like fragments, and 224° from the Jebelayn (all mag.). These outcrops suggest that the whole plain is underlaid by quartzose dykes and veins. On our return to Sharmá, M. Marie took from one of the geodes a pinch of dust weighing about half a gramme (= $7\frac{3}{4}$ grains), and cupelled a bright pin's-head not less than two centigrammes. Incontinently pronounced to be silver, it might have been antimony or some similar base metal. On the other hand, the silver discovered in the *Grand Filon* by so careful an experimenter as Gastinel-Bey; and the fact that we are here on the same line of outcrop, and at a horizon at least 300 feet lower, are distinctly reassuring. These considerations induced me to call the vein *Filon Husayn*, after the Prince who had so greatly favoured the Expedition.

At this centre we had apparently hit upon the *Negros*, or quartzose formations in which silver appears as a sulphure; and in the geodes we had found the *Colorados*, or argillaceous deposits that produce the metal in the form of chlorure, bromure and iodure. Such is the distribution of silver in Mexico, according to M. Guillemin, C.E., in his *compte rendu* to the *Exposition* of 1867.* The former is everywhere found in Midian, but it would require shaft-sinking for several hundreds of feet. Here and there the accidental exposure of the veins at a plane far lower than our means and appliances could reach, showed the extent and quality of the outcrop. Below the iridescent rock I should expect to find virgin silver in the

* This is quoted (p. 229) by M. Amédée Burat (already noticed): the latter, however, places Mexico in *l'Amérique du Sud*. The volume is a useful vademecum, although old-fashioned, and even obsolete, in certain details. For instance, the "crust of the earth;" the great "central fire;" and the granites being the base upon which the strata were laid down; consequently, the earliest of all rocks, when in many places they are the most modern.

arborescent shape. Above its level, as on the summit of the *Jebel el-Abyaz* and generally in the "Marí" hills and hillocks of Midian, the quartz is comparatively barren, showing specks of copper, crystals of iron pyrites in little blocks, and dark dots of various metals that still await analysis.

Dec. 28th.—MM. Marie, Clarke, and Philipin rode on dromedaries 10 miles north to near the foot of the *Jebel Zahd*; the only ores brought back were iron and manganese.

I at once suspected and afterwards ascertained that the quartz of the *Jibál el-Bayzá*, the collective name of this outcrop, is not a local peculiarity, but that it everywhere bursts the maritime plain and the foothills of the Gháts or coast-range. And here we have a solid square of 12 (4×3) miles, where the quartz appears in hills and hillocks, whilst the plain is probably underlaid by veins and veinlets of the same metal. The "Marí" accompanied us to our farthest southern point, where we found undoubted proofs that the iridescent variety had been carefully worked by the old miners.

The health of the Expedition became seriously affected by tent-life; by the variations of temperature, ranging between 92° during daytime and 45° (F.) at night, 60° being often a piercing cold in the desert; by the excessive dryness of 800–900 feet above sea-level; and, perhaps, by the water charged with mineral matter. The officers who visited the *Wadys* at the foot of the main chain complained of being frozen when exposed to the wild gusts which poured down the gullies. As soon, therefore, as we had finished collecting specimens (1 m. 50×2 m. $\times 1$ m. = 4 tons) from the *Jebel el-Abyaz*, and the same quantity from the *Filon Husayn*, we left this fine mineral tract. We reached the mouth of the *Sharmá Valley* on December 30.

The Expedition remained at *Sharmá* during the week ending with January 7, 1878. Our work chiefly consisted of washing the black, red and yellow sands in a rough trough; camels were sent to bring down the metal from the *Jebel el-Abyaz*; and we made frequent excursions into the interior, everywhere finding *negro-quartz* and traces of copper, raw and worked.

On New Year's Day Lieut. Amir, with our guide *Shaykh Furayj* and some soldiers and quarrymen as escort, set out on dromedaries to survey the line of route abutting upon a mountain of "Marí" (quartz), of which we had heard at the *Jebel el-Abyaz*. The way ran to the south of the swamp that forms the *Sharmá "Báb,"* and the *Wady* proved to have four distinct names: *Sharmá*, near the sea; *Gharr* or *Ghurr*,* (*غر*) also

* "Gharr" here would mean either camel-tending, or where water sinks.

el-Daum from its "Theban palms," on the meridian of the White Mountain, and Urnub (of the hare?), where the pinnaled and buttressed ranges allow it passage; while the whole is called El-'Amr, after a sub-tribe of the Beni 'Ukbah, its former owners.* Higher still, the Fiumara becomes the Wady el-'Alas (علص), and under this name drains the hills below the western Hismá (حسبي): it is then a mere gorge

with *ronds-points*—wide bulgings in the bed.

Travelling 7 hours at the rate of 3 miles each, with a long leg in an eastern direction, Lieut. Amir and his men camped, about 4 P.M., in a Fiumara, the Sayl Wady Nakhlah. The upper bed is said to boast of palms, thorn-trees, and grass; the little party had water in barrels, but they were incommoded, despite a large fire, by the intense and bitter cold, while the boisterous wind blew down their tent. Five hours' march on the next day finished the mountain-pass; and, turning to the E.S.E., the path placed them at El-Jahd (of "struggling," of "overloading"), where stood their destination, the "Marú." This was a solitary long-oval, four or five times larger than the Jebel el-Abyaz; and of the same formation, as the specimens of quartz and grey granite showed. It had a broken outline, with four great steps or dykes which had apparently been worked. Here the inland parallel range was seen for the first time. The Bedawin as well as the citizens make a distinction between the Jibál el-Tihámah, the splendid range towering above the coast; and the Jibál el-Shafah (شفاه)† or Lip Mountains—not El-Shifáh (شفاء) of healing—which lie behind and east of them. In the valleys at the base, and spread over the land generally, was found a heavy yellow sand, calcareous and full of silex, which the people called "Awwal Hismá," or the beginning of the Hismá. This discovery prolongs the visible quartz formation to 22–25 direct miles south-east of the main outcrop.

Having cut their shoes in securing specimens, the party remounted; and, taking a line parallel to the former march, more southerly and more direct, they rode in two hours and a half to a Bughaz or ("gap") called El-Hallíkah,‡ the Huleika of Wallin's map. Here water was wanting, and all went supperless to roost. In the Wady Urnub the Ma'ázah, of the

* See chap. vi. of my vol. ii.

† Always so pronounced: in classical Arabic Shifáh (plur. Shifá'h) is a lip. Shifá is healing, and shifá'ah intercession.

‡ "Halik" may be derived from "Halk," the name of a medicinal tree, or from "Halk," the fauces, narrows. "Hulaykah" would be the dim. form.

clan Salmát, received the strangers with outward kindness, inwardly grumbling at their spying the land; and especially welcomed Shaykh Furayj, who, being a brave soldier, is also noted as a peace-maker. All the men were armed like, and wore the same dress as, the Huwaytát; also breeding camels and asses, they are not "Cow-Arabs."

About three hours (= 11 miles) from Sharmá camp the guide pointed out in the Wady Rátiyah some pyramids of sand: the Bedawin call them Goz el-hannán (meaning *butte*)* and declare that when the Hajj caravan passes, or rather used to pass that way before A.D. 1520, a Naubah or orchestra would sound loud within its bowels: the same is said of other places, especially of a stony butress near the glorious Shárr. The legend reminds us of the Jebel el-Nákús or Bell-Mountain in the Sinaitic peninsula; not to mention the roaring of the Irish Lia Fail ("Stone of Destiny"); the Reg-i-rowán of Afghanistan; and many similar phenomena. As the Arabs perform visitation and sacrifice lambs to the "Moaning-heap," the superstition probably dates from ancient and pagan times.† Ruins are reported to exist on the Jebel-Fás (of the hatchet), the southern boundary of the Urnub Valley; and I was told by some Arab, whose name has escaped me, of a dolmen, mounted upon three supports, lying farther south, on the Jebel el-Harb. Lieut. Amir also brought copper-ore from the Wady Urnub; and from the Ras Wady el-Mukhbir specimens of a metal which the Arabs declare serves them as kohl, stibium or collyrium. It proved to be not antimony but iron. The latter is everywhere abundant, despite the tradition of the classics;‡ even the carbonate of lime was found, here and elsewhere, infiltrated with carbonate of iron.

At Sharmá I resolved upon dividing the camp; and leaving there Lieut. Yusuf, MM. Duguid and Philipin, the dragoman and the waiter. The quarrymen and miners were charged with washing the several earths and sands, with hunting for specimens, and with transporting sundry tons of the black sand to the Sambúk stationed at the Musaybat Sharmá. This done, they were to rejoin us at the next pilgrim station, Magháir Shu'ayb.

January 7th, 1878.—A walk of 2 hours 40 minutes (= 7 miles) northwards, by the Hajj road, and mostly along the shores of the glorious bay,§ transferred us to well-remembered 'Aynúnah.

* "Kauz," here pronounced *goz*, is a round heap, hill or high tract of sand.

† See my vol. i. p. 182, for the heathen fane and its healing waters.

‡ Vol. i. p. 258, note †.

§ Burckhardt and Rüppell, in part followed by Beke ('Sinai in Arabia,' London: Trübner, 1878), write Aiyúnah, Aiune and Ayoun, all incorrect. The 'Sailing

In places the sea washed over slabs of the fine old conglomerates which, in this country, line the jaws and soles, the banks and sides, of all the greater Wadys: it is the Portuguese *Cascalho*, a pudding of pebbles, water-rolled stones of every size and kind, basalt alone excepted, compacted by a hard silicious paste, which is, in the Brazil, pounded for metal. In front extended far into the blue sea a long yellow point, Ras Jiyál or "circumambulation" (جِيَال), pronounced "Giyál," where we heard of palms and brackish water. It was afterwards visited by Lieut. Yusuf. We then turned to the right, crossed the dark-brown foot-hills of the old coast, and presently saw the grey-green palms, and the "gate" of 'Aynúnah, light yellow with coralline. The whole distance from El-Muwaylah to 'Aynúnah is covered by the Hajj-caravan at one heat in 12 hours: the pilgrims start about 2 P.M., and they reach the camping-ground early next morning.

Jan. 8th.—We gave one day to working and inspecting a vein, Jebel el-Fayrúz ("turquoise hill"), as the Arabs called it; of whose copper silicates, promising specimens were brought by a Bedawi, 'Ayd of the Tagaygát-Huwaytát clan. Ahmed Kaptán presently visited it, and found the site 3 miles from camp, and bearing 102° (mag.). He crossed the Umm Nirán Valley, the general recipient of Nullahs on this line, and made three legs, 1, to 135° (1 mile); 2, to 180° (½ mile); and 3, to 145° (1½ mile), ending at the site called Jebel el-Fara' ("of climbing"). This hill, bearing the chrysocolla,* is bounded southwards by the Wady el-Fara', and north by the Wadys Maríkhah† and Umm Nirán. It is an oval about 120 feet high, and 1920 yards in diameter from N.N.W. to S.S.E. I afterwards despatched Lieut. Yusuf to make a detailed survey of the spot; and other particulars will be given further on.

Jan. 9th.—We left 'Aynúnah at 6.45 A.M. by the Hajj route winding between the old sea-cliffs and the shore. After one hour (= 3 miles) we took a short cut, turning to the right up the

Wady el-Mukhassib (مُخَصَّب) ("the fruitful or rich"), whose few yards of "wa'r," or strong ground, render it unfit for the

Directions of the Red Sea' (p. 136), repeating Wellsted, gives the right details. Dr. Beke's sketch (p. 327) makes the tents far too prominent a feature, and does not preserve the characteristic forms of the mountains in the background.

* The chrysocolla of the ancients is, strictly speaking, a carbonate (not a silicate) of copper.

† "Markh," here generally pronounced *marákh*, is given in the dictionaries as a "kind of Arabian tree which emits fire when rubbed by another, called 'afár."

Takhtrawan ("litter") and heavily-laden animals. On the left stands the quarry-hill of the same name, and further north its "hamirah," or red attachment. Higher up, the gorge is of loose sand; the walls are grey granite and green porphyritic trap; and water must be near, as we found Arab tents at the head. We then issued into the open, and came upon the great caravan track, which, running in a general north direction, is distinctively marked by wavy parallel lines of white sand in the brown-black metal overlying it.

The view was now familiar. Fronting us the northern horizon disclosed the well-remembered forms of Tayyib Ism* ("good in name"), backed by the far grander Mazhafeh,† rising abrupt from the Gulf of 'Akabah, and both trending inland towards their highest points. This mountain apparently is the Jebel Suwekhd of Dr. Beke's map. To the north he places a Jebel Taurán, whose name was not heard; it belongs to the days of Robinson, and the cañon-like gulch identifies it with the Jebel Tayyib Ism of the Arabs.‡ On our right swelled the unpicturesque metalliferous heap of chocolate-coloured Jebel Zahd ("of devotion"), whose "nick," or *Brèche de Roland*, seems to show from every angle. Behind it, the second distance consists of some pale-blue forms, the Jebel el-Lauz (Almond Mountain), evidently the "Tayyibat Ism" of the Admiralty Chart: it is said to take its name from the trees growing, we were told, high up in the clefts and valleys;§ they are probably bitter, like those which flourish in Moab and at St. Catherine's, Sinai. Between the Lauz and the Jebel Muniah ("the exalted"), its northern pro-

longation, is the Sha'ab Hurub (حَرْب), where the clan Amírat (sing. Amír) camps and finds water some 2 hours' march from the road. The regular cone, El Maklá (مقلأ), ends the prospect to the north-east—I could not find the meaning of the word.|| To the west, marked by the chaos of mountains composing Sinai, rose the azure middle knob of three-headed

* "Tayyibat Ism" in my first volume was a mistake: purists, like our friend Shaykh Furayj, avoid it. There is a Nakb-Tayyibat el-Ism farther south, and in the Buhayrah province of Egypt is a hill (and village?) entitled Tayyibat el-Ism, from its excellent air.

† Probably so-called because it "yazhaf" (يَزْحَف), i.e. advances gradually upon the sea.

‡ See vol. i. p. 329.

§ Concerning these almonds, see 'Notes on a Collection of Plants transmitted by Lieut. J. R. Wellsted.' By John Lindley, Esq., F.R.S., &c. Appendix, vol. ii., Wellsted's 'Travels in Arabia.'

|| Makli (مقلأ) signifies the *rouget*, *barbone*, or red mullet.

Tirán Island; the broken crests of the "Red Hills" behind Makná, and the dark peaks of the Kalb (قلب) el-Nakhlah: the two latter look like reefs or islands of black and purple hue swimming in a sea of greenish-yellow secondaries, carbonates and sulphates of lime, gypsum and coralline.

Passing El-Suwayr ("the little wall"), a flat where camp the Maghrabi pilgrims, we entered the Wady el-Marákh, one of the many of that name, derived from a plant loved by camels. This watercourse is an old friend that drains the seaward face of El-Zahd, or 'Aynúnah Mountain, and which joins the Fiumara of Magháir Shu'ayb. The mules' hoofs, piercing the superficial sand, showed bright red earth, which is supposed to come from the Hismá. We saw on the left a knot of low ruddy hills, the Turáb el-'Usaylah (عصيلة)*. It is so-called from a *ghadír*, "hollow," where the sinking of water produces a bald spot, circled by shrubby trees, subcutaneous and metal-green, eaten by camels but rejected by our mules. Here, again, where muddy patches curb the ground, the pump would have done good service. For this half-march of 4 hours (= 11 stat. miles) we carried water, and as there was no drink, so there was no game.

Jan. 10th.—At 6.45 A.M. we attacked the last and longer part of the second Hajj stage from El-Muwaylah. Crossing the Wady El-Koz after 1 h. 15. m. (= 3¼ miles), we passed on the left a low, chocolate-coloured block, Umm Rujaym ("mother of the little stone-heap"), which is the true half-way station. Our Arabs, bent upon converting a two days' march into three days' work, punished us by grazing their camels on the road, and by not arriving till the evening. As before, there was no game till we approached the springs, but a clump of large tamarisks and aráks (*Capparis spinosa*) on the right, and a huge samur acacia (*Inga unguis*, Forsk.) on the left, looked well capable of sheltering it. We now began clearly to see our destination, palms and tufty trees at the mouth of a masked Wady running between a background of reddish-brown rock, the foot-hills and sub-ranges of the grand block El-Zánah (ضانه, "of the camel's nosebag") to the north, and a foreground of pale-yellow, barren gypsum, apparently tongue-shaped. Above the latter towered two quoins of ruddy material, "El-Shigdayn" † (شجدوين), which others called "Umm Jarfayn."

* 'Asal in the dictionaries is explained as a tree which purges camels, the rhododaphne (laurel rose, oleander). Forskál ('Flora Ægypto-Arab.,' pp. cxiv. and 110) applies it to the *Ocimum serpyllifolium*.

† The singular appears to be Shigd, synonymous with "Shikk" (شق fissure.

After an hour's halt in a cool breeze under a thorny tree, we passed the Ghadí, or basin, El-Nukrah (نقرة), "the hollow"). Resembling that of El-'Usaylah, it is one of the round sinks so common in Arabia, with a bright green growth of grass and shrubs springing from a soil superficially red. Thence, leaving on the left the Umm Gafá (قفا), the "Mother of the Neck-nape"),* a tall cliff of dull brown, with a white gypseous scar upon the cheek, we fell into the Wady 'Afál ("of the rupture"?). This is the Fiumara of Magháir Shu'ayb, which rolls a torrent once in every ten years or so to the sea between Ras Jiyál and 'Aynúnah Bay. At the mouth is the M'inat El-'Ay'ánát (عيانات, "of the look-out"). This little port for "Sambúks," was afterwards surveyed by Lieut. Yusuf. We hit it at a bend some 220 yards wide, called Aríz (عرض) el-Sidrah, or "Broad of the Jujube," from one of the splendid secular trees which characterise this part of Midian.

Here we found both banks of the Fiumara lined with courses of rough stone, mostly rounded boulders. These are evidently the ruins of the water conduits which served to feed the rich growth of the lower valley. Then the vegetation of the gorge-mouth developed itself to date-trees and daums, tamarisks, and salsolaceæ, especially the 'Abal-bush, out of which scuttled a troop of startled gazelles. We turned the right-hand jamb of the "gate," and found ourselves at the water and camping-ground of Magháir Shu'ayb. The march had occupied 6 hours, whilst the caravan took $8\frac{1}{2}$, and we set down the distance at 18 miles (stat.) or 29 from 'Aynúnah.

The ancient Ptolemeian city of *Μαδίαρα* belongs rather to the domain of architecture and archæology than of geography; and I have elsewhere published a full description of the ruins.† It is described by Ruppell (Dr. Eduard) '*Reisen in Nubien,*' &c., Frankfurt am Main, 1829. He gives it, however, only a couple of pages (pp. 219, 387), and an illustration of two catacomb façades (p. 220). The true latitude would be $28^{\circ} 28'$, and thus the old Alexandrian geographer is not far wrong with his $28^{\circ} 15'$. As regards the name Magháir, "caves," i.e. catacombs of Shu'ayb, i.e. Jethro; it must not be put in the singular

crevice, also the most prominent part of a mountain); the dual would be "Shik-kayn," but the Bedawin convert it to Shigdawayn. Such, at least, is the only explanation which I could obtain. Umm Jarfayn would mean "mother of the two ledges."

* A name given to hills and mountains with long sloping backs.

† Vol. ii. chap. iii.

"Maghârat;"* nor is there any cave in which that holy man who, Bedawi-like, had his beat between Makná and this place, was wont to pray. The catacombs are also called in local dialect *Bibán*, or "doors." Wellsted ('Arabia,' vol. ii. p. 123) had not visited the place when he wrote "at Mahárehi Sho'aib, and at Beden, the former estimated at $5\frac{1}{2}$, the latter $7\frac{1}{2}$ hours' journey (from Makná), there are other ruins." *Beden* (an "ibex") is an error originally made by Ruppell for Bad'a, an "innovation," a "novelty," because a Maghrabi pilgrim here dug a new well.

Wady el-Bad'a (بدع) is the name of the short section of the

Wady 'Afál occupied by the palm-groves. The Jihan-numá (p. 541) of Háji Khalifah, *alias* Kátib Chelebi, who died in A.H. 1068 = A.D. 1658, thus notices it: "Maghâir Shu'ayb.† There is sweet water in its pits, a palm-grove, and many athl (tamarisks) and mukt, or daum-trees, like those that grow near the River Nile. There are here also inscribed tablets (*Kawwat* = *tákah*) on which the names of kings are engraved."‡

The ruins of Madiáma may be divided into four main blocks, two on each side of the Fiumara. Uppermost, on the left bank, appears to be a fortified *hauteville* on the Jebel el-Safá,§ a double quoin of coralline and gypsum striking to the north. Before the western flank was broken down by time, the buildings, as in the Syrian town of Safet, ran up the slope, forming steps, descended the now precipitous eastern flank, and covered the gorge between the "Yellow Hill" and its neighbour. Foundations of houses run along the low level of the left bank for about $\frac{2}{3}$ of a mile; a number of yawning graves are sunk in the gypsum, and the remains include furnaces and a smelting place. The only sign of standing buildings—all the rest being mere basements—are a Moslem fort, two large *Sákiyahs* (or "draw wells"), a conduit of coarse grit, and a fine *Hauz* ("cistern") of cut sandstone. The group is called Bir el-Sa'idáni, from its builder; and the tradition of the Arabs, here very much at fault, declares this to be the old original settlement, before the "innovating" spring was discovered by the Maghrabi magician.

On the right "Jarf," or raised bank of the valley, are the foundations of a large town, built mostly of gypsum, which has turned snow-white with age. Hence scattered ruin-heaps run

* This mistake has been made throughout my first volume, and it is copied in Dr. Beke's 'Sinai in Arabia.'

† See 'Haji Khalifah's Route of the Pilgrims,' at the end of this paper.

‡ Only three of the catacombs bore inscriptions, which appeared to be Nabat (Nabathæan): squeezes were made from both.

§ This is the general native name for the light yellow coralline and gypsum; opposed to the Hamrá or Hamírah, the red porphyries, syenites and traps.

some 2 miles down stream. They are isolated by the lateral torrents which, no longer under man's control, sweep down to the main Wady 'Afál. In the hollows formed by the vagaries of the bed antiquities are sometimes picked up; stone weapons, coins of gold, silver and copper, bits of metal, steatite pots, mortars, grinding stones, glass and pottery, beads and similar articles. The three lateral gullies which fall into the right bank contain the catacombs that have given the place its modern name—they were first visited by Rüppell (1822). The "Tombs of the Kings" * are in No. III. valley; above it is the cliff-top called the "Praying-place of Shu'ayb." Here the aneroid (corrected) stood at 28·94, while it was 29·40 below, (diff. 0·460). Yubú' island bore 173° and Shu'shú' 196° 30', while the camping ground lay at 45° 30' (all magnetic). In a fourth gully, somewhat further down, are specimens of inferior art in a ruinous state.

III. *From Magháir Shu'ayb to Makná.*—During our fortnight's halt at Magháir Shu'ayb we failed to make arrangements for visiting the Hismá; but reconnaissances were pushed to the neighbouring mountains. On January 17, the Egyptian Staff-officers rode up the Wady 'Afál and, within a distance of 3 miles, they found two mining establishments. The broken white quartz, scattered round the furnace, argued that the rock could not be far distant. On Monday, January 21, M. Marie and Lieutenant Amir set out to explore a "White Mountain" of which I had heard chance reports. Leaving the Wady 'Afál to the right or east, they skirted to the left, after 1 mile, the Jebel el-Saírá, or (northern) "gypsum mountain," which bisects the bed of the Wady Makná; and for 2 miles they struck northwards with 5° of westing (mag.) up the Wady el-Khárik (خریق), † whose bed had already begun to bear grass. The route then ascended the Wady Sabil ("of the path"), a Fiumara about one-third of a mile broad, bounded by low hills: after a total of 3 miles large rocks appeared on the left bank; the Samur thorn became common, and the herbaceous growth more luxuriant. After half a mile riding to 345° (mag.) they changed rhumb to 5° west (mag.), where small hills again bounded the Wady. Presently (1½ mile) the Wady Umm 'Arkúb ‡ (عرقوب)

* The name is our own. For a description of them see 'The Land of Midian (Revisited),' vol. i. chap. iii.

† "Kharik" in Arabic is a word of many meanings—"level ground growing vegetation;" a "cold wind," a "shallow canal amongst trees," and "the extremity of a valley opening out."

‡ A narrow mountain-pass, or a track winding through a valley. The classical form is "Urkub," and its general meaning is the Tendon Achilles.

fell in from the east; and opposite to it, or westward, the Wady Sabil forked. Another mile and a third ended the latter; and the travellers attacked the divide over the Jibál el-Sabil. Crossing a small watercourse trending east-west, they entered a plain bounded by the Jibál el-Kuraybeh (كريبه), "of ploughed land";* and, after $\frac{1}{4}$ a mile bending west (mag.), they entered an ugly Nakb or rocky pass, running, with many angles and zigzags, due north for about a $1\frac{1}{4}$ mile. On this line there is no other road; camels can manage it only with half-loads; and even mules found it difficult. The gut abutted upon the Wady Murákh (or Marákh); this Nullah runs from north-east to south-west, and falls into the 'Akabah Gulf near the well-known mountain, Tayyib Ism. The line is easier; and, when the White Mountain comes to be worked from Makná, there will be fewer difficulties of transport. After $\frac{1}{4}$ of a mile the direction changed to north-east (60° mag.); and after another mile, making a total of 9 miles (3 hours) in a general northern direction, they came upon the wished-for "Mount Marú." It was backed by the tall, dark and dome-shaped Jebel Zánah (ضانه) the "Dhana" which, together with the "Djebel Hesma," were seen by Burckhardt as he travelled down the Wady 'Arabah en route to Suez. Nearly visible from Magháir Shu'ayb, this remarkable block appeared to me the tallest that we had yet seen: with its eastern prolongation the Lauz, it is probably the "Tayyibat Ism" of the Admiralty Chart. About 10° (mag.) west, near the Sharaf Taur † el-Hismá (the height of the inaccessible side of the Hismá), stood the Jebel el-Muk. Thus they had crossed three several ranges; the Sabil, the Kuraybah and the Murákh, all outliers of the great Zánah.

The Wadys—*fluvii pluvii geniti*—already waxing green, supplied a quantity of trees, shrubs, and plants. Two are not eaten by camels:—

1. El-Rayil (ريل) or Rayl (*Ærua Javanica*).
2. El-Mashtah (مشطه), the "Comb" (*Cleome chrysantha*), whose juice is applied to snake-bites.

The 18 chief kinds, mostly perennials, and all used as fodder, are:—

* Others called it Kabaydah (of the "little liver").

† This word (ثور) is generally known in the sense indicated. The root would be Tára = "it became raised or spread."

1. El-Lussák (لصاق) or *Caidbeja adhærens* (*Forskalia tenacissima*, Linn.); not to be confounded with El-Lusaf (لصف), the only plant (*Capparis spinosa*) whose fleshy leaves in bright-green tufts veil the bald and ghastly gypsum. I brought home specimens of its gourd-like fruit and its fat foliage.
2. Abu (or El-)Zafrah (ظفرة); in the dictionaries it is explained as a "biting plant, good for warts and ulcers." Here it is *Iphiaea scabra*.
3. El-'Aushaz (عوشز), properly written 'Ausaj (*Lycium Europæum*).
4. El-Natash.
5. El-Sill (صل); in the dictionaries the "name of a herb."
6. El-Zanabán (*Reseda canescens*).
7. El-Girzi (جرز); the "Gurdhi shrub—a Resedacea (*Ochradenus bacchalis*)" of Schweinfurth(?) and the 'Athenæum,' July 6, 1878.
8. El-Bayáz (بياض).
9. El-Shauk (رشوق), a generic term for thistles, applied especially to the Shauk el-Jemel or camel-thorn (*Blepharis edulis*, the *Echinops sphærocephalus* of Forsk.).
10. El-Siyál; the well-known *Acacia Siyal*.
11. El-Shauhat (شوحط), "a tree whence bows are made," often mistaken by us for the 'Arák (*Capparis*).
12. El-Yesár or *Yesur* (*Moringa aptera*), a tree resembling the athl or tamarisk.
13. El-Warák.
14. El-Zaytah (زيتة), a *Lavandula*, with pretty blue flower, giving no sign of oil (*Zayt*).
15. Rabul (ربل),* *Pulicaria undulata*, a chrysanthemum with a yellow flower, much relished by camels both in Egypt and in Midian. I carried back four bottles full, two preserved in oil, with the hope of bringing out an "Essence of Midian."
16. El-Sakrán (سكران), or Saykrán (سيكران), said to in-

* Forskål's 'Flora Ægypto-Arab,' p. lxxiv., gives Rabad ريد = *Buphthalmum graveolens*.

toxicate those who eat it; the *Hyoscyamus pusillus* of L. I could not see the flower. In Egypt the word is applied to the *Physalis somnifera*; in Arabia to the *Hyoscyamus datura*. The word is identical with the *Sekkeran* (a kind of mallow), noted by Professor Palmer in the 'Sinaitic Peninsula' (vol. i. p. 23): this certainly would have nothing intoxicating in it save the name.

17. El-Kaysániyyeh (قيصانيم), used by women as a yellow dye for woollen stuffs; and

18. El-Kallúm (قلوم), a prime favourite with camels.

The "White Mountain" under Zánah, rising about 1000 feet above S. L., and 100 over its surrounding valleys, commands a fine view of the sea as far as 'Aynúnah. It is a long oval with the major axis disposed to 135° (mag.): the circumference may be 400 feet, and the regularity of its contour is broken to the south. The surrounding heights and Wadys, often glittering with mica, contain smaller veins: the travellers brought home specimens of orthose adhering to quartz and mica, flashing in the sun, from the eastern side of the White Mountain. The quartz was sparkling and snowy, like that about Sharmá; the country, however, supplies all kinds of varieties, waxy, amorphous, crystalline, opaque and hyaline, amethystine, smoky and ribbed (*petrosilex*); heat-altered and chalky, pink, yellow, and slate-coloured; one piece showed a curious transition from the opaque to the transparent "rock crystal," easily mistaken for glass. The engineer thought that this time he had struck gold; and a speck was the result of using mercury. But I was haunted with fear and dread of the pyrites, or "crow gold," which has played so many notable tricks on travellers; and, after a few days, the tarnishing of the speck justified my suspicions.

At Magháir Shu'ayb the camp had been much exercised by Bedawin reports of the wonders found in the lands to the north and the north-east. On January 24 I ordered a Tayyárah, or flying-caravan of dromedaries, guided by 'Brahim bin Makkúl, the Amráni-Huwaytát, who had come into camp with his brother Khizr, chief Shaykh of the clan. Mr. Clarke and the two Staff-lieutenants were directed to ride to El-Rijm (the "stone-heap"), the next station of the pilgrim-caravan; and to bring back sketches of a Hajar Masdúd* (a "stone set in another") from the Wady Zaráfah (خرافة), and of a tablet adorned with a dragon and other animals. Starting at 7.45 A.M., they rode up

* Literally, "shut, corked, plugged."

the Wady 'Afál, passing, after 3 miles, the furnace and the two sets of ruins before mentioned, and covering a total of 6 miles in 1 hour 45 minutes. This was not fast work; the Bedawin object to pushing their dromedaries beyond $3\frac{1}{2}$ —4 miles a day during the starving season; and they are right: I have seen many falls, the result of mere weakness after trotting a few yards. Red conglomerate appeared on both sides of the bed. The travellers passed the Wady el-Tawileh ("Long Vale") on the right hand; and at 9.30 A.M. they came upon the ruins of a boulder-built *atelier*, with what appeared to be a *Burj* ("tower"), and a *Fishúyyah* ("tank") called "Igár Muás" (عجّار موالس).

After the delay necessary for sketching and surveying, the party remounted, and rode up the Wady, bending from north-east to north: at 10.50 A.M. they reached the mouth of the Wady Kahl, where the aneroid showed an altitude of 1200 feet (28.80). They had now made $10\frac{2}{3}$ miles (Mr. Clarke boldly said 12) in 3 hours, halts not included; and they were unpleasantly surprised when asked "why they had not brought their tents?" It was then explained to them that they were still one hour short of the half-way point to El-Rijm; whilst the dragon inscription could not be reached under a whole day. Totally unprepared for a wintry night in the open at such an altitude, they returned *re infectá*; Khizr and 'Brahim incontinently disappeared, and we desisted from reconnaissances to the north of Magháir Shu'ayb.

Jan. 25th.—At 7 A.M. we left Magháir Shu'ayb and took the road to Makná, along the fine valley of that name. At 7.45 A.M. the mule-riders crossed the low stony divide separating the Wady 'Afál from the Wady Makná;* of old called Wady "Madyan." The valley, here very well defined, winds left or west of the well-known ridge Umm Kafá el-Samrá. "Brown" as the name denotes, is a lump of chocolate-coloured carbonate of lime, the weather-gashes disclosing upper white strata (gypsum); and below them, red rock, probably grit upthrust by the plutonic formations. In this region El-Safrá is the generic name of the yellow formations (coralline and gypsum); El-Hamrá, Hamfrah or Humayrah of detached ruddy hills, and El-Ash'hab (femin. Shuhbá — سهبا), of the grey or ash-

* The word (مغنا) meaning a place where the sun shines not, ends with an Alif, and was adopted from the Arabic by Ptolemy. It was first written with an Ayn by the learned Burckhardt, who seldom makes such mistakes. The hard Káf (ق) pronounced with a "g" (in gorge) by the Arabs, accounts for the popular form "Mugna;" and, worse still, "Mugnah" as on the Admiralty Chart.

coloured as granite. On the right bank we saw the gape of the important Wady Sukkeh. At 10.10 A.M., after 3 hours = 8 miles, we halted for rest under a bay or hollow in the cliff-wall called El-Humayrah (حمير), where the strata of pebbles reminded me of those which in Brazil accompany the diamond.

Resuming our route at noon we entered a sensational gorge: its tall walls, lamp-black and blood-red, are called the 'Abdayn, or two slaves. After one hour and a half we issued from the gully and recognised the coast features. On our right (north) was the gypsum mound Raghámat-el-Margas, forming the staple of the gate; whilst to the south was the Rughaymah (or "little gypsum-hill") amongst the Jibál el-Hamrá.* At 2 P.M. we turned to the right of the Wady, whose broad bed is made impracticable, near its "gate," by rocks and palm-forest. Here we inspected the Musallat Músá (oratory of Moses), and at 2.30 P.M., after a spell of 2 h. 30 m. = 7 miles, we sighted

"The shifting waste of dim-blue brine
And fading olive hyaline."

The camp was pitched upon our old ground. The total of this march had been 5 h. 30 m. = 17½ miles. I have described it at full length in Chapter V. 'The Land of Midian (Re-visited)'; and the western section between the sea and the "Red Hills" in 'The Gold Mines of Midian.' †

The stations on our northern line of march were:—

1. El-Muwaylah to Wady Tiryam ..	5 hours. =	15½ miles.
2. To Sharmá	4 " "	13 "
3. " the Jebel el-Abyaz	4 " "	12 "
4. " Sharmá (return)	4 " "	12 "
5. " 'Aynúnah	2 h. 40 m.,	7 "
6. " El-Usaylah	4 " "	11 "
7. " Magháir Shu'ayb	6 " "	18 "
8. " Makná	5 h. 30 m.,	17½ "

Total 35 hours .. 106 ..

Thus the average rate of progress would be 3 miles an hour, halts not included.

At Makná we were pleased to meet the gunboat *Mukhbir* and the *Sambúk*, carrying our stores and rations for the men and mules. I found the place charming, and stayed there a week (January 25th—February 2nd) to explore its mineral

* See vol. i. p. 349.

† In this vol. i. p. 335, I made the distance "seven hours by dromedary or ten by camel = 25 miles."

wealth, by far the most important we had yet seen. It is the very place for a mining settlement: with plenty of wood, and water sufficient for washing ores as well as for cultivation; with regular winds blowing strongly from north and south; a rise of the tide about five feet high—this force could easily be applied to boats as on the Danube and the Adige—and a port open only to the west. The harbour, also described in my first volume, has two natural piers partly worked by the ancients: protected by hills in front and behind, it is safe from the northern and southern gales; and it would easily be defended against the rare but dangerous Gharbís (westers).

The delay again enabled us to correct the errors of our flying survey, and to make a careful reconnaissance of the neighbourhood. For the first time I heard the term *Jebel el-Fahísát** applied to the dwarf metalliferous range subtending the shore: it had been miscalled in vol. i. I was also puzzled by the presence of porous basalt which had supplied the first Expedition with a veinlet of natural "electron"^b—gold and silver mixed. Completely wanting in the Wady Makná, it appears in scatters along the shore to the north. Our guide, Shaykh Furayj, knew nothing nearer than the Harrah or volcanic tract bounding the Hismá on the east. This was going too far, at least five days' journey; and broken querns† were found in the *haute ville* of Makná. Moreover during last spring I had heard of mining ruins in the mountain Tayyib Ism.

Accordingly, on January 27th, Lieut. Amir was despatched northwards with a small dromedary-caravan under Shaykh Furayj. He wound along the shore where the weathered corallines, grits, and limestones, form the quaintest features, giant pines and mushrooms, columns and ruined castles. After an hour's ride he crossed the Wady Halífah (حليفة); the tall and well-defined banks of this broad valley, which drains the northern flank of the Raghámat Makná, are of sandstone-grit, imbedding a whole geological museum. The line is said to supply brackish water‡; none was seen, but there are date-trees in the sole, whilst others cling to the steep banks.‡ About one mile beyond it is the Wady el-Duwaymah ("of the little Daum-tree"), with a clump of the *Crucifera Thebaica* close

* The root appears to be "fahís"—belly, tripe, pouch.

† Only one shape was found; the "pot-quern" of the British Isles is apparently unknown in Midian.

‡ After this point all the information is borrowed from Lieut. Amir's sketches and route-book: of course I am not answerable for their correctness. We had intended to land at El-Hakl and to inspect the line, but the heavy weather in the Gulf of 'Akabah interposed its veto.

to the sea. Another mile and a third led to the Wady Abi Nakhlah, owning a single burnt or blasted date-tree, and a little beyond it the coast bends from 25° to 30° (both mag.). The fourth "Nullah," Wady Kasarah (قصارة "being short"), distant about a mile, shows in two places ranges of stones which bear the semblance of ruins. On the right or east rose the light-coloured Jebel Sukk, which is seen from the heights above Makná; and on the southern bank of the Wady Sukk ("the closed road"), which drains it to the sea, appeared a hill of porous basalt, here called by the Arabs Hajar el-Harrah. The specimens brought home, if they be *bonâ fide*, prove that volcanic outbreaks, detached, sporadic, and unexpected, occur in Midian, as in the limestones of Syria and Palestine, even near the shore. It would be interesting to ascertain their connection with the great volcanic lines in the interior, the Haurán and the Harrah.

Crossing the Wady Sukk, the travellers had on the right hand the Jebel Tayyib Ism. From our camp this chocolate-coloured mass, studded with small peaks, appears a southern outlier of the great blue wall El-Mazhafeh, bounding the northern horizon. For a short distance a bad, rough path leads along the "Good Name"—no one can explain the cause of its being so-called—and then the cliffs fall sheer into the sea, explaining why the caravans never travel that way. Thus compelled, the track bends inland to 65° (mag.) and enters a Nakb or pass, a gash conspicuous from the gulf, an immense *cañon* or *couloir*, looking as if emptied of its dyke or vein. Curious to say, its south-western prolongation cuts the cliffs near Marsá Dahab in the so-called Sinaitic peninsula. The southern mouth bears signs of habitation: a parallelogram of stones, 120 paces by 91, has been partially buried by a landslip; and there are remnants of a dam measuring over a hundred yards in length. About 300 yards higher up, water appears in abundance; and 25 to 30 palms grow on both sides. Here, however, is not a trace of man; the winter-torrents must be dangerous; and there is hardly any grass for sheep. The gorge now becomes very wild; the pass narrows from 50 paces to 10, and in one place a loaded camel could hardly squeeze through; whilst the cliff-walls of red and grey granite (?) tower some 2000 feet above the path. The same altitude is given by Dr. Beke (p. 533); but he did not remark the prolongation of the *couloir* in the eastern rim of the Sinaitic peninsula. Water, which as usual sinks in the sand, is abundant enough in three other spots to supply a large caravan; and two more date-clumps

were passed—hence, if all here told be true, the “Nakhil Tayyib Ism” reported to me last spring.*

The total ride occupied 5 hours (= 16 miles). Still the tall blue range peaking to the east, and throwing out a long western slope to the sea, was far off. The caravan had not covered more than half the distance to the Bir el-Máshi, where a small Marsá, or anchorage-ground, called El-Suwayhil (سويحل),

the “Little Shore,” opens to the north of the Mazhafeh block. From this “Well of the Walker” a pass leads to the Wady Marshá: in it we had been told of extensive ruins and *Bibán* (“doors” or catacombs), but the whole was invention. Our Sayyid had ridden through it *en route* from Magháir Shu’ayb to El-Hakl, and found nothing.

The second excursion took place on Monday, Jan. 28. The son of one of the guides, Gabr “Kázi of the Arabs,” had brought in fine specimens of quartz from the eastern hills, and offered himself as a guide. At 7.15 Mr. Clarke and Lieut. Yusuf set out to collect exact details of the find. They walked up the Wady Makná, hauling their mules after them; here the low-level fountain ‘Ayn el-Fara’i† breaks out from both banks, unites in a single stream, flowing under the tall right side of carbonate of lime, now bare, then capped by conglomerate, forms deep pools among huge boulders of grey granite, and finally sinks before reaching the shore. Higher up the side is a second water, ‘Ayn el-Iánah (عيا نه “of spying”), springing from the sands under the date-trees that line the right and left flanks. Apparently it is the drainage of a gypsum “hat” called El-Kulayb (كليب); and, above the “little dog,” the right bank is occupied by a “Goz,” or inclined sheet of pure, loose, and rippled sand. Opposite these two features the left bank of the Wady Makná receives the “torrent of the Quartz Mountains,” concerning which more will be said; and higher up, the huge watercourse known as Wady el-Kharaj ‡ (*alií* Akhraj), threads the gypsum cliffs. It rises in the south near Umm Giyál, and drains the *Khabt* or *Khabat* (خبث) lands, meaning a low place or plain where trees are beaten for camel-fodder.

Leaving the Wady el-Kharaj to the right, and still striking up the Wady Makná, the travellers, marching towards the “Red

* Vol. i. chap. xii. † Fara’í would mean “derivative” or “descending.”

‡ Meaning “a mixture of black and white.”

Hills," reached the Wady Mab'úg (oblique or crooked valley) mentioned in my first volume.* This large feature, draining a mountain of the same name, is said to supply bitter water. A bottleful had been brought to us with much ceremony, and those who tasted it were uncertain whether the flavour was sulphureous or ammoniacal. Wishing to have some report about it, I had directed the explorers to ride up the sandy bed till they found the spring. Presently, leaving their mules, they turned off sharp to the right, descended a steep incline, and suddenly entered a chasm in the rocks which here rise about 200 feet high. After a total of two hours' walk and ride, they came upon a pool of rain-water, some 4 to 5 inches deep; it was evidently visited by many animals, camels included, and hence its peculiar flavour.

They then retraced their steps, crossed the Wady Mab'úg, and going north came upon the "Marú." This network of quartz-veins in sandstone grit (?) was found in the Jibal Umm Lasaf. The block lies behind or east of the Jibal el-Hamrá, the Red Hills to which the first expedition had been attracted by the two pale leprous patches, the *Rughaymeh*, or smaller gypseous formations.† No. 2 excursion was interesting: it proved that the "white stone" is found to the east as well as the south of Makná.

A Bedawi named Jázi had brought us fine specimens of brimstone, pure crystals adhering to the gypsum, and possibly formed by decomposition of the sulphate of lime. If this be the case we may expect to find the mineral generally diffused throughout the Secondary formation. Naturally it will be richer in some places and in others poorer. Further investigation in Midian introduced us to two other deposits; making a total of three, without including one heard of in Northern Sinai, and thus rivalling, if not excelling, the riches of the opposite African shore. I need hardly dwell upon the importance of a brimstone much resembling that of Sicily: its price seems steadily to rise, and it is held to be worth importing from distant Iceland. Strange to say, the Bedawin of Midian buy their sulphur from the "Barr el-'Ajam" (Egypt), and thus the diggings will be found virgin.

On our first visit, we had heard of a *Jebel el-Kibrít* ("sulphur hill") on the road from Makná to 'Aynúnah, but there was no one to show the place. This time I was more fortunate. On the morning of Jan. 26th a caravan of four camels, for the two quarrymen and the guide, set off with their sacks and tools. They did not return till the morning of the third day, having

* P. 351.

† Vol. i. p. 349.

lost the road. Of course they could not ascertain the extent of the sulphur deposit, but they brought back rich specimens, which determined me to have the place surveyed. This gave abundant trouble, as will appear in due time; the second attempt was a dead failure, and it was not till February 18th that I could obtain a satisfactory plan of the place.

Meanwhile we were working hard at the discovery of the northern march. A full account of our ludicrous disappointment has been given in the 'Land of Midian (Revisited).' Suffice it here to say that a quartz vein emerging from and in close contact with the green and red porphyritic traps and plutonic outcrops of the Jebel el-Fahisát (فاحيسات) yielded to the rudest cupellation some 28 per cent. of metal, which proved, however, to be iron not silver. But the block contains other ores; and it is in the most favourable condition for working: water and wood abound; the winds and tides are regular enough for mills, the distance of the quartz crest is hardly two miles from the little port, and a *luft-bahn*, or air-tramway, would discharge the ore into the ship's hold. In my first volume (chap. xii.) I have incorrectly called the "Jebel el-Fahisát," confounding it with a small red hill to the north of our camp, *El-Muzaydni*, and this also is an error for *El-Muzéudi* (المزويدي). The former, a long dark block running parallel

with the shore, is flanked to the east by the Secondary formations, the Jebel el-Kharaj and others; beyond them, however, lies the similar plutonic formation, the Kalb el-Naklah; and, still farther east, another rises—the great maritime wall of the Jibál el-Tihámah. The Fahisát seems to abound in all manner of metals. The quartz form pushes northward veins distinctly cupriferous, imbedded in grey granite. To the east of the block, distant about a mile, appeared fine micaceous iron, and more green quartz, of which a third deposit was found within a mile farther south. On the day before we left Makná (February 2), the Arabs brought in heavy masses of purple-black metalliferous rock scattered over the southern gorges and valleys, while others declared that they could point out a vein *in situ*. Finally, red marks in the stones suggested cinnabar.

Jan. 28th.—At 11 P.M. set in a furious norther, locally called El-Ayli (ايلى), the 'Akabah-Aylah wind; whose effects have been well described in Wellsted's second volume. The storm began with a rush and a roar; the gravel striking

the canvas sounded like heavy rain-drops, and it instantly levelled the two large tents. This gale makes the air exceptionally cold and raw before dawn; it appears to abate between noon and sunset; it either increases or lessens in turbulence with moonrise, and it usually lasts from three to seven days. The gunboat *Mukhbir* got up steam by way of precaution; but she rode out the storm in safety, as the northern reef and the headland Ras el-Tarah (the "surrounder") form a complete defence against "El-Ayli," whilst the natural pier to the south would have protected her from the Azyab.*

It would have been far different had the storm veered to the west and the terrible Gharbi set in. The port of Makná, described in my first volume, can hardly be called safe; on the other hand, its bottom has not been surveyed, and a simple breakwater—bundles of tree-trunks clamped with iron bands, connected by strong rings and staples, and made fast to the bottom—would convert it into a dock. At any rate, on the opposite Sinaitic shore, at the distance of 13 knots, there is, as will appear, an admirable harbour of refuge.

The three normal days of El-Ayli had come and gone; the storm continued; yet the cloud-veil lifted, and the mountains of Sinai and Midian, which before had been hidden as if by a London fog, again stood out in sharp and steely blue. The sea, paved with dark slate, and domed with an awning of milky-white clouds, patched here and there with rags and shreds of black nimbus-mist that poured westward from the Suez Gulf, showed us how ugly the "Birkat 'Akabah" can look. Meanwhile I boated off to the *Mukhbir* all the specimens brought down by the Expedition, and drew up instructions for Lieutenant Yusuf and M. Philipin.

At last, about midnight (Feb. 2), the tempestuous northerly gale, which had now lasted four days and four nights, ceased almost suddenly. The change was hailed with general joy. The travellers looked forward to ending their peregrinations; while the voyagers, myself included, hoped safely to circumnavigate the Gulf el-'Akabah, and to trace, as correctly as possible, the extent, the trend and the puissance of the quartz formations. I have reason to think that large bands of "Marú" vein the "Old Red" of Petra, and that they may possibly extend, under the waters of 'Akabah, into the peninsula called Sinai.

IV. *Round the 'Akabah Gulf to El-Muwaylah.*—Feb. 3rd.—Nothing becomes Makná better than the view on leaving it;†

* In classical Arabic "Azyab" means calamity, a south wind or a south-easter.

† In 'The Land of Midian (Revisited),' a full description of the scenery is given in chap. vii.

nor is there any better place for studying the general aspect of the great gypsum formation. The Secondaries, before being upthrust, pierced and isolated by the later plutonic rocks, especially porphyritic trap, once extended over the whole region; and formed dry land where sea and reefs now are. Here we see them in the whole segment of the circle, trending from El-Muwaylah through the scatter of islands to Makná, and thence to the north-eastern base of the Sinaitic peninsula. Thus the Gulf El-'Akabah, a depression probably caused by the upheaval of the igneous mountains, was in early ages a vast level plain with broken platforms of gypsum, crossing diagonally from north-west to south-east, the northern third of the great inlet. M. Marie (Report) assigns four several epochs to the coast of Midian: 1. The primary, when the earth's surface, affected by secular cooling and contraction, assumed its present shape. 2. Secondary, sulphates and carbonates of lime, gypsum, chalk, plaster of Paris, marble and alabaster, rising to a maximum (?) of 1200 feet above the surface. 3. Plutonic injections of red felsite, jasper and green porphyritic trap in solid masses and veins of all sizes cutting through the granites and syenites; and lastly, 4. The comparatively recent upheaval of the Gháts or coast ranges.

In this part of my paper I shall dwell chiefly upon the changes to be made in the Admiralty Chart (Red Sea, Sheet 1). It is incorrect to the last degree; especially upon the Sinaitic side, and its errors have extensively infected popular works. The coast line seems to have been laid down from a flying survey; of course the names are all wrong; and, worst of all, the harbours are either unmarked or wrongly marked. The naval officer, Ahmed Kaptán, who had been sent with us to take astronomical observations, unfortunately fell so ill that he was compelled to lay up. A correct survey of both coasts will be a *sine quâ non* when the mines are worked.

At 9 A.M., after a long delay in fishing up the anchor, and in persuading the rotten old boiler to work, we stood over for the Sinaitic shore, distant 13 miles (direct geog.); and we made in three hours the Marsá or M'inat el-Dahab, the "golden anchorage" or "port of gold." This name is applied by the pilots, as by Burckhardt, only to the mouth of the Wady el-Dahab, which above its gate becomes Wady el-Ghayb, draining the eastern flank of the so-called Mount Sinai. It is a shallow sag, with a central line of palms, the usual branch huts inland, and wells of brackish water: it is affected by mariners during southerly gales, because it is protected by a projection and a ledge of reef. Ruppell calls it "Minna;" he was then a sucking Arabist; but his map, all things considered,

is wonderfully correct. What the chart calls "Dahab, good anchorage, sheltered from all winds," is known to all as M'inat Ginái (جنای),* so called after the black mountain of porphyritic trap rising abruptly behind it. This dock is defended to seawards by a "sandy nook," a spit, curling like a shepherd's crook, that sweeps round from the east to the south-west, giving shelter to the many Sambuks which frequent it during the season when pearl-oysters are fished. All along this coast similar coralline reefs serve to build the land; they are gradually covered with conglomerate, and converted into *terra firma* by the rubbish shot and shunted from the wady mouths—a process still actively carried on.

Feb. 4th.—We set out northwards at 7 A.M., when an Azyab, or southerly wind, threatened a blow. After steaming two hours (=7 knots) we landed a party at the Wady Umayyid (عميد, "of the little pillar") to inspect certain patches of whitish stone, of which a specimen had appeared above the black porphyritic gorge in the Jebel el-Ginái. Already in the Wady el-Dahab we had found water-rolled pebbles of quartz, including the crystallised and the green or copper-stained; but not the immense variety common to the Arabian side; nor could any veins be traced in the rocks. A fragment of limestone, with sharp angles, showed that its origin could not be far distant. The Bedawin, like those about the Caïrene pyramids, ignore the Midianite terms "Marú" and "Marwah," † calling the rock *Súwan*, properly speaking syenite, but popularly applied to any hard stone, especially silex. Water-rolled fragments were again found in this large Wady Umayyid, which extends a whole day inland; but the white sheets, flecking the hills here and elsewhere, proved to be light-coloured chlorites and serpentines. From the mouth of the Marsá el-Dahab (proper) to the Wady Watír ("of the Hill-track"), the maritime range of Sinai is known as the Jebel el-Samghí. And now the errors of the chart amaze us. The Ras "Arser,"—what a name for a headland!—should be Ras Kusayr (قصور, the small fort, "Cosseir"); moreover, it wholly wants that safe-looking land-locked nook to its north. The reality, a trifling projection, which is passed without remark, is backed by a mere rent in the hills, a short broad Fiumara, called Umm el-Afa'í (the "Mother of Vipers"). Beyond it we passed at 12.30 P.M. (3 hours 20 minutes = 12 miles) a yellowish little buttress, the

* From Janáa, being hunchbacked, gibbous.

† See part i. sect. ii.

Turayf el-Rih ("Little Facer of the Wind"), and another similar bluff lump of rock, which also breaks the line. The larger of these two features is the third and southernmost projection of the western shore seen from the northern end of the Gulf.

About 2 P.M. we were abreast of the line of palms, and the deserted huts which form the southern Nuwaybi' (نويبع), meaning the little Naba' ("Spring"). Burckhardt ('Arabia,' p. 516) writes "Noweyba," without his usual accuracy. Evidently this is the place which the chart, calling it "Wasit," thrusts some 10 miles south of its single "Nawibi;" and where it shows an anchorage (⚓) of 12 fathoms, defended on the north by a projection of the coast. The water-pits and date-trees owe their being to the anastomosis of two well-defined sandy Wadys, issuing from their respective gorges, the northern and the southern Wady el-Sa'deh. The Jebel el-Sa'deh, separating the two like a wedge, shows at its seaward base blots of mauve-red overlying dead-white clay (?). They extend along the left bank of the valley to the north as far as the foothills facing the shore. These are the first indications of the Secondary formation in "Sinai"; farther north they appeared in force.

After passing the southern Nuwaybi' we doubled a long sandspit, projecting far eastward, with a line of light-azure water, showing shallows at the apex. It protects from the south a fine deep bay, which is also well sheltered from the north by several lines of shallows. The loose sands, spread over the reef, are so light and subtle that they are moved by every stray breath of wind. They film the ground, and hide the hills like a dust-storm in Sind. As usual in 'Akabah Gulf, the water is so deep that a ship may ride within a few yards of the shore.

This anchorage is called by the pilots Wásit (واسط, the "Middle"), and it occupies the southern half of the bay; the northern moiety, with its little creek and line of palms, being called the "Upper Nuwaybi'." The vegetation is fed by the large Wady Muzayrig (مزيريج),* which vomits an exceptional

mass of arenaceous matter to the north. The chart places the anchorage (10 fathoms) south of the main projection, when it lies on the other side. Wellsted (ii. 150) imperfectly describes "Naweibi," one of his stations, as "a narrow slip of land

* For Muzayrij (short vowel), dim. of Mazraj, to c. form of Zarj, a tumult, noise of horses.

covered with date-trees. Beyond this the country rises with a gradual sandy slope to the distance of 2 miles, when it meets the lower undulations of the mountains."

About Wásit the palms are scattered, and the large sand-mounds threaten to bury them; already several are waist-deep in it. Behind the bay, and distinctly visible from the other side of the Gulf, is a great gash, the Wady Watír (وطير);*

by which Syrian and other Christian pilgrims to Sinai make the monastery, rounding on camels the dangerous northern third of El-'Akabah. This valley receives from the south, and distant one day's march, the Wady el-Hazrah (Hazeroth),† "the most beautiful and romantic landscape in the Desert" (Palmer). From the north it is fed by the Wady el-'Ayn, which can be reached in half a day; at least so said the guide, Mabruk ibn Sulayyim, the Muzayni, whom we had shipped at the last landing-place. I was careful to check his information concerning the coast by making general inquiries, and he was not found wanting. These valleys are imperfectly shown in the chart; better by Professor Palmer ('Desert of the Exodus'), who visited and described them.

Anchoring under the Wásit sand-heaps at 3.30 P.M. (6 hours 30 minutes = 30 miles), we made certain that the "Nawibi" of the chart utterly wants the cover of the northern sandspit, which, as has been said, lies south of it. The Bedawin of all this coast are of the Muzayni tribe, a miserably poor and wretched, degraded lot. They live, like savages, on fish and shell-fish, use catamarans of untrimmed palm-trunks; drink brackish water, and sleep under the trees rather than repair the huts. Of course they are desperate beggars, as they are greedy, idle, and worthless. The two men and three women, who were waiting upon their few camels—no sheep were to be had—refused, without initiatory "bakhshish," to tell the site of certain ruins in their hills, concerning which they discoursed or romanced. Beyond Nuwaybi' to El-'Akabah there is absolutely no population on the "Sinaitic" shore.

Feb. 5th.—At 6.30 A.M. we stood eastwards, to avoid the

* "A necessary" (thing): "wátirat" would mean a manner, mode or way.

† The Rev. Mr. Holland (Paper at the British Association meeting of 1878), who had walked from W. Watír to Ras Mohammed, disputes the identity of Hazeroth and W. el-Hazrah (of the "pursuer," or of "settled abodes"). He does not "believe it possible for the large host of the Israelites to have travelled this way." The same may be said of almost the whole route during the Exodus and the wanderings: on the one hand the figures (600,000 men, &c.) are amenable to a very large reduction. If two millions of souls are to travel through a desert without starvation they travel by a miracle, nothing less; and it matters nought whether the road be "possible" or not. Should reason be admitted, we reduce at once the two millions to twenty thousand.

northern reefs and shallows, which had defended us during the night, and we passed the northern Nuwaybi', the little creek to the north-west of Wásit. From this point to the Gulf-head a continuous line of shoal-water, subtending the coast, and compelling ships to stand comparatively far out, is rightly set down on the chart. Presently the western seaboard entirely changed its dull, desolate, monotonous aspect. The view became essentially "Sinaitic," and unlike anything I had seen, save and except only Iceland—to compare two extremes that attempt to meet. The eye rests upon a screen showing one or more planes of bare and barren rocky walls and peaks, dun-brown and light-yellow, contrasting strongly with the bright blue sea. Its charms are not those of the horizonless golden Desert; of the fertile valley, of the fair field. Neither stream nor forest diversifies it: "The tints are those of sunlight on the coloured stones, and the outlines are the contours of the rocks." In the lowlands, and forming small sea-facing bluffs, gleam rainbow hues, red and yellow, mauve, purple and dull-white clays, the Brazilian Tauá; while inland, parallel with the shore, and peering above the granites, the syenites, and the porphyries of the coast, rise the pale forms of the "Sinaitic" Shafah, the "Lip Mountains." The name, unknown to the chart, is given to that section of the Eastern ("Sinaitic") Gháts which, beginning at Wady Watír, passing the Jibál el-Samghí northwards to the Hajj-road, and even beyond El-'Akabah. The naked, squalid, ghastly hues, and the peculiar quoin-shapes, at once disclosed the familiar Secondary formation of Midianitish Makná. The guide called this gypsum by its Arabian name, *Rughám*,* in opposition to *El-Hazb*, the sandstones. The latter word is explained further on. I was not surprised when shown a *Jebel el-Kibrít*, a taller form than its neighbours. It is probable that the brimstone deposits, like the copper silicate and the turquoises of Ziba, rounding the head of El-'Akabah, run down the Arabian shore parallel with the African seaboard.

After 1 hour (= $3\frac{1}{2}$ knots) we passed the unimportant Ras el-Málihah ("Salt-head"), sheltering to the north a little creek, and forming the southern buttress of a short, broad valley; up the latter, after an hour's walk, palms and a well of brackish water are said to be found. This is probably the "Amhaid," a name unknown to the pilots, which the chart places some five miles north of its "Nawibi." At 9 A.M., after 2 hours 50 minutes from Wásit (= $9\frac{1}{2}$ knots by dead reckoning), we passed Ras el-Ramlah, the "Sand-head" (not *Abu Ramleh*), a ruddy-

* *Raghám* in classic Arabic means soft soil mixed with sand; *Rukhám* is the mucus of sheep.

faced bluff with a cravat of loose drift, covering the neck and making this second great projection from the western shore equally conspicuous from the north, the south, and the western sides. Behind it lies the Wady Suwayr, which leads directly up to the Sulphur Mountain.

Beyond the Sand-head the "Sinaitic" flank shows a novel formation, the hills of Abú Moghrá (المغرة)*. The word in

Egypt means a ruddy or ochre colour; it is especially applied to the horizontal bands of red paint which alternate with white circles in the mosques and minarets of older Cairo—survivals of the brick courses still used to bind the stones. Abú Moghrá is a wall of broken crests, red as tiles, and looking as if built up. Guide Mabruk compared this "Hazb" †, with the Hismá rocks, which are nothing but New Red Sandstone. A tall quoin of gypseous matter shows where the Egyptian Hajj-caravan, after rounding on return the northern end of the gulf, nights at the 'Akabat el-Misriyyeh or Egyptian steep. This gap in the western wall of the Wady el-'Arabah is so called to distinguish it from the 'Akabat el-Shámiyyeh (Syrian steep), a similar formation on the Damascus-Medinah road, 60 miles farther east, described by Burckhardt (Appendix III. 'Travels in Arabia,' "The Hadj-route from Damascus to Mekka"). The Nakb or Pass used to be dreaded by camel-riders before it was repaired by Abbás Pasha. The Princess-mother of the first Khediv was the traditional "Pasha" who first made the pilgrimage in a carriage; but, according to accounts, the vehicle in many places was carried upon men's shoulders. ‡ The Bedawin deny that the town 'Akabat-Aylah (Elath) and the Gulf el-'Arabah take their name from this feature: the words mean, they say, that the Red Sea "heels" (Ya'kkab el-Bahr), that is, comes to an end.

Ahead of us, on the western coast, we saw upon the chart exactly what is *not* in nature. The northern horizon, by no means a straight and almost unbroken line, is bounded by a long white gypseous projection, the Ras el-Tabahah, which some call Tábakah and others Tábah. It completely hides the Gulf-

* From Maghar, a dark opaque reddish colour.

† In classical Arabic *Hazb* (هضب) would be the plural of *Hazbat*, a range of mountains or hills, a high steep, isolated ridge or cone, or a large projecting rock. Here it seems to be applied to the red and ruddy sandstones. *Huzaybat* (*Hudaybat*, the diminutive form) means a "hillock" in "Sinai" as well as in Midian.

‡ A careful description of the line is given in Dr. Beke's return journey from "Sinai in Arabia." The veteran traveller and his companion, however, paid no attention to the antiquities on either side of them, and they passed by *El-Hawdwit* ("The Ruins") without even inquiring the meaning of the word.

head; and to the south of it projects a smaller point, also white and gypseous, known as El-Tuwaybah, the "little Tábah." There was scanty sign of the "White Cape," which on the chart is no cape at all, except a brown headland—perhaps it may gleam bright in the sun—forming a shallow bay, bounded north of the Ras el-Tabehah. 'Akabah town now appears off the star-board bow in the usual shape of a long line of palms. The guide gave the name *Jebel* and *Wady Umm el-Hayyah* ("Mother of the Snake") to a heap and a watercourse on the left shore. At 11.30 we steamed by the *Wady El-Mukabbilah* (مقبلة), whose broad shunt is literally garnished with thorn-trees, and whose Ras or headland forms the first great projection of the western coast as viewed from the northern Gulf-end.

At 12.30 P.M. (6 hours = $22\frac{1}{2}$ knots) we anchored in the deep, narrow channel separating the "Sinaitic" mainland from the northern one of the two islands in the 'Akabah Gulf. Strange to say, neither of them appears in Keith Johnston's folio. This scrap of rock is known to the maps as *Jezi'rat Fara'un*, possibly from *Senaferu* of the First Dynasty, who conquered *Mafká-land*—the Country of the Turquoise—or "Sinai"; and the moderns still preserve the Pharaohnic tradition. The vulgar term is *Jebel el-Kala'h*, "Fort-hill;" *Burckhardt* ('*Arabia*,' p. 511) calls it *Koreye*; *Schubert*, *Kurayyah*; and *Arconati*, *Jezi'rat el-Qoreieh*, evidently all corruptions of *Kala'h*. *Schubert* also would here place mysterious *Eziongeber*. *Rüppell*, who first visited *El-'Akabah* town, which many others, *Burckhardt* included, had failed to reach, gives "*Emrag*," doubtless for *Marákh*, the name of a large *Fiumara* on the western mainland, lying a short distance to the south. *Beke* (p. 359) has a fair sketch of his "*Jesirat Fir'on*," and quotes the *Sailing Directions*, which here may be trusted. I need not repeat my long description of this lump of granite and its Moslemised Crusading castle; the latter possibly built upon older foundations.*

Feb. 6.—A day occupied in tinkering our tubes, and in surveying the castle, which is much more ruinous than when sketched by *Rüppell* in 1822. *Wellsted's* short description ('*Arabia*,' vol. ii. chap. ix.) is still correct, as it was in 1838.

Feb. 7.—We got up steam at 9.15 A.M. without an accident—very unusual! Running up the deep, narrow channel, which must be an excellent harbour of refuge in the wildest weather, we rounded the northern end of the islet-rock. On the shore to port were the *Tuwaybah* and the *Tabehah* Points; the latter is faced by *Damm-palms*, and up its bed are said to be water and

* See '*The Land of Midian (Revisited)*,' chap. vii.

date-clumps. Then came the broad mouth of the Wady el-Misri (Egyptian valley), at whose head is the Nakb el-'Akabah. This is the Wady el-Musry of the chart, which Beke (p. 460) has called the Wady el-Maháserat—meaning of “hemming in,” or “driving into a corner” (p. 491). In its limestone holes he found reason to identify it with the Exodical station Pi-ha-hiroth, or “entrance to the caverns.” We thence struck across the Gulf-end, and at 10.50 A.M. (= 1 hour 35 minutes = 7 miles), we anchored in twelve fathoms water off the Fort el 'Akabah.

Mr. John Milne, F.G.S. (p. 537, Geological Notes, &c., Appendix to Dr. Beke's 'Sinai in Arabia'), has the following remarks upon the subject of a canal between 'Akabah and the Dead Sea. “Should this ancient Gulf be restored (which would apparently be an engineering work far less difficult than the recently-constructed trench between Suez and Port Said), Jerusalem, Damascus (?), and other Syrian towns would again be in communication with the Indian Ocean, and fleets like those of Solomon (!) might ply up and down the now entirely deserted Gulf of Akaba.” Does this savant reflect that he simply proposes to swamp the whole lower Jordan? to bring Tiberias and its lake about 620 feet below the sea surface? in fact to overwhelm half the “Holy Land” in a nineteenth-century deluge?

The rest of the day was passed in receiving visits from the officials, including Mohammed bin Jád el-'Alawi (of the 'Alawiyyín-Huwaytát) who styles himself “Shaykh of El-'Akabah,” and whose tribe is recognised as the lawful owners of the land upon which Sultán Selím Khán el-Fátih (the Conqueror) built his fort. Under his guidance we landed at the mouth of the bay, where ruins still show the site of ancient Elath, the port of the Nabathæan capital, Petra, distant up the Wady el-'Arabah only two days of dromedary-riding. The people declare that the old city extended all round the Gulf-head from north-west to north-east, where the modern settlement lies. Linant and Laborde ('Voyage de l'Arabie Pétrée, &c., Paris, 1830) confine it to the western shore, and, like Schubert, place Eziongeber facing it. Amongst the tumuli we found scorïæ, old and new, showing that metal was also worked here; and a fine specimen of “Mafká” or copper-silicate from the “Sinaitic” Wady Raddádi (ردادی) suggests the kind of ore treated by the Mutakaddimín, or “Men of Old.”

And now to tell the tale of the “true Mount Sinai.” On the eastern shore of the gulf, south of the town, the two-fold chain “Jebel el-Sharaf,” under whose jagged crests the Hajj-Caravan wends its painful way to avoid the mountains Tayyib Ism and

El-Mazhafeh, that sit with their feet in the sea, sweeps round from s.s.e. to n.n.w. and coalesces into a single range. This line, the Jíbál el-Shará' (شراع), the Mount Seir (the

Rugged) of Hebrew Writ, trending northwards, presently becomes the huge eastern wall of the Wady el-'Arabah. A little beyond El-'Akabah, and draining through the settlement, is the Wady el-Yitm (يتم), a corruption of "Yatm" or "Yutm"

(solitude, orphanage, separation), which allows easy access to the Hismá. Burckhardt, usually so correct in his names, first miscalled it (وادی اثم) "Ithm" ('Arabia,' p. 511), and

described it as "leading eastwards towards Nedged." Walkin, as will appear further on, preferred "Wâdi Lithm," another evident error. Its right-hand buttress, the Jebel el-Yitm, forms the apex of this part of the chain. It is a remarkable feature, not only for its height, commanding, they say, a view of Mounts Tor ("Sinai") and Hor (Aaron's tomb), but also for its threefold finial of domes and pinnacles. Hence the Bedawin, who always attach some modern legend to places which strike the eye, climb it at certain times and make sacrifice at the tomb of an obscure santon, Shaykh Bákír ("who rises betimes").

"Hither," said Mohammed bin Jád, "came an old man and a young man, in a steamer belonging to H.M. the Khediv. The former told the Arabs that in his books the Jebel el-Yitm was called in his books the Jebel el-Núr, or the Mountain of Light, and the latter climbed to the mountain-top. After which they posted away."

I quite agree with my lamented friend, Dr. Beke, that we have still to find the "true Mount Sinai." If anything of the kind exists, it is probably some mount or hill in the Negeb (Negeb), the south country of the days of Abraham or still farther south, near the base of the Sinaitic Peninsula, the desert called, by moderns, after the "Wanderings."* The profoundest Egyptologist of our day, Dr. Heinrich Brugsch-Bey, observes that the recognised site lies south of, and far from the line taken by the Bene Israel; and that the papyri show no regular route leading anywhere in that direction. Many, also, have remarked that the Sinai of the Exodus is a single isolated mountain or hill, not one projection from a long range of heights. I would further suggest that the best proof of how empirical is the present identification will be found in the fact that neither the old Israelites nor the modern Jews have ever visited, or

* See note at the end of this section.

now make pilgrimage to, the spot which ought to be one of their holiest of "Holy Places." It is evident that Jebel Serbál dates its honours only from the earlier ages of Koptic Christianity (fourth century); whilst its Greek rival Jebel Músá, the mountain of Moses (the Bishop?) is even younger. The appeal to tradition must be vain when the order of succession and "migration of holy places" is: 1. J. Serbál (Copts, Burckhardt, Lepsius); 2. J. Músá (Greeks, Helena, Justinian); 3. J. Katérina (Rüppell 19th century); 4. J. Safsáfah (Robinson, ditto). The Great Law-giver probably marched his few *familie* of fugitive slaves over the plains of El-Tih north of the so-called Sinai, and up Wady Yitm to the Nejob or south country, in small divisions like those of a modern Bedawi tribe; and we know from the latest surveys that the land, now a fiery and frozen wilderness, was once comparatively well supplied with wood and water. Dr. Beke is right in denying that the "Mountain of the Law" is the site at present chosen for it, but I cannot believe that he has found it in the Jebel el-Yitm near 'Akabah.

A few words concerning this Yitm, Wallin's "Wâdi Lithm."* He makes it a cross valley opening through the maritime chain at about 8 hours=24 miles, north of El-'Akabah: the mouth is hardly a mile north of the fort, and the distance to the head in the Hismá is two short stages. He is right in stating that the mountain-range from the Yitm to Syria, forming the eastern wall of the valley El-'Arabah, is universally known as the Jebel El-Shará; the Sa'ar of the hieroglyphs and the Mount Seir of the Hebrews. But he is wrong in supposing (p. 306) the coast lowlands of Madyan Proper (north Midian) to be "known by no other name than that of El-Sáhil," the shore. All the Bedawin use the term "Tihámat Madyan." The former word means a country enclosed by mountains, and generally with an unhealthy and oppressive climate; while Tähämäh, in these lands at least, is a modification confined to the Ma'ázah tribe. In the Kámús, of Firozábádí (nat. A.D. 1328, ob. A.D. 1414), "Tahmá" or "Tähämäh" is translated "land sloping towards the sea," opposed to "Tihámah," or lowland in general. The word therefore is classical, and Wallin seems not to know that when the Bedawi of Táif told him the inhabitants call "Tihámah" what other Arabs call "Hijáz" the informant alluded to the "Tihámat el-Hejaz," or maritime lowland of the Hejaz.

El Madáini informs us that the whole mountain-chain, extending from Yemen along the Red Sea to Syria, in fact the western Gháts of Arabia, is called El-Hejaz. The term adopted

* See 'Journal Royal Geographical Society,' vol. xx., 1850, pp. 302, 306.

by Golius (Notæ, p. 98); by Niebuhr (Description, &c., p. 160); and by Caussin de Perceval (*Essai sur l'Histoire, &c.*); is utterly unknown to modern Arab usage. Similarly Ibn Ayás names the range "El-Sherá" through its whole extent. Wallin may be right in making the eastern boundary of El-Hejaz a line drawn from Táif, *viâ* El-Medinah, to El-Hijr (or rather the Wady Hamz); but he is wrong, at least regarding present custom, to exclude from it the two first-named towns. Again he is mistaken when he asserts "if the line be continued northwards from El-Hijaz, along the course of the eastern parts of the Shefah chain as far as Wâdi Lithm (Yitm), it will mark the eastern limit of the land to which the Bedawin now give the name of El-Tâhâmâh." The Bedawin draw the line carefully between the Shafah and the maritime range; and thus the sequel from the Coast eastward would be:—

1. El-Sâhil, or El-Tihámah, the coast plain.
2. Jibál el-Tihámah, the "Ghâts."
3. El-Shafah, bounding the Tihámah to the east.
4. El-Hismá, the elevated strip of sandstone plain.
5. El-Harrah, the line of plutonic action.

Finally Wallin is quite right when he asserts that El-Hejaz, El-Tihámah and El-Shará "were originally specific names for different parts of this region, and that they have been extended by different authors to the whole of it."

Whilst we examined the Fort, Mr. Clarke and Ali Marie busied themselves with buying up such stores as El-'Akabah contains. I also made arrangements for a dromedary-post, and wrote officially to Prince Husayn requesting that H.H. would exchange the *Mukhbir* for a steamer less likely to drown herself. Moreover the delay at Magháir Shu'ayb had exhausted our resources; and the Expedition urgently wanted a month's additional rations for men and beasts. The application was, it will be seen, granted in the most gracious manner; and the orders were carried out with as little delay as possible. Messrs. Voltéra Brothers were also punctual and satisfactory in forwarding another instalment of necessaries and comforts. For this postal service and by way of propitiatory gifts Shaykh Mohammed received \$10, of which \$2 were probably disbursed; consequently we parted fast friends, he giving me an especial invitation to his house in the Hismá, and I accepting it with the firm intention of visiting him as soon as can be managed. The officials of the Fort, who stayed with us to the last, were profuse in kind expressions; and in little gifts which, as usual, cost us double their worth.

I now resolved upon hastening back, with all speed, to El-

Muwaylah, finishing by the way our hitherto successful task of quartz-prospecting on the 'Akabah Gulf. We had already twice been prevented by circumstances from visiting the Hismá, and I was determined to devote all our energies to the exploration.

Feb. 8th.—The morning was cloudy, misty, rainy: to the north-west and south-west we saw—rare thing in arid Arabia—two rainbows at one time. We set off, at 7.30 A.M., along the mountain-wall of El-Shará, which, after about three miles, trends away to the south-east; thus differing from the Sinaitic side where the rock-curtain hugs the shore. The interval is a broad and sandy slope, here and there streaked with dark ridges extending from the Gulf to the highlands. For the “elevated stony plain gradually rising from the sea” of the chart, read—“sandy ledge and occasional outcrops of rock, cut by a network of huge Wadys which unite near the shore, declining from the Jebel el-Shará, and from those of El-Tihámah.” Evidently the highlands are primitive, but a white and purple patch seen from afar suggests a remnant of the Secondary.

After 2 hours 45 minutes, steaming at the rate of $4\frac{1}{2}$ knots an hour, we ran (10.30 A.M.) into the fine-looking but open and treacherous bay of Hagoul (Hakl حقل),* 13 direct

geographical miles from El-'Akabah. This is the 'Αγκάλη, which Ptolemy (vi. 7. 2) places amongst his *oppida mediterranea*, in N. lat. $28^{\circ} 45'$ (true $29^{\circ} 13'$), between Madiáma (Μαδιαμα) or Magháir Shu'ayb, in N. lat. $28^{\circ} 15'$ (true $28^{\circ} 28'$), and Μάκνα, the modern Makná or Madyan, in $38^{\circ} 45'$ (true $28^{\circ} 24'$). We had heard of ruins in this place, and a “written stone” to the south; but we could hardly expect anything more interesting than at El-'Akabah; and the *Mukhbir* was so handled that she appeared to have every chance of scraping acquaintance with the reefs and shores. I therefore ordered the Sambúk to touch at Makná, and to embark the specimens left by Lieut. Yusuf on the shore; whilst the steamer continued her voyage southward.

The Arabian coast-line is here simpler than that of Sinai, and, consequently, the chart had a better chance in all things “barring” philology. A rounded projection separates El-Hakl from the Marsá el-Humayzah (حميضة), so called from a grass eaten by animals, and not to be confounded with Humayz (حميظ), the Egyptian form of Hummáz (حماض), wild sorrel. It is entitled El-Kabír (the Great), in order to dis-

* In Arabic the word means rich arable land, or tilling the land—hence the corrupted Greek “Ancile.”

tinguish it from another feature to the south. The broad mouth of the Wady shows two lines of palms, one near the right bank, and the other in the middle, where the frond-huts stand. After $6\frac{1}{2}$ miles from El-Hakl, and nearly 20 from El-'Akabah, we steamed along the islet El-Humayzah, which the surveyors have abominably perverted to "Omeider:" from it the Ras el-Ramlah bears 273° (mag.).

South of the islet, and separated by a point of yellow sand, is an extensive inlet, the Ghabbat Humayzah: it is not on the chart, although Wellsted (ii. 138) speaks of the "capacious bay of Goobut Homaïdah." The black trap hills of the shore here form a broken circle, which, on the up-voyage, we had taken for a volcanic crater; and the valleys of the Arabian interior seemed from the ship to run 110° (mag.);* whilst those of Sinai trend to 150° . Beyond this outbreak, again, two wady-mouths form shelters for native craft; and innumerable dry Fiumaras meet and intertwine, dotting the sand with shrubs, whilst a mass of reefs outlies the shore. By day this *Sahîl* ("shore-tract") is dry, dusty, and glaring enough; only for a few minutes at even-tide it becomes a beautiful spectacle, an enchanted scene, when the setting sun stripes it with broad bars of purple and gold. Farther south, as we approach the place of the Bir el-Máshî ("Well of the Walker"), where a desert-track leads to the Wady Marshá, the hills become smaller, and, approaching the sea, directly discharge into it their rubbish. The next feature is the grand *massif*, the Jebel el-Mazhafeh, whose length is apparently disposed perpendicular to the coast-line. Its five blocks, becoming taller and larger as they run inland, culminate in a topmost pinnacle to the east: the lower cliffs fall clear into the sea, forming quaint black gorges and ugly caverns, like those which break the precipices of the Northern Ocean.

We passed an ugly night, our third since leaving Suez, and, of these, two were, under the circumstances, really risky. At 4 P.M., the norther again began to show its nasty temper, and, about an hour afterwards, the speed was reduced from $4\frac{1}{2}$ to 3 knots, lest we should reach the Bugház, or Straits of the 'Akabah Gulf, before dawn. At 7.30 P.M., we could see, under a moon approaching her first quarter, the *Suwayhil* ("Little Shore"), and its anchorage-ground, in the sand-tract vomited by the Wady that divides Tayyib Ism from El-Mazhafeh. Finally about midnight it was necessary to turn the gun-boat's head northwards, in order to ride out the furious gale.

* Some of the guides hereabouts mentioned a certain Jebel el-'Inab ("Mountain of Grapes"), but we could not lay down its site.

Feb. 9th.—Despite the stormy weather, we passed safely out of the 'Akabah gate, and anchored under the southern side of the Tírán Island.

Feb. 10th.—We examined Tírán Island: a very curious formation.*

Feb. 11th.—After the narrowest possible escape from shipwreck, we ran into the fine natural harbour of Sináfir Island.

Feb. 12th.—The gale continuing, we stuck to Sináfir.

Feb. 13th.—We ran from Sináfir to El-Muwaylah, 50 knots, and 5 to 6 more to our old anchorage, the Sharm Yabárr, a total of 10 hrs. Concerning these five days nothing more need be said; the events were personal; my little geography was done, and the return is described, at full length, in my last volume.

Our journey through North Midian (Madyan Proper) had lasted 54 days (December 19, 1877, and February 13, 1878). During nearly two months the Expedition had covered only 106 miles of ground; this, however, does not include the various by-trips made by the members, which would more than double the total, nor the cruise round the villainous *Meer-busen* of 'Akabah. The number of camels varied from 104 to 60, and the total hire, including "bakhshish," amounted, according to Mr. C. Clarke, our managing man, to a total of 31*l.* 14*s.* 3*d.*

NOTE ON THE "TRUE MOUNT SINAI."

After these pages were written, I read extracts from an interesting paper published in the Jewish *Monatschrift* for August 1878. Dr. Graetz, the author, has attempted to determine the site of Sinai and Horeb by arguments partly Biblical and partly topographical. He observes that the texts (Deut. xxxiii. 2; Judges v. 4-5; and Habak. iii. 3) distinctly point to Seir, or Edom, rather than to the peninsula now called Sinai; also that the first of the stations after leaving "Mount Sinai" was the wilderness of Paran, in which lay Kadesh (Deut. xxxiii. 2). The Hebrews, when asking leave of the Pharaoh to go and worship their God, specified three days as the length of the journey. Dr. Graetz fixes the "Mountain of Law" on Jebel 'Araif, "which out-tops all the other mountains of the neighbourhood: it is surrounded by table-land, and there are traces of the fenced inclosures of a primitive people, probably the Amalekites" (Palmer). No wells were found, so that the Israelites at the neighbouring Rephidim might easily suffer from thirst. In Judges v. the poet speaks of Sinai as if it were known—"This" (or yonder) "Sinai." The prophet

* See 'The Land of Midian (Revisited),' chap. viii.

Elijah also is represented as readily reaching it from Beersheba and Kadesh. Dr. Graetz makes the Yamm Sûf (Sea of Weeds or papyri), not Sirbonis (Brugsch), nor 'Akabah (Beke), but the Timsah water or the Bitter Lakes, in early ages the undoubted head of the Gulf of Suez; and thus his Exodus would lie to the N.N.E. of Egypt. The whole paper should be read, as the author ingeniously accounts for the topographical errors of Biblical students which have lasted for so many generations. The subject has been exhaustively treated in 'The Hebrew Migration from Egypt' (London, Trübner, 1879). A good result to be expected from these various opinions is that presently "Mount Sinai" will disappear into that region of myths, the land of Meru and Olympus and Merôe, from which it emerged during the first centuries following the rise of Christianity.

PART II.

The March through Eastern or Central Midian.

I. *Work in and around El-Muwaylah.*—At El-Muwaylah, where the Expedition found itself once more united, I lost no time in receiving the reports of Lieut. Yusuf, M. Philipin and Shaykh Furayj, concerning the southern Jebel el-Kibrít, and their march from Makná. Their details of the Sulphur Hill are not worth chronicling, but the itinerary is.

About 8 A.M. (Feb. 6) the camp set out from the old town of "Madyan," with all the Shaykhs whose presence was officially required by the Hajj-caravan at the Fort. A total of 34 camels was charged for, if not employed. The line led up the Wady Makná, before described, and presently struck the Wady Mu'aytan (معيطن) between the Jebel el-Mab'ûg east, and the Fabísát Rock on the other side. In the flanks of the latter, as has been said, they found fine micaceous iron, and two deposits of green "marú," showing copper. The quartz, indeed, lasted the whole way to the *Soufrière*; and hills of white gypsum were seen all along the road. After a total of 2¼ miles they struck the great Wady el-Kharaj, before mentioned as bounding the Fabísát block to the east. At 9.17 A.M., after a total of 3¾ miles, they left it on the north, and turned into a branch, the Bark el-Jemel (برق الجميل), or "Surprise of the Camel." A few minutes more led them to the Wady and Jebel el-Rîsh, *alii* Rîshab ("of the Feather," here not an unusual

name): it is a collection of various-coloured hillocks described as plutonic, rising out of the Secondaries: possibly it may be as rich as the Fahísát. After 1 hour (= $2\frac{3}{4}$ miles) up the Rísh valley, they left the caravan to take the direct road to 'Aynúnah, ascended the Wady Musayr (مصير), and again turned off into a branch Sha'b, or Nakb. This ugly, narrow pass placed them at their destination about 1.30 P.M., having travelled 4 hours 20 minutes (= 9 miles).

They ascended the hill after tethering their animals so badly that Furayj's dromedary broke loose, and M. Philipin's mule at once followed its example. Specimens were hurriedly collected, and the inspection lasted only ten minutes. They then left the place at 2 P.M., and hastened to follow the caravan, fearing not to catch it before nightfall. Pursuing their way up the Wady Musayr, whose head was reached in an hour, they crossed a broad Fiumara, the Wady el-Wagab (وغب), running south-west to the sea. Then passing over to Wady Nakhil, and other beds, they camped at 6 P.M. in the Wady Abú Zufrah ("of the Zufrah plant" = *Iphiaona scabra*).

On the next day (Feb. 7) they fell into the Wady Jiyál (جیال, that is, "of Circumambulating"), a kind of sink, whose palm-grounds extend about a quarter of a mile, and whose wells and rain-pools are too brackish to drink. $11\frac{1}{2}$ miles distant from 'Aynúnah, it looks from that station like a long, thin tongue of sand. This is the *Brunnen el-Gear*, which Ruppell (p. 231) places 4 *stunde* s.s.w. of his *Thal Beden*. Thence they passed into the Wady 'Afál, whose acquaintance we had made at Magháir Shu'ayb; and, after marching over a low, sandy, and nullah-cut maritime plain, they struck the Hajj road. 'Aynúnah was made in 4 hours 40 minutes, a total of 9 hours from Makná. The general direction of the march lay to the s.s.e., and the Sulphur Hill was to the west of it.

This work was very carelessly done. Ten minutes do not suffice for a detailed plan. Moreover, I learned nothing concerning the extent of the deposit; the existence of wood and water; the distance from the coast; and the best harbour of export. I also wanted specimens from the Jebel el-Fayrúz, the so-called turquoise-hill, to which a flying visit had been made by Commander Ahmed during our northern march; so Lieut. Yusuf was again sent northwards, with orders to bring home carefully-drawn maps, plans, and sketches. His party, consisting of three soldiers, three quarrymen, an Arab guide, Jázi, and eight camels, left El-Muwaylah early on Feb. 18,

and in 11 hours reached the Jebel el-Fara', or northern "Turquoise"-hill of the Arabs. He there passed a day, sprang two mines, made a plan of the diggings, and generally confirmed the report of Ahmed Kaptán, except that no signs of work were found. These veinlets, scattered at uncertain intervals in the rock, confirm the idea that the material is silicate of copper, certainly very rich, as some specimens, when tested, yielded 40 per cent.; but probably limited in extent. Finally, two camel-loads (four sacks) of the malachite-like rock were sent under the charge of a soldier to the Fort el-Muwaylah. It is possibly the "Smaragdus Cyprius" which Theophrastus mentions as being found in the copper-mines of our latest acquisition, Cyprus.

On the next day (Feb. 21) Lieut. Yusuf struck the Wady 'Aynúnah after $2\frac{1}{2}$ miles; and, turning to the left, or west, of a straight line drawn thence to Makná, entered a country new to travellers. Leaving to the right the Wady Mukhassab (مخصب), and its Hamírah or red hill, he crossed the plain subtending the seaboard, here a succession of broad watercourses, the Wadys El-Huraybah (هريبه), "of the little War," Dakk el-'Erin (دق العرن), the "Pounding of cooked Meat," and Abú Kusaybah (قصيبة), "of the Reedlet." He found the great Wady 'Afál disemboguing into a portlet, the M'inat el-'Ayánát (عيانات), "of springs," useful to Sambuks; it has a sickle-shaped natural breakwater like that of Sinaitic Marsá Ginai, curving from west to south, and resembling the curious features so common on the north-western coast of Iceland. He then crossed the Wadys Giyál (Jiyál), before described, the Zaramah (زرمه), "of the Lavender," the Abú Zufrah (ظفره), "of the Iphiona," and the 'Ishsh; nighting at the latter after a march of 7 hours 40 minutes (= 23 miles).

On the next day (Feb. 27) the travellers, starting early, crossed the Wadys Sanám (سنام) el-Hamar, and Wagab (Wajb), about which is the oft-mentioned *Khabt* or grazing-ground. From the last-named watercourse they entered a defile, devious, barren and rocky; the difficulties of the camels, however, lasted only for about 10 minutes, and the impediments were easily removed by the soldiers and the miners. An hour of this pass placed him at the Jebel el-Kibrít after a

march of 5 hours 35 minutes ($=16\frac{3}{4}$ miles). The total distance from 'Aynúnah was thus $39\frac{3}{4}$ miles in 11 hours 15 minutes, which appears to me excessive.

Lieut. Yusuf's two journals, checking each other, his survey and his specimens enable me to describe this *Soufrière* with more or less accuracy. The hill is a long oval of 440 yards (east-west) by a maximum of 200 (north-south): the first plan gave it a diameter of only 130-160 yards. It extends, however, branches in all directions; the mineral was also found in a rounded *piton*, a knob in the Wady Musayr attached to the north-eastern side. The flattened dome is 50-60 feet high, and the *piton* 140. The metal, underlying a dark crust, 5 or 6 inches thick, appears like regular crystals and amorphous fragments of pure brimstone in the chalky sulphate of lime. This gypsum was ascertained to extend all over the adjacent hills; and the important point, which now remains for determination, is whether sulphur-veins can be found diffused throughout this non-plutonic formation. No blasting was here required; the soft rocks yielded readily to the pick.

Lieut. Yusuf fixed his position by climbing the adjacent hills. Thence Sináfir* bore 190° , and Shu'shu* 150° (both magnetic). Greater elevations to the west shut out the view of lofty Tírán, and even of the Sinaitic range; but he had reason to think that the sea-shore to the south lay at a distance of only 3-4 miles (geographical). The nearest water reported to be in the Wady el-Nakhil to the north-east, was at 2 hours' march ($=5$ miles) with loaded camels.

On Feb. 23 the party set out for the M'inat Hamdán (حمدان), lying between Makná and Dabbah: the distance is 9 miles; and 35 minutes were occupied in threading an ugly rocky pass. The cove is a port for Sambúks; defended, like the roadstead of "Madyan-town," by high ground to the north. Thence the road led southwards along the shore for 1 hour 5 minutes ($=3\frac{1}{2}$ miles) to Sharm Dabbah, the "Sharm Dhaba, good anchorage," of the chart. Possibly one of the many excellent ports mentioned by Procopius,† it is now barren and broken by masses of reefs and shoals. The head receives the Wady Sha'ab el-Gánn (جان), "Watercourse of the Ravine of the Jinns," flowing from a haunted hill of red stone, near which no Arab dares to sleep. From that point the travel-

* In Arabic "Sináfir" would be "pure" or "unmixed"; but I prefer referring the name to Pharaoh Senoferu. Shu'shu' is apparently corrupted from Sha'sha', the "long (island)."

† See vol. i. p. 323.

lers struck south-east for $9\frac{1}{2}$ miles to Ghubbat Suwayhil, the "Gulf of the little Shore." This roadstead, also useful only to small native craft, lies eastward of the long point, Ras Shaykh Hamid, the "Ras Fartak" of the chart, which forms the Arabian staple of the 'Akabah "gate," and where the coastline of north Midian bends at a right angle eastward. Adjoining it to the east, and separated by a long thin spit, is the Ghubbat el-Wagab (Wajb), the mouth of a watercourse similarly named: it is also known to the Katirah, or smaller vessels, and about a mile up its bed, which comes from the north-east, there is a well of potable water (?). According to Jázi, the guide, this "ghubbat," distant only 4-5 hours of slow marching from the Sulphur Hill, would be the properest place for shipping produce. Such details will prove useful when the sulphur-mines of north Midian shall be ripe for working.

From the Ghubbat el-Wagab the track, easy travelling over flat ground, strikes to the north-east; and, after $14\frac{1}{2}$ miles, joins the Aynúnah Sultáni or highway. On February 26th, at the end of nine days' work, Lient. Yusuf returned to El-Muwaylah with two sacks of sulphur-bearing chalk, justifying his former report. As will appear, the main body of the Expedition was still travelling through the interior. Having halted for rest at El-Muwaylah, he rejoined us on the route from Zibá; and I again found occupation for him.

At the Sharm Yáhárr, immediately upon our happy return (February 13th), preparations began for a march to the Hismá. This word, which will often recur, in pure Arabic ends with "Ya-alif," and means a plain in the desert whose mountains are rarely free from dust. The Shaykhs and the camel-men, however, dreading a rough reception from their hereditary foes, the Beni Ma'ázah, threw in my way a variety of small obstacles, which were not removed without time and trouble. Meanwhile we carefully examined our harbour of refuge. In its northern feeder the Wady el-Hárr ("hot Water-course"), of which possibly Yáhárr is a corruption, we were shown some fine specimens of oligistic iron and admirably treated modern (?) slags: evidently some gypsy-like *atelier* must once have worked here. The obsidian also has apparently been subjected to artificial heat; and a splinter of it contains a *paillette* of free copper. Two beds of oysters were discovered; and, armed with this knowledge, we afterwards found them in every bay. A small collection has been thrown by my gallant and lamented friend the late Admiral McKillop (Pasha) into the port of Alexandria, where, let us hope, they will become the parents of a fine large family of "natives."

I now applied myself to working the central Jebel el-Kibrít,

which had been superficially explored by the first Khedivial Expedition. The shortest cut from the "dock-harbour" lies up the southern Wady Hárr. An important divide separates

it from the Wady Jemayyis (جميس),* over which winds the broad track of the Pilgrim-caravan. This watercourse ends, like most of its neighbours, in a reef-barred creek of lapis-lazuli coloured sea-water. Thence the track fell into the Wady Khirgeh (خرجه), where we found large blocks of the hydrous

silicate, a serpentine coloured deep olive-green. It passed forward into the Wady el-Bayzá ("White Nullah"), which turns abruptly westward, and enters a second reef-closed bight: this valley was gay with the light-green foliage of the 'Arák; and already tender flowerets were beginning to sprout from the sands. Lastly, after 1 hour 15 minutes of sharp walking, we entered the broad Wady el-Kibrít, which comes from the south-east, and whose bed supplies drinkable water at no great distance. It rounds the Sulphur Hill to the south-east; and feeds the Wady el-Jibbah, itself a feeder of the Sharm Jibbah. In my first volume I erroneously wrote "Jubbah," like the "Joobbah" of the chart.

This central "Sulphur Hill" is an isolated knob rising abruptly from wady-ground; measuring in height some 240 feet (aneroid below, 30·14, and on top, 29·90); and about 960 yards in diameter, not including a tail of four vertebræ which sets off from north-west to south-east. Viewed from the north, it is, as the Egyptian officers remarked, a regular *Haram* (Pyramid), with a uniform capping of precipitous rock. It differs essentially from the other two deposits, the northern near Makná, and the southern near El-Wijh, in being plutonic and not sedimentary; and yet there is a mound of gypsum to the south-east. The altered condition of the granite, the greenstones and other adjacent rocks, suggests that it may be an igneous vein thrown westward by the great volcanic line, El-Harrah. In parts it is a conglomerate, where a quantity of quartz takes the place of chalk and plaster. Other deposits are iron-stained, and have the appearance of decomposed iron pyrites, an ore which abounds in the neighbourhood. Usually the yield wears the normal brimstone-yellow; yet some of the beds show the deep ochreous red, so common in the solfataras of Iceland, and supposed to be the result of molecular change, perhaps of longer exposure to the atmosphere. At Cairo I have

* From Jams, a kind of plant.

heard of both varieties being found in the old sea-cliff, the Jebel Mukattam.

M. Philipin and a small party, one sergeant and nine quarrymen, were directed to sink wells, 40 feet deep, round the pyramid, wherever surface indications suggested: old experience had taught me that such depth is necessary to strike brimstonebeds like those of Sicily. The borings brought up sulphur from 46 feet; six more were pierced, but they yielded nothing. During his sixteen working-days he sank five pits in and around the pyramid; the northernmost shaft, halfway up the hill, also gave crystals of the purest sulphur. And if the depth be not great, the surface extent is. The pyramid evidently forms the apex of a large vein trending north-south. The field consists of this cone and its dependencies, especially the yellow cliffs to the north and the south, facing, in the latter direction, a large plain cut by the Wady el-Kibrit; while a vein of the red variety, nearly 3 miles long by 25-30 inches broad, lies to the south-east near the gypsum-hill. The latter, again, yielded the crystallised salt which so often accompanies sulphur: the Bedawin brought in small specimens of rock-crystal and fragments of *negro-quartz*, apparently rich in metal, from the hill-masses to the east and south.

Feb. 17th.—At 3 P.M. we left the gunboat *Mulhbir* for the camp at El-Muwaylah. The path from Sharm Yábárr, now well-trodden, crosses a sandy plateau, metalled with the usual dark stones and silexes of the Desert. The horizontal lines of the wady buttresses argue submergence, emergence, and, lastly, the cutting out and fashioning of the torrents. The plain is deeply gashed by two short, broad and sandy gullies; where cliffs of coralline and sandstone-conglomerate, resting upon unsolid foundations, often cave in. The Hajj road, running farther east, heads these ugly nullahs. The third valley is the great Wady Surr (“making glad”), the *de facto* southern frontier of “Madyan Proper” (North Midian): we shall trace it to its head in the Hismá. Here, near the mouth, it is at least a mile and a half broad; the torrent, which flows only after the heaviest rains, swings to the southern bank away from the palm-orchards. On the right side are the garden-plots of vegetation, and the tobacco cultivated by the garrison.

Feb. 18th.—We visited and planned the ruins called Abu Háwáwit (حواويط),* or the “Father of (dwelling) Walls,” described in ‘The Land of Midian (Revisited).’ These remains,

* I presume the word to be a local and peculiar plural of “Háit,” which generally forms “Hitán” and “Hiyát.”

and the vestiges of furnaces lying near the north-eastern tower of the Fort, prove that, despite Wallin (p. 300), El-Muwaylah is an ancient settlement. Possibly it is the Ἴππος Κώμη, the Horse Village (and fort?) which Ptolemy (VI. vii.) places in N. lat. 26° 40' (true 27° 39'); whilst his Ἴππος ὄρος would be the glorious Shárr, to which he almost correctly assigns N. lat. 27° 20'. We vainly asked, however, about the Wady Maktúb, the written or inscribed valley, placed by Ruppell two days east of El-Muwaylah.

II. *In the Hismá.*—The exploring party was now ready for the most serious part of its undertaking, a journey to the eastern regions, where the comparatively quiet and submissive tribes, subject to Egypt, encounter the robber-races that levy tribute from, instead of paying tribute to, the equally despotic and detestable Turkish Government of Syria. The expedition was divided into four. As has been said, Lieut. Yusuf was sent north and M. Philipin was stationed south; while the Greek dragoman and his assistant remained as magazine-men at the Fort el-Muwaylah: here also were left behind the sick officers and men. The main body consisted of Mr. Clarke, MM. Marie and Lacaze, Ahmed Kaptán, and Lieut. Amir; of two sergeants commanding the riflemen (Remingtons), with an equal number of quarrymen; the whole escorted by the Sayyid and by the three salaried Shaykhs, including our friend Furayj. This reduced the number of camels to sixty-one, and greatly facilitated marching.

Feb. 19th.—At 6.30 A.M. we left El-Muwaylah, riding up the Wady Surr, and 1 hour 15 minutes (= 3 miles) led us past the Abú Hawáwit ruins before mentioned. After travelling a total of 2 hours 45 minutes we found the Wady Surr becoming the gorge of the normal type; it is walled by old conglomerates of large elements forming dwarf precipices, some 40 feet high; and it receives a multitude of sandy influents, many reported to contain drinkable water. The principal features with names on the right bank are: the Sha'ab el-Jebel Malíh (مليح), a nullah about a quarter-mile broad; the Jebel el-Najil (نجل);* the Wady Umm Shekák (شقاق), or "Mother of Clefts," and the Wady Umm Muzayrikát (مزيرقات), distant about 2 miles from the Najil. The left bank showed the Wady and Jebel Zahlattah (ضاحلطة), the Jebel el-Hummaih

* "Najil" is the name of a bitter herb.

(حمه), "of great heat," and the red pile of Jebel Maysarah, whose watercourse also feeds the Surr. After 3 hours 15 minutes (= 6 very slow miles) of actual marching and much dismounting, we halted for rest and reflection at a long piece of water in the section of the Surr which receives the Wady el-Najil. The pits proved that the sands rest upon the usual tenacious clay; besides flocks of sheep and goats, game—hare and partridge—was found; and a thorn-tree on the upper heights, instead of in the valley, was a pleasant and unusual spectacle.

We resumed the way about noon, remarking that the characteristic trap and porphyries now formed in the granite great veins, which dwarfed by comparison those of the quartz; whilst the sole was scattered with hard water-rolled serpentines and felspars, whose dove-coloured surfaces showed silver-white fibrils. Riding another hour (= 4 miles) to the eastward—a total of 4 hours 15 minutes (= 10 miles)—we suddenly saw our tents pitched in a widening of the Surr bed known as El-Safh (the level of) Jebel-Malayh: the latter word is the Doric Bedawi form of "Malih," a hill which we shall afterwards visit. The wide and almost circular basin receives and collects the produce of many large nullahs. To the north is the Wady el-Guwaymarah (قويمري); to the north-east the Wady "Ma-

layh;" to the east the upper course of the Wady Surr, and to the south-east the Wady Kusayb. The Surr gorge here shows gloomy and precipitous walls of dark and polished trap, contrasting strongly with the glaring yellow sole of stone, gravel, and sand; and, about a mile up it, drinkable water and palm-bush appear. The Wady Kusayb was reported, falsely as we afterwards found, to contain "Hawáwít" (ruins).*

Feb. 20th.—Yesterday we had come out of our way to inspect the Surr, that is, we had travelled eastward instead of north-eastward. Consequently the whole of this march was northerly, in order to strike the main commercial road connecting El-Muwaylah with Tabúk.† From the sea-board the Surr, which drains the northern and eastern flanks of the Shárr mountain-block, appears the directest line into the interior; we shall presently see the reason why the devious upper line is preferred by the trader.

The usual road lies up the Wady Guwaymarah, whose eastern bank shows extensive gneiss and schistose formations. From this point the little detached rock, Umm Jedayl, with grey

* March 14 proved that the informants had drawn upon their fancies.

† Vol. i. chap. x.

granites gleaming white over the dark-red and brown foot-hills, assumes the shape of a saddle-back: its crupper was pointed out to us as the site of a ruined city, "El-Khulasah" (خلصه).*

After walking about half an hour, we turned eastward into the Wady el-Khulasah, whose vegetation was charming after the sterility of the coast. Our guide led us towards the Shárr, that is, with our backs turned to this day's camping-ground; and, when we had walked 1 hour 30 minutes (= $4\frac{1}{2}$ miles), he confessed that El-Khulasah was unknown to him. He added that the site of another ruin, El-Zebayyib, was about 2 miles distant, a little beyond a bright red peak "Abá 'l-bárid" on the left bank of the Khulasah Fiumara. The Bedawin of Midian universally use the accusative (Abá) when others would prefer the nominative, Abú: apparently this change takes place before the article as "Abá 'l-Marú;" not when it is absent, as in "Abú Hawáwít."

Mr. Clarke rode off with the guide; and, instead of hugging Abá 'l-bárid, behind which a short watercourse was the straightest way, he struck to the right of the Khulasah, crossed a rough divide, and fell, after riding some 6 instead of 2 miles, into the upper section of the Wady Surr. On its right bank he found the ruins which we shall presently visit. †

Meanwhile we retraced our steps down the Wady, whose Jebel (El-Khulasah) lay now to our left. The lower valley shows a few broken walls, old Arab graves, and other signs of ancient habitation; but I am convinced that, despite all our exertions, we missed the ruins which lay somewhere in the neighbourhood. Presently on our left the Wady Kámirah leaves the Wady Kuwaymarah, and falls into the sea 1 mile north of "Shaykh Abdullah," patron saint of El-Muwaylah. To the right lay the western foot-hills of the Umm Jedayl, especially the Jebel el-Ramzah, with its red crest and veins. The path ran over granitic gravel, strewed with quartz, whole and broken, like the land about the Jebel el-Abyaz; much of it seemed to come from the Wady Umm Jedayl el-Atshán (عطشان), the "Thirsty," as opposed to El-Rawiyán, the "flowing." We advanced to a fine valley, the Sayl Wady el-Jimm; and now I learnt, for the first time, that El-Jimm (جم) is the name not of a height, but of a Sha'b or gully in which water collects (يجمع). In my vol. i., chap. v., where occur several differences

* The celebrated idol of the Aden Arabs was called El-Khalasat.

† See part ii. sect. v., March 15.

of nomenclature, the Jebel el-Jimm was mentioned as 'the mountain of the truncated tower, when the latter is a mere saddle-back in the Dibbagh (دبغ) block. The Wady "Zojeh" (p. 128) should be *Wady Kh'shabriyyah*. As regards the names "Fara' el-Samghi"* and "Abu Zayn" (ibid.), I could learn nothing: in p. 129, the dome-capped rock is wrongly called "Abu Zayn," instead of *Jebel Harb*. For the latter, which is ignored (note, p. 128), see chap. xiii., 'The Land of Midian (Revisited).' "Sadr," also, is made a mountain, instead of a great wady.

The Eastern Gháts now show a break in the line of axis separating the Umm Jedayl from its northern neighbour, the tower'd Dibbagh. It is generally known as the Wady Kh'shabriyyah (خشبرية), after its Jebel of the same name, a remarkable peak which it drains to the Wady Sadr. The valley, apparently a fine road, is, they say, closed to camels by Wa'r, or stony ground; of its ruins we shall presently hear more.† We drank the water of the Sha'b Ridayh (ردية). The total march occupied 4 hours (=10½ miles), and the rhumbs were north, north-east, west, and again north.

Feb. 21st.—We set out at 6.30 A.M. across the broad Sayl (torrent-bed) towards a bay in the mountains bearing N.N.W. This is the mouth of the Wady Zannárah, which, after running 2-3 miles falls into the Wady Tiryam. After walking 30 minutes we entered its eastern branch, the Wady el-Liwéwí (لوبوى),‡ the "Weiwi" of Wallin (p. 304). We passed east of the Jebel of the same name; and a short cut, the Sha'b el-Liwéwí, led over a great northern bend in the bed. The path was wild riding and very winding, at times turning almost due east when our general direction was N.N.E. Returning to the Wady Liwéwí, and ascending it for a few yards, we began the second short cut of 50 minutes to save a 2 hours' bend; the deep drops, and the narrow gutters in the quartz-veined granite, compelled even the Shaykhs to dismount from their dromedaries during the descent. This section is called the Wa'r el-Ga'gah (جعاجه) § *alias* Sa-wáwín, the latter also the name of a valley farther on.

After a ride of 3 hours 10 minutes (= 8 miles), we halted

* See, however, part ii. sect. v.

† Part ii. sect. v.

‡ Lawí would mean winding (a valley).

§ In pure Arabic Ja'ja' would be rough ground, a bad defile.

at the conjunction of the Wady Liwéwí with the Sadr (the chief or pre-eminent). The latter is the upper course of the Wady Tiryam, and we shall follow it to its head. The Wadys Kahlah and Zamahrah, which, during our first journey, had been described to us as the main passes over the eastern range, proved to be mere secondary branches lying north of the Wady Sadr. Wallin, whose line was a little north of ours, calls the first "El-Kahalé" (i.e. of the *Echium* or borage-plant), and travelled up it, for 1 hour 20 minutes; its north-eastern prolongation, "Al-Huleikâ" (El-Hulaykah, the "Little shaven"), separates the Fás and the Harb blocks; and I heard also of a Nakb el-Hulaykah.

At the junction of the Liwéwí-Sadr we were joined by the caravan, which had made three long legs, to north, to north-east, and to east. We now struck up the Wady Sadr, a scene wild and weird enough for Scotland or Scandinavia. On the right or southern bank towers the great Harb mass, whose dome, single when sighted from the west, here shows three several heads. Opposite it, at the northernmost end of the Dibbagh block, rises the huge tower conspicuous from the sea-board: a little farther eastward, it will prove to be the monstrous pommel of a dwarf saddle-back. As it has apparently no name, we called it the "Burj Jebel Dibbagh."

The Wady Sadr was deserted of man, although the Ma'ázah are not far off. The Beni 'Ukbah had temporarily abandoned these grazing grounds for the Surr. Passing the Sha'b Turbân, a cleft in the Dibbagh, said to contain rain-water, after another hour (= 3 miles), and a total of 4 hours 10 minutes (= 11 miles), we halted for the night at the mouth of the Sayl el-Nagwah (نَجْوَى), of "High Ground." This torrent-bed lies at the foot

of the granite block, an outlier of the Dibbagh, similarly named (from tanning?). Its gap, the Sha'b el-Murayfal, supplied us with tolerable rain-water. The sole of the Sadr was parti-coloured. The sands of the deeper line to the right are tintured cool green by the degradation of the porphyritic traps, here towering in the largest masses yet seen; whilst the gravel of the left bank looks warm with red grit and syenitic granite.

Feb. 22nd.—We left the Nagwah at 7 A.M., and passed on the right a granite outcrop in the wady-bed, a reduced copy of the "Burj." After an hour's slow walk (= 2½ miles), we were led, dismounted, to a rock-spur projected northwards from the left or southern bank. It separates two adjacent "Sayls," mere bays in the Dibbagh block, the western Sha'b Burayrig (Burarayg?), from the Eastern Sayl Umm Laban: they front

the Sha'b el-Namrah (of the "she Leopard") on the northern bank, a line which is said to contain water and palms. Upon the rock-spur we found spalled quartz, traces of a zigzag road, and signs of an *atelier*; but the settlement, if there ever was one, had entirely disappeared.

Resuming our ride, we dismounted after 1 hour 15 minutes (= 4 miles) at the half-way Mahattah (halting-place), a *rond-point* in the Wady Sadr, marked from afar by a tall blue pyramid, the Jebel el-Ga'lah (جعله).* We spent some time examining this interesting bulge. Here the Jibál el-Tihámah end, and the eastern parallel range, the Jibál el-Shafah, begin. The former belong to the Huwaytát and to Egypt: the latter to the Ma'ázah and Syria. The frontier is well defined by two large watercourses, running nearly on a meridian, and both finding the main drain, the great Sadr-Tiryam. The northern branch, Wady Sawádah, divides the granitic group from the porphyritic Jebel Sawádah; the southern, Wady Aylán (ايلان), separates the Dibbagh from the Jebel Aylán.

The rest of our march eastwards will now lie through the Shafah Range. It resembles, on the whole, the Tihámah Gháts; but it wants their charms. The granites which farther west pierced the traps, Wallin's "dark brown sandstone" (p. 305), now appear only at intervals. This I am told is the case throughout the northern prolongation of the "Lip Range:" for instance, in the Wady branch separating Jebel Urub from its southern neighbour, the Jebel Fás; and in the Wady el-Halaykah, the watercourse immediately south, feeding the Wady el-Káhlah. In the southern "Shafah" we saw it for ourselves. At the same time there is no distinct separation, no wide plain, between the two parallel ranges, the maritime and the inland. They are topographical continuations of each other.

At the halting-place, we first made acquaintance with the Ma'ázah, and the meeting was decidedly unpleasant. About 11 A.M. we remounted, crossed a Wa'r to save time, and again fell into the upper Wady Sadr. Here the right bank receives the Wady Sawáwín (Suwaywín), draining the eastern mountains. Wallin (p. 305) ascended its "difficult track," and found it encumbered with huge stones and detritus from the adjacent blocks. Its pass, the "very steep defile," Nakb el-Sawáwín, placed him at Wady Rawiyán, beyond the crest of the Hismá plateau.

From the right bank of the Sadr, the branch Wady Sahlúláh

* Ga'lah means either a worthless palm-tree, whose fruit cannot be plucked, or a young palm-shoot.

(صهلولة) runs to the Wady and Jebel Gahd (Jahd, "of Struggling"), the quartz-region before explored by Lieut. Amir. We followed various bends to the south and the south-east, with a general south-south-eastern direction, the Jibál 'Azzázah (عزازة) being on our right. The plains were scat-

tered with women tending sheep and goats: the former have a fine "tog," and sell for \$3½. At last we came to another Wa'r, and, on the right side of the rocky tongue, where the northern face falls pretty stiffly into the valley, we found a pot-hole of rain-water rejoicing in the grand name "Miwáh (for Miyáh) el-Rikáb"—the "Waters of the Caravan."

After a second spell of 2 hours (=7 miles), and a total of 5 hours 15 minutes (=13½ miles), we again camped in the Sadr Valley. The altitude was about 3200 feet (aner. 27·80); and, though the thermometer showed 66° (F.) at 5 P.M., fires inside as well as outside the mess-tent were required. A wester (sea-breeze), deflected by the ravines to a norther, was blowing hard; and in these regions, as in the far north of Europe, wind makes all the difference of temperature. During the evening we were visited by the Ma'ázah Bedawin of a neighbouring encampment: they began to notice stolen camels, and to wrangle over past times—another bad sign.

Feb. 23rd. — Setting out at 6.45 on a splendidly clear morning, when the towering heads of Harb and Dibbagh looked only a few furlongs away from us, we imprudently preceded as usual the escort; an excessive timidity on the part of our men had made us rash. Walking 30 minutes (=1½ mile) we passed some black tents on the left bank, and the Ma'ázah, at once lighting their matchlocks, manned a rocky narrow in the upper bed, and set up their war-song. We were advised to halt till our soldiers and Arabs came up with a run, and then it turned out that "there had been some mistake." But as the women, children, and animals remained in the tents instead of flying to the hills, I felt convinced that the demonstration had been ordered from head-quarters, with the object of infusing into our spirits a wholesome awe. I ended by taking a Ghafir, or "guide," and both parties went their ways rejoicing.

The upper Sadr, winding through the usual red and green hills, showed a much finer vegetation, the effect of increasing altitude. The chief plants were the thorny Kidád (*Astragalus Forskählii*); the purple bugloss, El-Kahlá (*Echium*); the Jarad thorn, the wild hyacinth; *Lavandula*, *Salvia*, *Verbena*, *Reseda* (*canescens*?), *Tribulus* (*terrestris*), and the red and yellow

Bromus grass; with the familiar Cassia (*Senna*), Artemisia and Cucumis (*Colocynthus*); the Genista, or broom, Ratama (*R. Ratama*),* and the Cytisus, with golden bloom. Presently it opened upon a large basin, the Ras (head) Wady Sadr: this is the second Arab stage from El-Muwaylah. In front of us the Jibál Sadr extended far to the right and left, a slight depression showing the Khuraytat, or Pass, which was to be ascended on the morrow. To the left (north) appeared the Jebel and Wady el-Safrá, discharging a quantity of quartz and syenite. At the mouth of this "yellow" watercourse stood a knob of hill, the Jebel, concerning which the wildest tales, golden gleam by day, and fire by night, had been told to us.

We reached our tents in 3 hours (=9 miles), travelling generally to the E.S.E., and found them pitched below the Jebel Kibár (كبار), whose Sha'b lay to the south. From this

point the Harb apex bore 303°, the Dibbagh 285°, and the Sakhárah, a blue peak visible from the sea, 274° (all mag.). We were remounting to ascend a neighbouring hill which commands a prospect of the Hismá plateau, when we sighted from afar the Ma'ázah chiefs riding in to meet us. They numbered five, viz., the head-Shaykh, Mohammed bin 'Atiyyah; his son Sálim; his brother, the wrinkled Sagr (Sakr); and his two nephews, 'Ali and 'Abayd. Everything went off well at the formal reception, and they agreed to escort us up the Pass on the morrow. The aneroid showed a height of 3000 feet (26·91, the mean of three obs.), and the violent wind at midnight sank the mercury to 38° (F.). It was intensely cold.

Feb. 24th.—Overcoming the last objections of our unhappy Huwaytát, who felt themselves being led into the lion's den, we struck tents and set out at 7.15 A.M. About 1 hour (=1½ mile), over rough and rocky ground, leads to the northern pass, called Khuraytat el-Hismá, or El-Jils (جلس), *Jals* meaning in classical Arabic "a high hill, a hard and broken surface." Thus it is distinguished from the Khuraytat el-Zibá (the "Zibá-pass"), because leading to that port; alias Khuraytat el-Tehámah, the Ma'ázi pronunciation of "Tihámah." This was remarked by Wallin (p. 305), who wrote "Al-Tähámá."

The zigzag path now ascends a ladder of rocks, following the line of a mountain torrent, the natural pass, crossing its bed from left to right; and again from right to left. It is the rudest of *corniches*, worn by the feet of man and beast, and

* This name for the Spartium is pure Hebrew (סרתם).

broken by ugly abrupt turns. The absolute height was about 450 feet (aner. 26·70–26·25), the length half a mile, and the general direction lay, like the day's march, due east (mag.). The ground, composed mainly of irregular rock-steps, offers little difficulty to horse and mule; but it was a marvel to me how the laden camels ascended and descended without accident.

We halted on the Safh el-Nakb, the "Level (summit) of the Pass," to await the caravan, and to prospect the surrounding novelties. Heaps of dark trap dotted the lip, like old graves; many stones were inscribed with Wusúm (وسوم), or tribal

marks; and two detached pebbles bore | H and V |, which looked exceedingly like Europe. Some of the piles were capped with snowy lumps of quartz, to serve as memorials, a common practice in these regions. We picked up copper-stained quartz, like that of 'Aynúnah; fine specimens of iron and dove-coloured serpentine, with silvery threads and streaks.

We then ascended the Jebel el-Khuraytah, a trap hillock some 120 feet high, and had a fine view westward through the inverted arch formed by the two staples of the Pass, and down the long valley (Sadr) which had given us passage. Hence the Harb dome bore 300°, the Dibbagh apex 286°, the Umm Jedayl 268°, and the middle Shárr 240° (all mag.). The eastern faces of these coast giants appear well above the Shafah range, and our altitude, some 3800 feet, gave us, to a certain extent, a measure of their grand proportions. Down the Sadr the eye distinguishes a dozen distances, whose several planes are defined by all the shades of colour that the most varied vegetation can show. And here I must delay for a time, to explain the change of scene and region.

We now stand upon the westernmost edge of the great central Arabian plateau known as El-Nejd, the highland, opposed to El-Tihámah, the lowland, regions. In Africa we should call it the "true," subtending the "false" coast; beautiful Dahome compared with hideous Lagos. The Arabian geographers justly observe that the valleys of the Tihámah descend westward to the sea, whilst those of the Nejd drain eastwards to inner Arabia. Again they distinguish the flora. The former produces the Mimosa (*Samur*),* the Acacia (*A. gummifera*), and the Tamarisk (*Asal*†), whereas the latter grows the "shrub called Ghadá."

* The botanists have adopted the plural of the "Samurat" as a singular.

† Mr. Ayrton, in his notes in 'Wallin' (p. 306), translates "Asal" (Athl) by "species of Acacia." The Arab name of the *Tamarix orientalis* is pure Hebrew (לשן).

This upland, running parallel with the Lip-range and with the maritime Gháts, is the far-famed Hismá. It probably represents a remnant of the old terrace which, like the secondary gypseous formation, has been torn to pieces by the volcanic region to the east, and by the plutonic upheavals to the west. The length may be 170 miles, the northern limit is either close to, or a little south of, Fort Ma'án;* and we shall see the southern terminus of the Hismá proper sharply defined on a parallel with the central Shárr, but not extending, as we had been told, to the latitude of El-Wijh. The latter, however, would not be far out, if the "Jaww" † be considered, as certain of the Bedawin say, a continuation of the Hismá, under another name. An inaccessible fortress to the south, it is approached on the south-west by difficult passes, easily defended against man and beast. Farther north, however, the Wadys 'Afál (about El-Sharaf), El-Hakl (Hagul), and El-Yitm, near El-'Akabáh, are easy lines without Wa'r (stony ground), or Nakb (ravine-cols).

The Hismá material is a loose modern sandstone, showing every hue between blood-red, rose-pink and dead, dull white: again and again fragments had been pointed out to us in ruined buildings and in the remains of hand-mills and rub-stones near the coast. Possibly the true coal-measures may underlie it, especially if the rocks east of Petra be, as some travellers state, a region of the Old, not of the New Red. According to my informants, it has no hills of quartz, a rock which appears everywhere except in the Hismá; nor should I expect the region to be metalliferous.

On the summit of the trap-hillock Jebel el-Khuraytat, the southern jamb of the Khuraytat gate, we found a ruined "Burj," measuring 46 feet in diameter. This commanding site gives a splendid and striking view. After hard, dry living on grizzly mountain and unlovely wady, the fine open plain, slightly concave in the centre, was a delightful change of diet to the eye—the first enjoyable sensation of the kind since we had gazed lovingly upon the broad bosom of the Wady el-'Arabah. The general appearance is that of Eastern Syria, especially the Haurán. At the present season all is a sheet of pinkish-red, which in March will turn to lively green. On

* As has been shown, the Bedawi Shaykh of El-'Akabáh placed the northern limit one march south of El-Ma'án (the Waters), while Wallin (p. 308) makes it head at that settlement and end at Tabúk, in the south. His words are, "The Jibál el-Harrah advances in a north-easterly direction, till it gradually sinks into irregular hillocks in the neighbourhood of Tabúk."

† Meaning air, sky, low ground, or open space: it is also an equivalent of the old term Yemámah, which comprehended El-Nejd, El-Tihámah, Bahrayn, and Omán; in fact, Northern Arabia.

this parallel the diameter does not exceed a day's march, but we see it broadening to the north. Looking in that direction, over the gloomy metallized porphyritic slopes upon which we stand, the glance extends to a sea-horizon, while the several plains below it are dotted with hills and hill-ranges, white, red, and black: all are distance-dwarfed to the size of thimbles and pincushions. The guides especially pointed out the ridge El-Mukaykam, a red block upon red sands, and a far-famed rendezvous for raid and razzia. Nearer, the dark lumps of El-Khayráni rise from a similar surface; nearer still lie the two white dots, El-Rakhamatayn (the "Two Vultures"), and nearest is the ruddy ridge, "Jebel" and "Jils el-Rawiyán," containing, they say, ruins and inscriptions, of which Wallin did not even hear.

The eastern versant of the Hismá is marked by long chaplets of tree and shrub, disposed along the selvage of the water-courses; and the latter are pitted with wells built up after the fashion of the Bedawin. In this rhumb the horizon is bounded by El-Harrah, the volcanic region, whose black, porous lavas and honeycombed basalts, often charged with white zeolite, are still brought down even to the coast, where they serve as mortars and hand-mills. The profile is a long, straight, and regular line, as if formed under water, capped here and there by a tiny head like the Syrian "Kulayb Haurán." Its peculiar dorsum makes it distinguishable from afar, and we could easily trace it from the upper heights of the Shárr. It is evidently a section of the mighty plutonic outbreak, which has done so much to change the aspect of the parallel Midian seaboard. Wallin's account of it (pp. 307-309) is confined to the place where he crossed the lava-flood. I believe him to be wrong where he tells us (p. 309) that the southern boundary of the Hismá plain, is "formed by the steep front of a lateral chain of hills (*El Harrah*) which branches out at an acute angle from the Shafah chain." The two formations—Shafah and Harrah—are palpably and completely distinct. Again he says, "From the acute angle, named al-Zawiié (El-Záwiyah, the Corner),* thus formed between the Shafah chain and its lateral branch of Harrá, the land of al-Hismá gradually opens out into an extensive plain." But the Hismá extends far southwards, forming the "Jaww," and the Harrah even farther. Finally, he renders "El-Harrah," which, in Arabic, always applies to a burnt region, by "red-coloured sandstone."

The Bedawin far more reasonably declare that this Harrah

* Also meaning a cell. The "Jibál el-Záwiyah" will be noticed further on.

is not a mere patch, as it appears in Wallin's map. My worthy predecessor made it a narrow oblong not exceeding 60 miles (N. lat. 27°-28°), and disposed diagonally from north-west to south-east; while (p. 323) he considers it "as a rhomboid, with its angles facing the four cardinal points." According to the people, it is a region at least as large as the Hismá; and it extends southwards, not only to the parallel of El-Medinah, but to the neighbourhood of Yambú (?). The upper region has two great divisions; the Harrat-Hismá, or *The Harrah par excellence*, which belongs to the Ma'ázah, and which extends southwards through El-Sulaysilah as far as the Jaww (جو).

This latter region, a tract of yellow sand, dotted with ruddy hills, apparently, I have said, a prolongation of the Hismá, separates it from the Harrat el-'Awayraz (عويرض), in which the Jebel el-Muharrak lies.* The line of vulcanism is continued south by the Harrat el-Mushrif (P. N. of a man); by the Harrat Sutúh (ستوح) Jaydá;† and, finally, by the Harrat el-Buhayr (بحير). The latter rises close behind the shore at

El-Haurá, where it is in the same latitude as El-Medinah, and where we shall presently sight it. There is great interest and a genuine importance in this large coast-subtending eruptive range, whose eastern counterslope demands careful study. The "Jaww" has not yet been visited by Europeans; but the country, lying through the lands of the peaceful Baliyy, offers no difficulties.

Sweeping the glance round to south, we see the southern head of the "Jilsayn," two tall mountains of horizontal strata, with ironstone in harder lines and finial blocks. This is the Jils el-Dáim," so distinguished from the northern Jils el-Rawián. The lower edge of the Hismá cliffs rises in red and quoin-like masses, the Jibál el-Záwiyah; and then falls suddenly, with a succession of great breaks, into the sub-maritime levels. During our next ten days' travel we shall be almost in continuous sight of its southern ramparts and buttresses. Far over the precipices stretch the low yellow sands of the Rahabah (رحبة), alias the Wady Dámah; and behind it towers the

* For notices of this "Burnt Mountain," so well-known at El-Wijh, see 'The Land of Midian (Revisited),' chap. xviii.

† Sutúh Jaydá would mean the "flats of the fine-necked" (woman, mare camel).

skyblue mountain-block, which takes its name from the ruins of Shaghab and Shuwák.

When the caravan reached the pass-summit, we accompanied it to the nearest camping-ground, about 30 minutes (= 1 mile) from the Col; and thus giving the day a total of 2 hours (= 3 miles). It lies to the west of the red Jils el-Rawiyán, and is supplied with excellent drinking-water by the Miyáh el-Jedayd, lying about 1000 yards to the south-east. On the other hand, fuel, here a necessary of life, was wanting, nor could the camels find forage. Luckily for ourselves, we had camped upon the very edge of the Hismá; and the Ma'ázah Shaykhs showed much disappointment at our not making their quarters on the far side.

In the evening matters assumed a threatening aspect. It was rumoured that the Ma'ázah, refusing to allow the Huwayti camels to carry us, had sent messengers to collect their own animals; and this of course was interpreted to mean a gathering of the tribe. Besides the want of fuel and fodder, the Shaykhs and their followers were eating us up, and began to debate whether they should charge us as blackmail for free-passage \$100 or \$200 per diem. And, worst of all, quarrels about the past were beginning amongst the camel-men.

I was sorely disappointed for more reasons than one. The chief object of this march was to investigate the inland depth of the metalliferous deposits; their extent from west to east; and our only chance of finding a virgin California would be in the unknown tracts lying to the east of the "Harras." Moreover, all manner of archæological remains were reported; the Jils el-Rawiyán famed for "Hawáwít;" the ruins of El-Ruáfá almost in sight; and Karáyyá, on the Damascus road, which Wallin (p. 316) was unable to visit. Lastly, when too late to inspect the place, I secured a fragmentary Nabathæan inscription finely cut in soft white sandstone. Too bad to have every object thwarted by the exorbitant demands of a handful of thieves!

Yet a retreat was, under the circumstances, necessary. I will not trouble the reader with my reasons; he will readily believe that none but the most urgent compelled me to take such a step.

Feb. 25th began with a violent discussion, which ended with my having to pay at the rate of \$100 per diem—\$200 into the hands of the Shaykh, Mohammed bin 'Atiyyah. After this *avanie*, we were escorted with due civility by our plunderers. We reached the foot of the Khuraytat el-Jils in 26 minutes, and, after a short delay to collect the caravan, we

began to descend the Southern Col, the Khuraytat el-Zibá. Here the watershed of the Wady Surr (of El-Muwaylah) heads; and merchants object to its shorter line because their camels must climb two ladders of rock instead of one. The descent was much longer, and but little less troublesome than its northern neighbour; the formation was the same, and 45 minutes placed us in a sandy gully that presently widened to a big valley, the Wady Dahal (دحل), of the "Water-holes" or Wady el-Khuraytat. We reached the camping-place at 12.30 P.M., and laid down the march from the summit of the Northern Col at 3¼ miles.

That night was passed at some distance below the water of the Wady Dahal. The place is known as the Jayb el-Khuraytat ("Collar of the Col"). The term "Jayb," meaning a broader and larger feature than a wady, and in pure Arabic denoting the entrance into a country, is locally applied to two places only; the other is the Jayb el-Sa'lúwwah, which we shall presently visit. We are now about 35½ direct geographical miles from El-Muwaylah, east with a trifle of northing; a march of 12 hours for dromedaries. Thus the distance from the Port to the Hismá would measure by this road a little under 40 miles.

III. *To the ruins of Shaghab and Shuwák.*—We have now left the region explored by Europeans, and our line, to the south and the south-east, will lie over new ground. The land in front of us is no longer "Madyan": we are entering the South Midian, which will extend to El-Hejaz, of which, according to some of the Arabian geographers, it forms a part.

Feb. 26th.—We set out at 6.15 A.M., down the Wadys Dahal and Affán (عفان P. N. of man), and made a considerable round between s.s.e. and s.e. to avoid the stone-torrents discharged by the valleys and gorges of the Shafah Range on our left hand. On the right (west) rose the Jebel Sula (صلع) and other outliers of the Tihámah Mountains, above whose nearer heights towered the pale peaks of the Shárr. Between the two is a network of nullahs, the upper branches of the Wady Sa'lúwwah (صعلوه). This well-wooded Fiumara runs nearly southwards, passes along the mountain of the same name, and feeds the great Wady Dámah (دامه).

At 9 A.M. we left the Sa'lúwwah, and turned abruptly eastward up the Wady el-Sulaysalah, whose head, draining the Hismá, falls sharply from the Shafah Range. The ground is

still that of the plateau, red sand with blocks of ruddy grit; and, according to Shaykh Furayj, it forms the south-western limit of the Harrah. The surface is honeycombed into man-traps by ground-rats and lizards. The former, called Girdi (جردى), in classical Arabic "Jirdaun" (جردون), means a ground-rat or field-mouse. Like the Jerboa it must be nocturnal, for we never saw during the day a live specimen.

We then ascended the rough and rocky divide known as the Tala't Majrá Ruways, "Rise of the Watershed of Ruways." The Midianite Bedawin pronounce Majrá (مجرأ), literally, a place of flowing, a watershed (wasserscheide), a versant, as if it were written Maghráh (مقرأ); but the latter is not

known to the dictionaries. Prof. Palmer ('Desert of the Exod.' Appendix E) translates the Sinaitic "Magráh, or Majráh," by "a hollow or depression in which rain-water collects." He also finds in the Negeb (Negeb) a Jebal Magrah; the Rev. William Holland writes "Jebal Mugrah, never before penetrated by travellers, and far from correctly laid down in the map" (Brit. Ass., Aug. 15, 1878). My learned friend Sprenger thinks that the two words, *Majrá* and *Magráh*, may be identical; but as Arabic dictionaries are, at the best, imperfect, he advises me to write the word as it is pronounced.

On the right of the track lies the ugly tormented ridge El-Ruways (رويث); to the left the queer isolated lump Jebel el-Muraytbah (مريطبه), of the "Sweet Well".* The latter, grey granite of coarse elements, has upraised and imbedded in its substance the more ancient traps; in its turn it has been cut by long horizontal dykes of the hardest quadrangular basalt. After this point the regular granite sequence disappears, nor will it again become visible till we reach Shaghab (March 2).

As yet we had only ridden 4 hours (= 11 miles), and we had remounted, after noon, for a long spell, when the cry arose that the "Water of El-Muraytbah" was dried up. It is not a rain-pool, but a spring rising slowly in the sand-stuffing of three fissures in the granite, lying parallel with one another, and at different levels. The highest and principal crevice, easily cleared out, produced a supply potable but slightly sulphurous

* Martabah is a sweet (well) lying between saline (springs). If written with the first "t" the word would mean "of the little steps."

and chalybeate. The delay, however, brought this day's work to a close. The Shaykhs will now fight hard for 4-hour days.

Our evening was cheered by the sight of the Hismá. We forgot the hot unlively march, the thirsty mules, and the insect world that persecuted us, in the presence of the weird and fascinating aspect of the southern plateau-wall rising opposite the camp, and distant about a mile from the dull drab-coloured basin El-Magráh. Based upon mighty and massive formations of brown and green trap, the undulating junction being well defined by a horizontal white line, the capping of sandstone rises regular, as if laid in courses, with a huge rampart, the *Taur* (كور) *el-Shafah*, or "inaccessible (part) of the Lip Range," falling perpendicular upon the natural slope of its glacis. Farther eastward the continuity of the coping is broken by what the Bedawin here call El-Girágir (جراجر),* the most remarkable of castellations. As we progress south-eastward, we shall find them curving from north-east to south-east, in a manner of scorpion's tail, with detached vertebræ, torn and wasted by the adjacent plutonic rocks. Viewed from the west, the Girágir look like red reefs and islets rising above the great gloomy waves of trap and porphyry; and in places they are backed by the horizontal lines, lavas and basalts, of the straight-backed Harrah. From the Dámah watercourse the castled crags appear art-like enough to suggest haunted ground, a glimpse of the city of Brass built somewhere hereabouts by the olden king, Shaddád ibn 'Ad.

Feb. 27th.—At 6 A.M. we began the march by striking eastward over the rim of the dull basin. Here is an old made road, a cornice about $1\frac{1}{2}$ mile long, cut in the stony flanks of a hill whose head projects southwards into the broad Wady Hujayl (حجيل, "the Little Partridge"). The latter seems to drain inland; presently it bends round by the east, and feeds the main artery, Wady Dámah. Rain must have fallen, for we found many plants flowering, especially the Hargul (حرجل), a *Rhazya* (*stricta*), which fills the air with its lavish fragrance, and the distaff-like "Masnur" (*Fungus melitensis*, or *Cynomorium coccineum*), of which the Arabs "cook bread." Yellow is the prevailing tint of the vegetation throughout Midian, often

* Jurágir would mean noisily rushing water, from Jarjar, a word similar to our "gurgle."

suggesting the careless wheat-fields of England, in which "shillock," called wild mustard, abounds; and here we miss the lovely anemones, the papavers, and the mauve and white cyclamens of Syria. Future collectors of botany are warned that the vegetable follows the rule of the mineral kingdom: every march exhibits something new, and he who neglects to gather specimens in one valley, will often miss them in its neighbours.

A denser line of trees down the Wady Hujayl showed the water of Amdán (امدان), which others called "Midán;"* represented to be 6 hours distant from our last camp, it was passed after 1 hour 30 minutes. To the left, and facing us, rose the Girágir, all decayed Hismá, blurred and broken by the morning mist. Presently turning to the south-east, we struck across a second wild divide into the Wady el-Aráish (ارایش), another feeder of the Wady Dámah running southwards. Like yesterday, the loose red sand is Hismá-ground, and it is scattered with blocks of the Harrah-lava. The walls are burnished felsite and green porphyritic trap, a barren ugly formation which will haunt us for several marches.

After riding 4 hours (= 12 miles) we halted in a short watercourse, the Wady el-Girágir. Here we could prospect the northern basin of the great Wady Dámah, whose plain is also known as El-Rahabah, the open (abode)—the Rahab or Rehoboth ("Spaces") of the Hebrews, the *'πλατεία* of the Greeks. In Arabic it applies especially to valleys over whose every part water flows. Dámah is probably a corruption of Daamá, the hole of the jerboa, or the field-mouse. This notable feature, famed as an Arabian Arkadía, is a "Haddúdah," or frontier divide, which in days of yore separated the "'Ukbiyyah" ('Ukbi-land) to the north from the "Balawíyyah" (Bali-land) south. The latter tribe still claim it as a northern limit. The author of the 'Masálik el-Absár-fi Mamálik el-Amsár' † (the 'Paths of Clear-seeing in the Dominions of Cities') says, "Their abodes are now in Dámá, which is the land between the Uyún el-Kasab ('Aynunáh) and El-Akrá, at the mouth of the Mazík (defile)." Now, however, the intrusive Huwaytát have pushed their way far beyond this bourne. The actual owners, the Sulaymiyyín, the Sulaymát, the Jeráfin, and other Huwayti tribes, are a less turbulent race than the northerns, because they are safe from the bandit Ma'ázah and they live in the presence of their brethren. The

* In Arabic "immidán" means surface-water.

† The work of (Abū'l 'Abbás Shiháb el-Din) Ahmed ibn Yahyá in the early part of the fourteenth century (nat. A. H. 700, ob. 749).

Dámah head is a great bay in the Hismá-wall to the east, and below Zibá we shall steam across its mouth. The valley is equally abundant in herds of camels, flocks, and vegetation; in places it is adorned by tree-clumps and a thin open forest. The broad loose sole of ruddy sand is fearfully burrowed and honeycombed; and, like its sister the Wady Sadr, it is exposed to the frequent assaults of the Zauba'h (زوبعة)*, or dust-

“devil.” That it is plentifully supplied with water, we learn from the birds which muster in force: the *Caravane*, or “knock-kneed plover;” the Egyptian Rakham (*Neophron percnopterus*); the lovely little “Sunbird” (*Nectarinia Osee*); the brown swallow of the Nile banks, and flights of ravens (*Ghuráb el-Bayn*), highly intelligent animals which are as destructive as falcons.

We rode on for 1 hour 45 minutes (=5 miles) and a total of 5 hours 45 minutes (=17 miles); crossed the “Thalweg” of the Dámah, and camped on its left bank, near the Jebel el-Balawi. The water known as Máyet el-Jibayl (“of the Hillock”) lay about 30 minutes ahead in a lone rocky snout. Before sleeping we were visited by an old Bedawiyyah (woman), who brought a goat for sale; she had a long tale to tell of neighbouring ruins, especially a well with steps, into which the Arabs had descended some seven Kámát (“statures,” i.e. fathoms). Presently they found houses in the galleries at the bottom and fled in terror. The legend is common throughout Midian; but we could not trace its origin.

Feb. 28th.—Lieut. Amir was sent to sketch and survey the reported remains, under the guidance of a Sulaymi Bedawi, Sa'id ibn Zayfullah, who, according to his own account, must have been a centagenarian. He named the ruins Dár (“house”), or Diyár (“houses”), El-Nasará; that is, of the Nabathæans. The former term “of the Nazarenes” is here retained by popular tradition, while the *Nabat* are clean forgotten: the same is the case in the Sinaitic Peninsula which Dr. Beke calls of Pharan. Riding south-west down the Dámah, the party came upon the 'Ayn el-Bada' (بداع), a spring

in a stone-revetted well (?) near the left bank. The strew of broken quartz around it showed an *atelier*; and specimens of scattered fragments, glass and pottery, were added to the collection. The settlement-ruins, which the guide called El-Kantarah (the “Bridge” or the “Arch”), lay farther down,

* The classical term is Abú (or Umm) Zauba'at, “Father (or mother) of (the demon) Zauba'ah.”

upon a southern influent of the main line of drainage: they were divided into two blocks, one larger than the other. Lieut. Amir then pushed forward by a direct road lying west of that taken by the caravan. The latter travelled up the broad open sole of the Wady Shebaykah (شبيكة, of the "Little Net"), which gives its name to an adjoining mountain: it is the recipient of the Wady Shuwák. The longer road was good, but it occupied the camels 12 hours.

By way of exertitation, we had all laid down from Arab information the bay of Shaghab and Shuwák;* and nothing could be more incongruous when the sketch-maps came to be compared. This arose from the route following the three sides of a long parallelogram, whose fourth is based upon the Wady Dámah, causing considerable complication. And, the "excursus" ended, we were all convinced that we had made much southing, whereas our farthest point was not more than five miles below the parallel of Zibá (N. lat. 27° 20').

Leaving the great valley at 6 A.M., we struck up a southern influent, the Wady Shuwák. On the rocky ground of the left bank we passed circles of stones (*Hufrah*, "Water-pits"?) and skirted the low tongue of rock whose folds had supplied us yesterday with drink. Our course zigzagged to the south-east over ground alternately sandy and stony: east of it rose the mountains Abú Shinán (شنان of the "Wild Leek"), and Fujaymah (فجيمه); and west the Jebel Sula' (صلع)† El-Humr.

After 3 hours' marching (=6 miles) we turned up a branch watercourse on the Wady Shuwák's left bank; a "short cut" sensibly avoided by the caravan. The gorge showed at once a total change of formation. Crystallised lime, clays of variegated hues, and large-stoned conglomerates compacted by a hard siliceous paste of dark mauve, as if they contained manganese, painted in fresco, the sides and the floor. Apparently this gully is a favourite with birds. For the first time in Midian we saw the partridge, called here, as in Sinai, "Shinnár"

(شَنَار = Caccabis): the noble species (*C. melanocephala*), common in Abyssinia, is nearly as large as a pheasant, and tastes much like the immigrant from Phasis. Besides this,

* The latter term, from which Ptolemy borrowed his "Sóaka," is connected with Shákí, i.e., tall, lofty (mountain). "Shaghab" we shall see was formerly "Shaghbá."

† Sullá' would mean a broad hard stone, or a place producing no verdure.

were the quail, the Hajl (Hey's or desert partridge, *Ammoperdix heyi*); the ringdove, the turtle and the fierce little butcher-bird.

Farther on, the path, striking over broken divides and long tracts of stony ground, became rough riding. It is flanked by the usual melancholy monotonous hills of reddish felsite and greenish trap, whose mouldering, slaty and schist-like edges, in places stand upright. Upon the summit of the last Col appeared the ruins of some work, a large square of boulder-stones. After 4 hours' riding (= 10 slow miles), in a general south-eastern direction, lay mapped before us the pink sands, the Daum-trees and fan-palm bush; the arboreous *Asclepias* (El-'Ushr = *Callotropis procera*), and the secular jujubes of fair Wady Shuwák. It is backed by the *Jebel el-Sáni* (صانع), the "Mountain of the Maker" (or artificer); that is, the blacksmith. The name derives from a traditional brother of Weyland Smith, who lived and shod animals there in the olden time, possibly before the sixteenth century, when the maritime road was laid out. The block is split into twin heads, *El-Naghar* (نغر)* being the higher, and lying east of its neighbour *El-Nughayr*. The peaks are excellent landmarks, seen for many a mile; and the Bedawin declare that there is a furnace near the summit.

Shuwák (شواق) which, by Lieut. Amir's dead reckoning, lies in N. lat. $27^{\circ} 15'$, can be no other than the *Sóaka* placed by Ptolemy (VI. vii.) in N. lat. $26^{\circ} 15'$. If this be so, we must add an average 1° to his latitudes, which elsewhere, also, appear too low. This addition would give:—

Hippus Vicus (Ptol. $26^{\circ} 40'$) $27^{\circ} 40'$, the exact latitude of El-Muwaylah.

Phoeníkon Vicus (Ptol. $26^{\circ} 20'$) $27^{\circ} 20'$, the latitude of Zibá.

Sálma (Ptol. 26°) $27^{\circ} 20'$, the Mediterranean village on the Wady Salmá (?).

Badá (Ptol. Badáis, $25^{\circ} 30'$) $26^{\circ} 45' 30''$.

Marwah, or Abá 'l-Marú (Ptol. Móchoura, $24^{\circ} 30'$) $26^{\circ} 10'$.

There is nothing violent in this change. On the East African coast Ptolemy's Aromata Promontorium, which can only be Jard Háfún, or "Guardafui," is placed between N. lat. 5° and 7° , whereas it lies in N. lat. $11^{\circ} 41' 4''$.

According to Sprenger ('Alt. Geog.', p. 25), Sóaka and Badáis

* Naghar signifies a cold-water spring, and Nughayr is its diminutive.

do not fit into any of the Alexandrian's routes; and were connected only with their ports Rhaunathos (Mjirmah?) and Phoenikon Vicus (Zibá?). But both these cities represented important stations, both of agriculture and of mineral industry, on the Nabathæan overland between Leukè Kóme and Petra, a line kept up by the Moslems till Sultan Selim's route superseded it.

I will here describe only the site of Shuwák, consigning to another place* details concerning its ruins, a subject not strictly geographical. It lies upon a long narrow riverine island, in the broad sandy wady of the same name. The "Thalweg" has evidently shifted again and again; now it hugs the left bank under the Jebel el-Sáni', whilst a smaller branch, on the northern side, is subtended by the stony divide which we have just crossed. At the city the trend of the valley is from north-east to south-west, and the altitude is about 1700 feet (aner. 28.28, the mean of 6 obs.). The head still shows the sandstone castellations of the Hismá. Looking down stream, beyond the low dark hills that divide the basin from the adjoining southern wady, we see the tall grey heads of Jebel Zigláb (زجلاب), and of the Shahbá Gámirah (شهبأ جامره), the "ashen-coloured (peak) of Jámirah," the P. N. of a valley. Both gleam white by the side of the gloomy traps; and they mark the granitic region, lying south and seaward of the more modern plutonic rocks.

At Shuwák we allowed our camels, but not ourselves, a day of rest. The ruins are in the usual melancholy state, much like the broken heaps and cairns which are found in the Nejed or "South Country." Traces of solid walls, forming huge parallelograms, are divided by tumuli of loose friable soil efflorescing with salt—the miniatures of what are seen at Babylon, Nineveh and Troy. The arrangements for smelting, and for water-supply, furnaces, wells and cisterns, barrages and aqueducts, appear to have been on a large scale. One conduit, built of untrimmed stone, and channelled with rough cement overlying a finer concrete, can be traced for a mile and a quarter along the left bank. The circular furnaces, measuring some 2 feet in diameter, were built of fire-brick; and of the Hismá sandstone, which moulds itself into a natural open *lateritium*. We dug into several of them, but so careful had been the workmen, or perhaps the "treasure-seeker," that not the smallest bit of metal remained—nothing was found save ashes,

* 'The Land of Midian (Revisited),' chap. xi.

pottery and stones. Perhaps our most interesting discovery was of the catacombs, proving a civilisation analogous to that of Magháir Shu'ayb, but ruder far, because more distant from the ethnic centre.

We left Shuwák considerably perplexed by what it had shown us. The city proper is $1\frac{1}{2}$ mile long; and it could hardly have lodged less than 20,000 to 25,000 souls. The evidences of immense labour were the more surprising when compared with the utter absence of what we call civilisation. Not a coin, not even a bit of glass, had been picked up. The Greek and Latin inscriptions of the Hauranic cities declare their origin. These Midianitish ruins, absolutely analphabetic, refuse a single hint concerning the mysterious race which here lived and worked, and worked so nobly. Again, who were the Moslems who succeeded them in a later day, when the Hajj-Caravan, some $3\frac{1}{2}$ centuries ago, ceased to march by this road? How is it that the annalists say nothing of them? that not a vestige of tradition remains concerning any race save the Nazarene?

March 2nd.—From Shuwák to the Wady Dámah are two roads. The direct turns to the north-west: the other, which passes the ruins of El-Shaghab, forms two legs, due south and south-west. Setting out, at 6 A.M., down the left or southern side of the Shuwák Valley, we passed some immense basements of constructions lying about a mile below our camp; the total length could not have been less than 4 miles. One is a wall of over 1000 yards, ending in what appears to be a square cistern, 48 paces each way. On the east rose the Jebel el-Wasaydah (وئيدى), fronting the Jebel el-Wasaydát (وئيدات). We then left the Shuwák Valley to the right, and struck over a rough and stony divide, with a narrow pass formed by the Jebel Hashím on the north, and the Jebel Ghuráb on the south. The pass was marked by Bedawi tombs, garnished with the usual rags and tatters. Beyond the pass, quartz once more appeared in large quantities.

After marching 2 hours (= 7 miles) we saw uniform heaps to the left; and another 30 minutes showed us a range of boulder-circled pits on the right; their clay soles were of brighter green, and the Arabs called them *Hufrah* (حفرة), the "artificial," opposed to *Temáil el-má* (تمائل), "natural water-holes." We are now in another hydrographic basin; the southernmost yet visited. This Wady el-Shaghab flows south-

westward to the Wady Aznab (the "fat"), whose embouchure we shall pass on the way southwards.

After a total of 3 hours (= 10 miles), we sighted the large and important remains of Shaghab (شغاب). It is probably included by Ptolemy under the name Sóaka; and it is evidently the Shaghabá, which the geographer Yákút (iii. 302) places one day's journey from Badá. The ruins of Shaghab are built upon more complicated ground than those of Shuwák. The Wady Shaghab, flowing southwards, here spreads out into a broad bulge or basin; it contains rude Arab wells; and its characteristic rock is the mauve-coloured conglomerate before noticed. Looking down-stream we see a "gate," formed by the meeting of two rocky tongue-tips, both showing large works: beyond these narrows nothing is visible. The mass of the city lays on the left bank, where a high and artificial-looking *remblai* of earth masks the mouth of an influent from the east, the Wady el-Aslah (السد), or of the "Kali Plant," which, with the Wady Shaghab, feeds the Aznab. It drains the Jebels Aslah and Zigláb, the cones of pale granite visible from Shuwák; and the old settlement stood *à cheval* upon its broad lower course. Slightly east of north the twin peaks Naghar and Nughayr, combining to form the "Mountain of the Maker," tower profiled in the shape of a huge pyramid. A little north of west springs, also in profile, the great Shárr of El-Muwaylah; no longer a ridge, but a tall and portly block. Lastly, a regular ascent, the Magráh el-Wághir (of "Fretting") fronts the city, sloping up to the w.n.w.; and disclosing a view of the Jibál el-Tihámah. This broad incline was, three centuries ago, the route of the Haggi-Caravan.

The ruins, which are not a quarter the size of Shuwák, show the usual succession of huge parallelograms. The only peculiarity is one of the many aqueducts which, after Greek, as opposed to Roman fashion, has been run underground to pierce a hillock. Near the remains of a fort (?) we found heaps of land-shells: they are rare in this region, and during our four months' march we secured only two species. Shaghab removed some of the difficulties which had perplexed us at Shuwák and elsewhere. In the northern country signs of metal-working, which was mostly confined to the wadys, have been generally obliterated, either washed away or sanded over. Here the industry revealed itself without mistake. The furnaces were few; but around each are long heaps of *negro* and copper-green quartz, freshly fractured; while broken hand-

mills of basalt and lava, different from the rub-stones and the mortars of softer substance, told their own tale.

At Shaghab then, the metalliferous rock, brought from the adjacent mountains, was crushed and probably transported for washing and roasting to Shuwák, where water, the prime necessary, abounded. If in early days the two or rather three settlements formed one, their south end would have been the head-quarters of the wealthier classes. Hence the Bedawin always give it precedence—"Shaghab wa Shuwák." Moreover, we remarked a better style of building in the former; and we picked up glass as well as pottery.

The glass fragments found in Midian generally are of two distinct kinds. The modern is the thick bottle-green and blueish material which Hebron still produces. The ancient, procured by digging, is so much degraded by damp that iridescence has supplanted the original texture. Amongst the Greeks of the classical age there were many varieties of colour. The deep-green or black-brown were made from the obsidians of Thera, Mylos, &c., treated with soda, potash and oxide of lead to make it flow readily. The opaque yellow was alumina mixed with iron oxide; and oxide of copper or, possibly, malachite, was added to form the blue variety.

IV. *The return to El-Muwaylah via Zibá.*—Leaving Lient. Amir to map and plan the ruins, we followed the caravan up the Magráh el-Wághir, the long divide whose film of forest-trees, each separated by a few yards from its neighbour, somewhat reminded me of the Anti-Libanus about El-Kunaytarah. There, however, thick-leaved terebinths and holm-oaks, here thorny acacias and mimosas form the staple. On our right stood the dull bare block Jebel Muwayrib (مويرب); and,

farther north, the Jibál Abú Tínah (طينه, "of clay"). Behind these two the tall Jebel Tulayh (طلح of the "little Talh-

thorn") buttressed the right (northern) bank of the Wady Dámah; and, still farther, stained faint blue by distance, rose the familiar Tihámah range, a ridge now broken into half-a-dozen blocks. About the third mile we passed, on the left, ruins of long walls, memorial stones, and signs of Arab "Wasm." I had ordered the camp to be pitched upon the Tuwayl el-Súk; despite which, in 1 hour 15 minutes (= 4 miles), and a total of 4 hours 15 minutes (= 14 miles), we found the tents standing some 3 miles short of it, on a bleak ugly and waterless ridge of the Wághir (واغر). The Shayks swore by Allah that this

was the veritable Tuwayl; and a Bedawi, who knew where water lay in the neighbourhood, refused to show it without the preliminary "bakhshísh."

March 3rd.—At 6 A.M. we set out down the right bank of the Wady el-Khandaki, which runs north with westing. Beyond its depression lay the foot-hills of gloomy trap leading to the Jebel el-Raydán (ريدان); the latter is a typical granitic form, a short demipique-saddle with inwards-sloping pommel. The Tuwayl el-Súk shows nothing but an open and windy flat, where the Hajj-Caravan used to camp; the Hamrá el-Tuwayl, an adjoining ridge, is scattered with spalled quartz, "Wasm," and memorial stones. Here the principal formation is the mauve-coloured conglomerate.

Beginning from the south, the left bank is composed of the Jebels el Wa'r, Haraymal (حر يمل, so called from the *Peganum*, a perfumed shrub), Marwah and El-Khandaki. On the right or east the broad valley is bounded by the Jebels el-Zamá (ظما, of "being thirsty"), Umm Ramays* (رميث), and El-Nábi'.

After riding 2 hours 30 minutes (= 9 miles) to the north, with westing (300° mag.), we came unexpectedly upon a large and curious ruin backed by the Wady Dámah; † a pair of parallel walls, some 35 feet apart, and about 1000 yards in length, formed the chief feature. For want of a better name I called this old settlement *Kharábát* (ruins of) *el-Khandaki*, and greatly regretted that we had not time enough to march down the whole line of the Dámah.

Half an hour more placed us at the junction of the Wadys el-Khandaki and Dámah. Here is a well, the "Bir," or "Máyet" el-Nábi' (نابع), the "Bursting or Overflowing"; and the "Hufrahs" of the Arabs everywhere supply sweet water. The characteristic vegetation is the hardy tamarisk, whose grey-green clumps shelter goats, sheep and camels. Our mules now revel on green-meat; *Aristida*-grass, *Panicum*, *Hordeum* (*murinum*), and *Bromus* of several varieties. In front rise the twin granite-peaks of the Jebel Mutadán (متدان,

* The dim. form of Rims, a tree and a kind of forage eaten by camels. Lane (*sub voce*) describes it as resembling a dwarf tamarisk. Like the Ghazá plant, it is used for making alkali.

† See 'The Land of Midian (Revisited),' chap. xii.

i.e. "near or adjacent"), one with a stepped side like a pyramid lacking its casing. They are separated from the Wady Dámah by a rough and stony divide; and ruins with furnaces are reported to be found in their wady, which feeds the great Wady 'Amúd. From the sea they also show two ridges of grey-white granite.

At 11 A.M., after riding 5 hours (= 16 to 17 miles), we halted near a water called El-Ziyayb (زيب): slightly brackish, but much relished by our animals. It lies opposite the Jebel Tulayh on the north bank. We then resumed our way towards a lone peak, the Khang (خنج) el-Karín — these South Midian names have a truly barbarous twang. Sundry bends in the bed occupied 1 hour (= 3 miles). We then left the Wady Dámah, and turned up a short broad Fiumara, the Khuraym (حريم)*

el-Asírah. The Wady Sa'lúwvah to the left showed a barley-field, the property of some exceptionally industrious Bedawi of the Jeráfin-Huwaytát clan. On our right rose a block of syenite ruddy with orthose; the surface was formed by rounded lumps and twisted finials. We rode two more hours (= 6 miles), a total of 7 hours (= 22 miles), much to the disgust of the camel-men; and lastly we camped at the Jayb el-Sa'lúwvah, also known as El-Kutayyifah (قطيفه).† This part of the divide is near a fold in the syenitic mountain, the Sha'b el-Burayrij (بريريج), whose stony flanks supply fresh rain-water from the rock.

In the western hills that bound the broad slope, the remains of a made road lead to an *atelier*, where large quantities of quartz had been broken *in situ*. Some specimens wore a light bluish tinge, as if stained by cobalt, a metal found in several slags; and there were veins of amethystine quartz-crystals nestling in their agaty beds: the engineer suspected that they were coloured by chlorure of silver (?). The *filons* and *filets* cut the granite in all directions; and the fiery action of frequent trap-dykes had torn the ground-stone to tatters. Here a Bedawi had volunteered a grand account of ruins and inscrip-

* Khurm, in the dictionary, is the brow or projecting summit of a mountain; the Arabs of Midian seem to denote by it a hollow, or cavity.

† Meaning the "little Katifah," mantle or folded garment.

tions to be seen on our next day's march. We took abundant trouble to visit all the places, and found simply nothing. The guides also reported, when too late, that to the w.s.w. of El-Kutayyifah lies a Nakb called Aba 'l-Marwah, the "Father of Quartz," whose waters flow *viâ* the Mutadân to the Wady 'Amûd.

March 4th.—From this divide two roads lead to the ruins of Umm Ámil. One goes direct, crossing an ugly pass; the other avoids it by a considerable *détour*, *viâ* the circuitous Wady Ruways (رويث). At 6 A.M. we struck westwards down

a slope some 5 miles long; and then ascended a wady bounded on either side by a conspicuous red hill. A few minutes led us up the Fiumara, whose bed, cumbered with boulders, had cut deep below the stiff clayey *Jarf* ("raised banks"): the ascent presently placed us on a broad open plain, some 2100 feet above the sea-level (aner. 28·85), and forming a water-parting. On the left a square stone work seemed to have been intended for defence.

A few furlongs down the broad and smooth Wady Ruways brought us to a halt near a large *atelier* on the left side. Its sole peculiarity was the beauty of the handmills, made of the hardest and finest grey granite. We then struck over a stony divide to the left, separating the Wadys Ruways and Umm Ámil. Here lay signs of another Mashghal (*atelier*). In front rose a fine landmark, the Khurm (top) el-Badariyyah (خرم البدريه). A tolerable track led to the summit of the

Col at 9.45 A.M.; and a vile descent presently landed us in the Wady Umm Ámil. The left bank of the hideous narrow gorge showed a line of water-pits, attributed to the Mutakaddimîn—the ancients. Crossing the torrent-gully, we left on its right bank the foundations of large works. After a total ride of 4 hours (= 13 miles), and a morning spent in chasing the wild-goose, we halted opposite three couthless heaps of rolled stones, surrounded by fine quartz. This "town" had been grandiosely described to the first Expedition by the citizens of Zibá, who declared the distance to be 4 hours instead of 7 hours 30 minutes. The Bedawin, on the other hand, assured us that the stages, Shaghab—Umm Ámil and Umm Ámil—Zibá, were the same measure; when the former occupied 12 hours 15 minutes, and the latter 7 hours 30 minutes. The Sayyid suggested that the name "Mother of the (fellow) Workman" is a corruption of Mu'ámil (one who labours with others). I would also conjecture

that here the slave-miners were stationed; old Zibá being the masters' abode. At the coast-town we found some specimens of fine and heavy red copper, which had been dug out of a ruined furnace in Umm Ámil.

At noon we rode down the ugly rocky watercourse, both of whose banks showed long lines of razed and broken building. Presently, crossing a divide marked by two stone-heaps, we fell into the broader but equally unpicturesque Wady Salmá (سالمًا)*. It lies in about the parallel of Zibá (N. lat. 27° 20'); and we must add 1° 20', instead of 1°, if we would connect it with Ptolemy's Mesogaian κόμη, called Σάλμα (VI. vii.). Wady Salmá is the smallest, and the northernmost of the three basins which we have just visited; the central being the Wady Dámah, and the southern Wady Shaghab-Aslah-Aznab.

We presently passed on the left bank the debouchure of the Wady Ruways. After a hot ride of 1 hour 45 minutes (= 6 miles), and a total of 5 hours 45 minutes (= 19 miles), down the dull line, we camped on the floor of fine sands, hemmed in by tall masses of monotonous trap. The adjacent scatter of Arab wells in the bed is known as the Má el-Bad'ah (بديعة the "Water of Wonders"). I carefully asked about ruins in the neighbourhood, and we climbed the torrent-sides to command a bird's-eye view of the adjacent hill-chaos. According to the guides, there are no remains of the "old ones" nearer than those of Umm Ámil.

March 5th.—We set out at 5.45 A.M. down the Wady Salmá; and half an hour showed us its lower course constricted to a mere gorge by two opposite rocks. On the left bank lies a group of Arab graves, which may have taken the place of some ancient atelier. The right bank here receives the Wady Haráimil, as the broad-speaking Bedawin pronounce "Haraymal (حرميل the "Little Peganum);" and we struck up the Shatín (شطين)† el-Haraymal, or (Water?) parting of the Haraymal. Then we fell into the Wady Abá Rikayy (of Wells), ‡ remarkable only for the quantity of its brackish water. Below, it takes the name of Wady Kifáfi (not Kafafa), and discharges into the sea north of the Wady Salmá (Ad. Chart,

* Salmá (ending with the Ya-alif) is the name of a tribe, a woman, and a mountain, also of the south wind.

† Shaytn, the root, means opposition; hence Shaytán = Satan.

‡ Rakiy, in pure Arabic, the plur. of Rakiyat, a (clean) well or water-pit.

27° 18'). It has been erroneously connected with the latter, as in Niebuhr's "Salma ukesafe," which Sprenger (p. 24) corrects to Selmâ wa Kafâfa.* A third divide to the north led along the eastern flank of the Jebel Abú Rîsh, which is visible from the offing; and, reaching the Col, we saw the Red Sea about Zibá.

The track then descends into the Wady Sidrah (of the Single Lotus-tree), whose left bank is formed by the Safrá Zibá, the "yellow (hill) of Zibá," a name which well describes its citron-coloured complexion. Here we found only blue quartz stained with carbonate of copper. The "Valley of the (one) Zizyphus," after narrowing to a stony gate, suddenly flares out as it falls into the Wady Zibá; and we reached the far-famed wells after 4 hours (=11 miles). In my vol. i. p. 307, I confounded the "Sultan's Wells," the Birket, and the "Eunuch's Grave," in one glorious blunder.† The flat surrounding the cove-head is remarkably well grown with the two common varieties of palms, the Date and the Daum: it still deserves the title "Phoeníkon Kóme." I have already protested (vol. i. chap. xi.) against the derivation of the word, and the identification with "Hippos," proposed by my learned friend Sprenger ('Alt. Geog.', p. 24). His theory was probably suggested by Yákút (iii. 464), who writes Dhabbá, and places the post 70 miles from Badá. The people universally spell the word with a zád (ضبا); and never with a zá (ظبا) which would make it signify "gazelles;" and lastly, the terminal aspirate (*e.g.* Zibáh) is unknown to them. Older names are Bir el-Sultáni, and Kabr el-Tawáshí, for which see the Haji's route. The single well of Sultan Selim (?) has now grown to four, all large and stone-lined.

We found the best pitching-ground to be on the site of old Zibá, a strip of sand sheltered by the tall sea-cliff, and forming the northern shore of the inner cove, behind the new town. Here the stones, buried for ages under the sand, are now dug up to build its successor. This second visit made me think better of the settlement, and of the harbour, concerning which Wellsted (ii. 181) wrote, "At Sherm Dhobá the anchorage is small and inconvenient, and could only be made available for boats or small vessels." Dredging the sandbar, and cutting the soft sandstone, will give excellent shelter and, some say, a depth

* For the derivation of the name see the Route-line of Haji Khalífah at the end of this paper.

† See 'The Land of Midian (Revisited),' chap. xii., and the Route-line at the end of this paper.

of 17 fathoms. The settlement is far superior, especially as regards potable water, to El-Muwaylah; it exports charcoal in large quantities, and it drives a thriving business with the Bedawin. There are beginnings of a pier, and a mosque is building. The fish is excellent and abundant; lobsters are caught by night near the reefs, and oysters in the bay when the tide is out. Shoes are to be bought:* as at El-'Akabah, "Hashish" may be found in any quantity, but no "'Raki;" and yet one of the chief traders is a Copt, who finds it convenient to become a Moslem.

Some of our first inquiries were concerning the Jebel el-Fayrúz ("Turquoise hill"). I had seen during our previous expedition a splendid specimen of this gem; and all the coast-people described the *lapis Pharanites* of Zibá as the best they knew. The immediate result of questioning was a general denial that anything of the kind existed. Furayj, however, engaged as guide an old Bedawi, Sulaym el-Makrafí; and his son was sent on to gather all the "Fayrúz" he could find. Here also we collected notices concerning the ruin "El-M'jirmah," which has been identified with the *Ῥαννάθου κόμη* placed by Ptolemy in N. lat. 25° 40'. The site is said to be a branch valley of the Wady Azlam, the first of the three pilgrim-marches between Zibá and El-Wijh. This watercourse shows, above the modern Hajj-station, the ruins of a fort built by Sultan Selim. Wellsted also mentions (ii. 183) a castle lying three miles inland. The people describe M'jirmah as an ancient gold mine(?); and the house-foundations and a "well with steps" still, they say, remain. Our day of rest (March 6) ended at 7 P.M. with a heavy storm of wind and rain from the north.

March 7th.—The caravan marched straight northwards along the shore, by the Hajj-road, to its camping-ground in 2 hours (= 5 miles). Meanwhile M. Marie and I, accompanied by Furayj and the old Bedawi, set off for the turquoise-mine. At 6 A.M., crossing the broad pilgrim-track, we struck eastward at a place where the secondary gypsum subtends the coralline *falaise*. After 45 minutes we traversed the Wady Zahakán (ضاحكان), the southernmost pass over the Shárr (proper); and presently we ascended a branch that falls into the right bank. As we advanced it became a rock-walled stone-soled tunnel, very interesting after such dull flat breadths as the Wady Salmá. The overfalls of rock, and the thorn-trees, which in

* See 'The Land of Midian (Revisited),' chap. xii.

places occupy singly the whole bed, necessitated, as usual in such narrows, frequent zigzags up and down the rocky banks. After a number of divides, we entered the Wady Hashshah, wide and good for riding; and, at 8.30 A.M., we passed into the Wady Umm Jirmah.

Here immense quantities of broken quartz, distinguished by its pretty pink colour, denoted the Mashghal (*atelier*). The rock appeared in large ramifications, mostly striking east-west, and in little *pitons* dotting the wady's sole and sides. After another half-hour we dismounted at the watershed of the Wady el-Ghál (غَال),* where the greybeard guide lost no time in losing his head. The Jebel el-Ghál, whose folds fall into its water-course, is a detached block rising nearly due south of southern "Sharp Peak" in the Admiralty Chart; while the mouth of the Ghál Cove, breaking the sea-cliff, bears 270° (mag.) from the summit. It lies 3 hours (= 10 miles) N.N.E. of Zibá, and it rises 350 feet above the sea-level (aner. 29.75). The mass is composed of porphyritic trap, and of the hardest felspars, veined with chocolate-coloured granite, the latter being the true gangue. We failed to find the precious stone, and accordingly I determined upon another attempt.

After building a "stone man" on the finial of the Jebel el-Ghál, we remounted and struck seawards. Some ugly divides led us, in half an hour, to a broad Fiumara well-grown with palm-bush, the veritable Wady el-Ghál. From this point a total of 1 hour 15 minutes (= 4 miles) to the west, and a grand total of 4 hours 15 minutes (= 14 miles), placed us in camp. It had been pitched at the Mahattat el-Ghál, on the north bank, where the "winter-torrent," falling into the sea, has cut a cove in the cliff.

Here the best of news awaited us. Lieut. Yusuf, who this morning had rejoined the Expedition, reported that all my requests had been granted; that our friend the *Sinnár* was to take the place of the lively *Mukhbir*, and that rations and stores were on the way. I felt truly grateful to his Highness and to the Prince Minister for the gracious interest they had taken in the Expedition.

During the day a Jeráfin Bedawi, Selím ibn Musallim, brought in scoræ of copper and iron; and, on the morrow, I sent him as guide to Lieut. Yusuf, with an escort of two soldiers and eight quarrymen on seven camels. After three

* Gháll means the ground producing the thorny Salam-tree; it is also a name of the large Arabian lizard.

days' absence (March 8-10), the officer rejoined us and reported as follows:—

Leaving the Mahattat el-Ghál, he struck up its watercourse, and then turned southwards into the long Wady Umm Jirmah. A ride of $7\frac{1}{2}$ miles ($=5\frac{3}{4}$ direct) placed him upon the Jebel el-Fayrúz, a rounded eminence of no great height, showing many signs of work, especially 3 or 4 cuttings some 20 inches deep.

Here a hillock to the north-west supplied the scoriae before mentioned. Lieut. Yusuf blasted the chocolate-coloured quartzose rock in four places, filled as many sacks, and made the pilgrim-road in the Wady el-Mu'arrash (معرش), leaving to the left its red block, the "Hamrá el-Mu'arrash." His specimens were very satisfactory, except to the learned geologists of the citadel, Cairo, who pronounced them to be carbonate of copper. They evidently ignored the difference between silicates and carbonates.

I made many inquiries, but could hear nothing, of the "Jamast." The dictionaries describe it as a blue gem (turquoise (?)) found near El-Medinah. It is made into cups (for 'Rakí), which "have the singular property of preventing those who drink out of them from being intoxicated, and also of causing pleasant dreams." Meninski (*sub voce*) writes Gemset, makes the colour violet or red, and derives it from diggings distant three marches from the city of the Apostle.

March 8th.—Our southern journey ended with a dull ride along the Hajj-road northwards. Passing the creek, Abú Sharír, which, like many upon this coast, is rendered futile by a wall of coral-reef, we threaded a long flat, and in 2 hours ($=7$ miles) we entered a valley where the Secondary formation again showed its débris. Here is the Manattat el-Husán (the "Stallion's Leap"), a large boulder showing hoof-prints. The horse, "El-Mashhúr," lived in the Days of Ignorance, others add when the Beni 'Ukbah were warring with the Baliyy. It temporarily saved its master's life by alighting upon this boulder, which then filled the pass. A similar story will be found in Palmer's 'Desert of the Exodus' (p. 42); and both show that a noble breed has existed where nothing but a donkey can now live. Perhaps, also, the Midianite tradition may descend from a source which, still older, named the "Ἴππος κόμη."

We then fell into the Wady Jibbah, passed the Jebel el-Kibrít, examined M. Philipin's work, and, led over a vile and very long "short-cut," found ourselves once more on board the *Mukhbir*.

The following is a synopsis of stations and dates:—

1.	Feb. 19.	El-Muwaylah to the Safh	4 h. 15 m. = 10 slow miles.
2.	" 20.	To the Sayl Wady el-Jimm	4 h. = 10½ "
3.	" 21.	El-Nagwah	4 h. 10 m. = 11 "
4.	" 22.	Miyáh el-Ríkáb	5 h. 15 m. = 13½ "
5.	" 23.	Ras Wady Sadr	3 h. = 9½ "
6.	" 24.	Up the Pass to the Hismá	1 h. 30 m. = 3 "
7.	" 25.	To the Jayb el-Khuraytat	2 h. 15 m. = 5½ "
8.	" 26.	the Majrá el-Ruways	4 h. = 11 "
9.	" 27.	Wady Dámah	5 h. 45 m. = 17 "
10.	" 28.	Ruins of Shuwák	4 h. = 10 "
11.	Mar. 2.	Shaghab and Magráh el-Waghír	4 h. 15 m. = 14 "
12.	" 3.	El-Kutayyifah	7 h. = 22 "
13.	" 4.	Umm Ámil and Má el-Badi'ah	5 h. 45 m. = 19 "
14.	" 5.	Zibá	4 h. = 11 "
15.	" 7.	J. and W. El-Ghál	4 h. 15 m. = 14 "
16.	" 8.	Sharm Yáharr	4 h. 15 m. = 16½ "
Grand total			67 h. 40 m. = 197½ "

Here my distances are somewhat understated, as they would give a rate of less than 3 miles (statute) per hour. Lieut. Amir's estimates (222 miles), laid down upon the map, represent a fraction more.

V. *Ascent of the Shárr Mountain.*—For long months the Jebel Shárr, the grand block which backs El-Muwaylah, had haunted us, starting up unexpectedly in all directions with its towering heads, that shifted shape and colour from every angle and with each successive change of weather. We could hardly leave unexplored the classical "Hippos Mons," the Moslem's *El-Ishárah* (the "Landmark"), and the "Bullock's Horns" of the prosaic British navigator (Irwin, 1777); while the few vacant days, caused by the non-arrival of the *Sinnár*, offered an excellent opportunity for studying the "Alpine ranges" of Maritime Midian. Niebuhr (*Flora Ægypt.-Arabica*) justly says of this coast farther south, "Altitudine prodigiosa et prærupta eminent montes, haud pauci sublimem atmosphæræ regionem attigentes . . . liceat montes istos *Alpes* nominare vel cum *Alpibus* conferre." Be it so! but, as Sir Frederick Henniker remarked, they are "Alps unclothed."

The stony heights beyond El-Muwaylah contain, they said, wells and water in abundance, with palms, remains of furnaces, and other attractions. Every gun was brought into requisition by tales of leopards and ibex, the latter attaining the size of bullocks (!), and occasionally finding their way to the Fort. I was anxious to collect specimens of botany and natural history from an altitude hitherto unreachd by any traveller in this part of Western Arabia, and, lastly, there was geography as well as mineralogy to be done.

The Hydrographic Chart gives the mountain a maximum of 9000 feet, evidently a clerical error often repeated. Really these Admiralty gentlemen are too incurious! Their carelessness has imposed upon so careful a workman as the late Lieut. Raper, p. 527, 'The Practice of Navigation,' sixth edition. Wellsted, who surveyed the Shárr, observes (ii. 176), "The height of the most elevated peak was found to be 6500 feet, and it obtained from us the appellation of "Mowilahh High Peak," whereas there are native names for every head. We had been convinced that the smaller is the correct measure by our view from the Hismá plateau, 3800 feet above sea-level. Again, the form, the size, and the inclination of this noble *massif* are wrongly laid down by the Hydrographers. It is a compact block, everywhere rising abruptly from low and sandy watercourses, and completely detached from its neighbours by the broad wadys, the Surr to the north, and southwards the Kuwayd and the Zahakán. The huge long-oval prism measures $19\frac{1}{2}$ miles by 5 ($=97\frac{1}{2}$ square miles of area), and its lay is 320° (mag.), thus deflected 40° westward of the magnetic north. The general appearance, seen in profile from the west, is a central apex, with two others on each side, tossed, as it were, to the north and south, and turning their backs upon one another.

Moreover, the chart assigns to its "Mount Mowilah" only two great culminations—"Sharp Peak, 6330 feet," to the north, and "High Peak, 9000," south of it. Some careless confusion has also introduced a second "Sharp Peak" much farther north, with exactly the same altitude (6330 feet): the latter is probably the Jebel el-Sháti (شاطن), in the Urnub block.

The surveyors doubtless found difficulty in obtaining the Bedawi names for the several features, which are unknown to the citizens of the coast, but they might easily have consulted the only authorities, the Jeráfin-Huwaytát, who graze their flocks and herds on and around the mountain. As usual in Arabia, the four several main "horns" are called after the Fiumaras that drain them. The northernmost is the Abú Gusayb (Kusayb), or Ras el-Gusayb (قصب), the "Little Reed," a unity composed of a single block and of three knobs in a knot. The tallest of the latter, especially when viewed from the south, resembles an erect and reflexed thumb; hence our "Sharp Peak." Follows Umm el-Furút (فروط), the "Mother of Plenty" (or "Superiority"), a mural crest, a quoin-shaped wall, cliffing to the south. The face, perpendicular where it

looks seawards, bears a succession of scars, upright gashes, the work of wind and weather; and the body which supports it is a slope disposed at the natural angle. An "innominatus," with the semblance of a similar quoin, is separated by a deep Col, apparently a torrent-bed, from a huge *Beco de papagaio*,—the "Parrot's Bill," so common in the Brazil. This is the Abú Shenázir (شاذر),* or Shaykhánib (شيخانِب), the "Father of Columns," † the "High Peak" of the Ad. Chart. It is the most remarkable feature of the sea-façade, even when it conceals the pair of towering pillars that show conspicuously to the north and south. From the beak-shaped apex the range begins to decline and fall to the south. There is little to notice in the fourth horn, whose unimportant items, the Ras Lahyánah (لحيانَه), ‡ the Jebel Malih, and the Umm Gisr (جسر), end the wall. Each has its huge white wady, striping the country in alternation with the normal dark-brown divides, and trending coastwards in the usual network. §

The material of the four crests is the ordinary grey granite, lumpy masses of immense size, rounded off by scaling and degradation; all chasms and naked columns. Here and there a sheet burnished by the action of cataracts, and a slide trickling with water, unseen in the shade, and flashing like crystal in the sun, break its uniformity. The granite, however, is a mere mask or excrescence, being everywhere based upon, and backed by, the red felsite and the green plutonic traps which have enveloped it. And the prism has no easy slope, eastward or inland, as a first glance suggests: nor is it the sea-wall of a great plateau. It falls almost as abruptly to the east as to the west; the country behind it being a perspective of high and low hills, lines of dark rock divided from one another by wadys of exaggerated size. Only one of these minor heights, the Jebel el-Sahhára (ساحارة), looks down

upon the sea, rising between the Dibbagh-Kh'shabriyyah block to the north, and the Shárr to the south. Beyond the broken eastern ground the ruddy Hismá and the gloomy Harrah form the fitting horizon.

The following section will treat mainly of the routes along

* "Shanzarat" in dictionary Arabic means ruggedness, or the being rugged.

† And, as if two names did not suffice, it has a third, *Ras el-Huwayz* (حويض), of the "Little Cistern".

‡ Lihyán is a gully, gutter, or furrow made by a torrent.

§ On the return march (March 18th) we crossed the Wadys Umm Gisr Malih, Lahyánah, Bayzá, and Ummayyaz el-Bayzá.

and around the Shárr. I have published elsewhere * a description of the Monarch of Midianite mountains in his picturesque form.

March 13th.—The camels came late from El-Muwaylah; and it was nearly 9 A.M. before we left the *Mukhbir*, landed at the head of Sharm Yáhárr, and marched up the short Wady Harr. This watercourse drains the tallest of the hillocky sub-ranges, the red rock "Hamrá el-Maysarah" ("of the Maysar plant"?). Our guides, two sturdy mountaineers of the Jerafin-Huwaytát, then struck eastward over a short divide to the Wady Sanawíyyah. It is a vulgar valley with a novelty, the Tamrat Faraj. This buttress of brick-coloured boulders, blocking the right bank, has or is said to have the memnonic property of emitting sounds—*yarinn* (يرن) is the Bedawi word. The valley-sides of dark trap are striped with white veins of heat-altered argile, the sole with black magnetic sand; and patches of the bed were buttercup yellow with the dandelion (حندان), the *Cytisus* and the "Zaram" (ضرم = *Panicum turgidum*), loved by camels. Their jaundiced hue contrasted vividly with the purple and mauve blossoms of the bugloss (El-Kahlá كحلا), the blue flowerets of the lavandula (El-Zaytí) and the delicate green of the useless asphodel (El-Borag بورج)

which now gave an aspect of verdure to the slopes. Although the rise was inconsiderable, the importance of the vegetation palpably decreased as we advanced inland.

In 1 hour 30 minutes (=4 miles), we reached the wady-head, and wasted a couple of hours (10.15 A.M.—12.30 P.M.) awaiting the caravan. The path then struck over a stony waterparting, with the "Hamrá" to the left or north; and, on the other side, the familiar Jebel el-Mu'arrash. The latter ends in an isolated peak, Jebel Gharghúr (غرغور); which, on our return, was mistaken for the Sulphur Hill of Jibbah. We then renewed acquaintance with the Wady el-Bayzá ("White Nullah"); here it is a long, broad and tree-dotted bed, glaring withal, and subtending this section of the Shárr's sea-facing base. We reached, after 1 hour 15 minutes (=4 miles) and a total of 2 $\frac{3}{4}$ hours (=8 miles), the Jibál el-Kawáim, or "The Perpendiculars," one of the features which the Bedawin picturesquely

* 'The Land of Midian (Revisited),' chap. xiii.

call the *Aulád el-Shárr* ("Sons of the Shárr"). The three heads project westwards from the Umm Furút Peak, and then trending northwards, form a picturesque lateral valley known as Wady el-Káimah. The profile of No. 3 peak, the Káimat Abú Ráki', shows a snub-nosed face in a judicial wig. The view was charming; especially so long as lasted "The pathos of the after-glow."

Our camping-ground was the Safh el-Shárr ("Plain of the Shárr"); and the lateral valley was strewn with quartzes, white, pink and deep-slaty blue, which the guides derived from a "Jebel el-Marú." The night was still and warmed by the radiation of heat from the huge rock-range behind us. Dew fell like thin rain; we now remarked this meteor for the first time; and the guides declared that this effect of humid atmosphere would last during the next three months. Wallin, writing from the Hismá, in February (26th, 1848), notices the nightly dew, which he had observed in the deserts near the Nile, and on the Red Sea coast, but never in Arabia.* Thus he explains the instances of chest disease which, very rare amongst the Bedawin of the interior, are found on the north-western edge of El-Nejd.

March 14th.—At 6 A.M. we ascended, by a long leg to the south-east, the Wady el-Káimah in search of the Quartz Hill. An abrupt turn to the north-east thence led over rough ground, the lower folds of the Umm Furút, where a great granite gorge, the Nakb Abu Sha'r, ran up to a depression in the dorsum, an apparently practicable Col. Suddenly the rocks assumed the strangest hues and forms. The quartz, slaty-blue and black below, was here spotted and streaked with a dull dead white, as though stained by the droppings of myriad birds: there it lay veined and marbled with the most vivid of rainbow-colours, reds and purples, greens and yellows. Evident signs of work were remarked in a made road, running up to the "Jebel el-Marú" (proper), whose strike is 38° (mag.), and whose dip is westward. I have elsewhere † described this *arête*, this cockscomb of snowy quartz, some 60 feet high by 45 of basal breadth.

Returning to our old camping-ground, having ridden 3 hours 30 minutes (= 9 miles), we crossed a divide to the Wady el-Málihah (the "Salt Valley"); and another to the Wady el-Kusayb, where a few formless heaps represented the ruins so grandly reported to us (February 19th). We encamped after 1 hour 30 minutes (= $4\frac{1}{2}$ miles), making a total of 5 hours

* He alludes to his first journey (1845), from the southern extremity of the Dead Sea to the Jebel Shammar.

† 'The Land of Midian (Revisited),' chap. xiii.

(=13½ miles), on a "Safh," the high bouldery bank of the Wady Surr, where it receives the Wady el-Kusayb; and we passed the greater part of the night battling with the warm, gusty and violent north-easter.

March 15th.—Sending the caravan up the Wady Surr, we set out at 6 A.M. up the Wady "Malayh" (Malih), the north-eastern branch falling into the *rond point* where we had nighted on February 19th. Passing a few Arab tents, we climbed across country to the Jebel Malih, of whose metallic wealth I had received notable reports; and from which accordingly I expected mighty little. We found literally nothing; but a few days afterwards, splendid specimens of cast copper were brought from it by a Bedawin. In the wady below is a large puddle of brackish water: hence probably the name—"salt" (Malih) not "pleasant" (Malih) valley. The element here is abundant, the thrust of a stick in the sands of the re-entering angles is followed by the reappearance of stored-up rain. It may also have been called after the Malih plant (*Lindenbergia Sinatica*).

Resuming our ride up the wady-bed, and crossing a divide to the Wady Daumah (of the "one Daum"), we dragged our mules down the precipitous left bank, a ladder of rock and boulder, and presently found ourselves in the upper Wady Surr. Broad and well-grown with vegetation, fan-palm and thorns, it defines, sharply as a knife-cut, the northernmost outlines of the mighty Sharr; whose apex, El-Kusayb, towered above our heads. Farther on we came upon what seemed to be a flowing stream: the guides, however, declared that it rolls nothing but rain, being bone-dry in summer. There the rocky bed made a sharp turn from east to south; and its "gate" opened upon another "broad," formed by the meeting of four wadys. After riding 3 hours (=7 miles) we dismounted to inspect the rude ruins of El-Zebayyib which had been visited by Mr. Clarke.*

This site is interesting, and yet, curious to say, it shows no signs of water nor of palm plantations. Here the Wady Surr, sweeping from the south and bending abruptly to the west or seaward, receives a northern influent, the short watercourse draining the ruddy Abá 'l-bárid peak. The ruins stand *à cheval* upon another and eastern feeder, the Wady Zubayyib. Nearly opposite it, the Sharr block is broken by the Sha'b Makhúl, the eastern versant of the Nakb Abú Sha'r; but instead of the fairy wall of creamy and snowy quartz, there is a corresponding crest of gloomy black plutonic matter, ugly and repelling as gnome-land. The Bedawin distinguish between the eastern and

* See, *ante*, p. 58, and 'The Land of Midian (Revisited),' chap. x.

western faces of the same block, and also between the wadys of the scarp and the counterscarp: for instance, the oriental front of the Ras el-Kusayb is called Abú Kurayg (كريب). This is natural, as the formations, often of a totally different material, show contrasting features.

Still ascending the Wady Surr, we passed on the right bank the Wady el-Hámah (الحامة), which receives the Wady Kh'shab-ríyyah before noticed. The latter, bifurcating in the upper bed, drains the Dibbagh and the Umm Jedayl blocks, and in the fork lie, we were told, the ruins of El-Fara', some 5 hours' march from this section of the Wady Surr. The word means "the upper part of a valley;" and hence possibly the mysterious "Fara' el-Samghí" which appears in my vol. i. p. 129. After marching 1 hour (= 3 miles) more, and a total of 4 hours 30 minutes (= 11½ miles), the guides made us camp at the foot of the ascent to be attacked next morning. They declared that the Sha'bs (Cols) generally cannot be climbed, even by the Arabs; I have reason to believe the reverse. Our ground

was called Safhat el-Wu'ayrah (وعير), "of the little Wa'r," from a slaty schistose-trap hill on the eastern bank of the Wady Surr: here also stood a "Mashghal" where copper was worked. Great excitement at night, when the Bedawin brought us in five specimens of that metal, incontinently declared to be gold!

March 16th.—At 6 A.M. we attacked the Shárr, in a general direction from north to south. On the left bank of the water-course rises a porphyritic block; an easy slope, dotted here and there with natural pilings of black rock, which look almost artificial. The summit is a horizontal crest, a broken wall, above which, on a more distant plane, rise the *Shenázir*, or "Pins," the two granite columns which are visible as far as the Shárr itself. This lower block is bounded, north and south, by gorges, fissures that date from the birth of the mountain. In the former direction yawns the Sha'b, technically called the *Rusháh* (رشوة) Abú Tinázib (طناضب), "Droppings of the Father of the Tanzub tree" (*Sodada decidua*). Southwards the Sha'b Umm Khárjah (خارجة) defines the outlier.

The ascent of this foot-hill occupied three very slow hours, and at 9 A.M. we stood 3200 feet above the sea-level (aner. 26·79).

The only semblance of a climb was at the crest-wall of brown, burnished and quartzless traps. What most struck me was the increased importance of the vegetation, evidently the result of more rain, dew and cloud-shade. Here, besides *Rumex* and *Taraxacum*, appeared the strong-smelling *Ferula*, the *Sarh* (سرح),* attaining the stature of a tree, and the homely hawthorn (عرعر *Cratægus*). The Arab word classically means the cypress or the juniper-tree; in Jeremiah, where it occurs twice (xvii. 6 and xlviii. 6), the Eng. version renders it by "heath." It is now generally translated "savin" (*Juniperus Sabina*), a shrub whose purple berries have a strong turpentine flavour. The whole of the upper granite must have grown, in sheltered places, fine junipers, locally called *Habibah* (حبيبه); the few that now remain are as thick as a man's body. There are some signs of the ibis, hyæna and leopard; of the eagle and the splendid *caccabis* (El-Shinnár), of white and yellow butterflies, of ladybird-like *Ba'úzah*, of the wild bee and of the common housefly; the latter is very abundant in Midian, even when "organic matter" is apparently wanting.

The summit of the outlier is an inverted arch, with a hill, or rather a tall and knobby outcrop of rock, springing from either flank of the horizontal key. The inland (east) view was a panorama of the region over which we had travelled, a network of little chains, mostly running parallel with the Great Range; and separated from it by lateral, oblique, and perpendicular wadys. Some of these torrent-beds were yellow, others pink, and others faint, sickly green, with decomposed trap: all carried a fair growth of thorn-trees—acacias and mimosas. High over and beyond the Monarch of the Shafah Mountains, *Jebel Sahhárah*, whose blue poll shows far out at sea, ran the red levels of the *Hismá*, backed at a greater elevation by the straight lines of the black *Harrah*. The whole *Tihámah* range, now so familiar to us, assumed a novel expression. The staple material proved to be blocks and crests of granite protruding from the younger plutonics, which enfolded and enveloped their bases and backs. The solitary exception was the dwarf *Umm Jedayl*, a heap composed only of grey granite. The *Jebel Kh'shabríyyah*, in the *Dibbagh Block*, attracted every eye; the head was supported by a neck swathed as with an old-fashioned cravat.

Where the outlier-top is tolerably level, the shepherds had

* The pure Arabic "Sarh" means tall, large trees, especially those free from thorns.

built small hollow piles of dry stone, in which the newly-yeaned are sheltered from the rude blasts. The view westwards, or towards the sea which is not seen, almost justifies by its peculiarity the wild tales of the Bedawin. Our platform is, as I suspected, cut off from the higher plane by a dividing-gorge some 300 feet deep, but it is bridged over by a ridge. Beyond it rises the great granite mask forming the apex. Down the northern sheet-rocks trickled a thin stream that caught the sun; and thus the ravine is well supplied with water in two places. South of it lies a tempting Col with a slope, apparently easy, which separates a dull mass of granite on the right from a peculiar formation to the left. The latter is a dome of grey granite, smooth, polished, and slippery, evidently unpleasant climbing; and from its landward slope rise abrupt, as if hand-built, two isolated gigantic "Pins," which can hardly measure less than 400 feet. They are the remains of a sharp granitic comb, whose apex was once the Parrot's Beak. The mass, formerly mammilated, has been broken to denticulations by the destruction of the softer strata: already the lower crest, bounding the Sha'b Umm Khárgah, shows perpendicular slicings, which will form a new range of pillars when these huge columns shall have been gnawed away by the tooth of time.

MM. Clarke, Lacaze, and Philipin, set out at 11 A.M., with a small party of quarrymen, to climb the Col, and lost no time in falling asunder. The latter made straight for "The Pins," and, reaching a clump of small junipers, was arrested by a *bergschrunde* which divides this second outlier from the apex of the Shárr—the Dome and the Parrot's Beak. Consequently he beat a retreat and returned to us after 3 hours 30 minutes of exceedingly thirsty work. The Egyptians, of course, shirked, enjoyed a sound sleep, and sauntered back, declaring that they had missed the "Éffendis." M. Philipin brought with him an ibex-horn still stained with blood, and a branch of juniper, straight enough to make an excellent walking-stick.

The other two struck across the valley, and at once breasted the couloir leading to the Col. They found more climbing than they expected, and reached the summit, visible from our halting-place, in 2 hours. Here they also were summarily stopped by a crevasse shedding seawards and landwards. Unfortunately they went without an aneroid. The time employed would give about 2000 feet; and thus their highest point could hardly be less than 5200 feet. Allowing another thousand for the apex, which they could not reach, the altitude of the Shárr would be between 6000 and 6500 feet. They came back at 4 P.M., triumphant with the spoils of travel—a venomous snake

found basking near a trickle of water; juniper-leaves and berries which serve to identify the species; a small helix picked up near the summit, and sundry Alpine plants. Before the glooms of night had set in we had descended, and were once more in the tents.

March 17th.—We left El-Wu'ayrah at 6.15 A.M., riding, still southwards, up the Wady Surr. The stony broken surface now showed that we were fast approaching its head. Beyond the Umm Khárgah gorge, in the western block, rises the tall Ras el-Rukabíyyah, and beyond it is a ravine in which palms and water are reported. The opposite (east) side is a monotonous trap-curtain, whose chief projections are the Jebels el-Wu'ayrah, el-Ma'in, and Sháhithah (شاحطه). A little beyond the latter debouches the Darb el-Kufl ("Road of Caravans"), alias El-Ashárif ("of the Sherifs"), a winding gap, the old line of the Egyptian Pilgrims, by which the Bedawin still wend their way to Suez. The broad mouth was dotted with old graves, with quartz-capped memorial cairns, and with blocks bearing tribal marks.

After 2 hours 30 minutes (= 7 miles), we sighted the head of the Wady Surr proper, a charming halting-place. Here the amount of green surface, the number of birds, and the open forest of thorn-trees, argue that water is not far off. Our Arabs determined to waste the rest of the day; but we pushed them on, and followed at 11 A.M.

The track led up a short, broad wady, separating the southernmost counterforts of the Shárr from the north end of the Jebel el-Ghúrab. This "Raven Mountain" is a line of similar but lower formation, which virtually prolongs the great "Landmark." Farther south lies, they say, a facile pass up the Wady Oujah (اوجه), an affluent of the Wady Zahakán, near Zibá. The Col el-Kuwayd (كويد), appeared one of the easiest we had yet seen, and we reached the summit in 40 minutes. The seaward slope is a large outcrop of quartz *in situ*, a dull, dead, chalky-white variety, looking as if heat-altered and mixed with clay. The rock-ladder, leading to the lower Wady Kuwayd, which has an upper branch similarly named, offered no difficulty, and its height proved to be 470 feet (aner. 28.13–28.50). Having marched 1 hour 15 minutes (= 2 miles), or a total of 3 hours 45 minutes (= 9 miles), we found the caravan camped at the nearest pool, 19½ miles (dir. géom.) from our destination. An ugly Kham-sín, together with the heat of the enclosed valley, made sleeping well-nigh impossible. This Scirocco is locally called *El-Dufún*,

in full *Dufún el-Surayyá* (of the Pleiades): in classical Arabic, as far as the dictionaries go, *Dufún* would derive from a root meaning simply "burying."

March 18th.—We began our only long ride at 4.20 A.M., and finished the monotonous Wady Kuwayd, which mouths upon the rolling ground falling coastwards. The track then struck to the north-west, across, and sometimes down, the network of watercourses that subtends the south-western Shárr; their uninteresting names have already been mentioned. After a total march of 7 hours (= 22 miles), we debouched upon our old Sharm, which showed, for the first time since its creation, two war-steamers with their "tender," the Sambuk. We were delighted to tread once more the quarter-deck of the corvette *Sinnár* (Capt. Hasan Bey), and all felt truly thankful to the Viceroy and the Prince who had so promptly and so considerately supplied my various requisitions.

This march round the Shárr had lasted six days (March 13–March 18). The distance covered from the ship and back was in round numbers 55 miles: Lieut. Amir's map prolonged the figure to $59\frac{2}{3}$. The following is a list of stations and dates:—

1.	March 13.	Sharm Yáhárr to the Kawáim	2 h. 45 m. = 8 miles.
2.	" 14.	To the Wady Surr	1 h. 30 m. = $4\frac{1}{2}$ "
3.	" 15.	Safhat el-Wu'ayrah	4 h. 30 m. = $11\frac{1}{2}$ "
4.	" 17.	To the Wady el-Kuwayd	3 h. 45 m. = 9 "
5.	" 18.	" Sharm Yáhárr	7 h. 10 m. = 22 "
Totals			19 h. 40 m. = 55 "

The distances are probably too short, and Lieut. Amir's total, $59\frac{2}{3}$, must be preferred, giving an average of a small fraction under 3 (stat.) miles per hour.

Our journey through Eastern or Central Midian thus lasted 18 days (Feb. 19–March 8), including the halts (March 1 and 6). It concluded with an excursion of a short week (March 13–18) to the apex of the country, the great Shárr. Despite forcibly slow marches at the beginning, we covered in round numbers, according to my route-book, $197\frac{1}{2}$ miles: Lieut. Amir's map gives a linear length of 222 miles, not including the offsets. The second part represents 55 miles, besides the ascent of the mountain to a height of about 5000 feet. The mapper also increased this figure to $59\frac{2}{3}$; and thus the route-line shows a grand total of $252\frac{1}{2}$ to $281\frac{2}{3}$ statute miles. The camels engaged from Shayhks 'Alayan and Hasan numbered 61, and the hire was 147*l.* 6*s.* 6*d.*, without including either 40*l.* of which we were plundered by the Beni Ma'ázah, or the cost of ascending the Shárr. The latter item (40*l.*) would raise the grand total to 187*l.* 6*s.* 6*d.*

PART III.—*Visit to South Midian.*

This southern journey proved by far the most interesting of the three. The region differs essentially from the northern, which had occupied two months, mostly wasted. Had we known what we do now, I should have begun with the end; and should have devoted to it the greater part of our time. The whole eastern counterslope of the outliers, projecting from the Ghát section known as the Jibál Tihámat Balawíyyah, is one vast outcrop of quartz. The parallelogram between n. lat. $26^{\circ} 0'$, including the mouth of the Wady Hamz (حمض), and n. lat. $27^{\circ} 0'$, which runs some miles north of the Badá plain, would form a Southern Grant sufficiently large to be divided and subdivided as soon as judged advisable.

The characteristics of North Midian (Madyan proper) are its argentiferous, and especially its cupriferous ores. South Midian worked chiefly gold and silver, both metals being mentioned by the mediæval Arab geographers. Spangles of gold were noticed by the Expedition in the rosy micaceous schists veining the quartz, and in the chalcedony-agate which parts the granite from the gneiss. The argentiferous *Negro-quartz* everywhere abounds, and Badá showed strews of spalled "Marú," each fragment containing its block of lead almost pure. Saltpetre is plentiful, and a third sulphur-hill rises from the maritime plain north of the Wady Hamz.

I. *Cruise to El-Wijh; March 21st.*—At Shárm Yáhár two days were employed in settling for past services, and in preparing for our march. The whole Expedition, except only the sick left at El-Muwaylah, was now bound southwards. The Sayyid and Shaykh Furayj accepted formal invitations to accompany us, and the Básh-Buzuks, Bukhayt and Husayn, were shipped as their henchmen; whilst a score of soldiers and quarrymen represented the escort and the working hands.

At 6.30 A.M. the *Sinnár*, dashing into the dark and slaty sea, tumbled by two days of equinoctial weather, stood to the south-east. The Shárr loomed large through the mist, and the air was so damp that our dry and wet bulbs showed a difference of only 4° - 5° . We noted the Ras el-Mu'arrash (not *Maharash* as the Ad. Chart has it), and the Ras Abú Shárirah (not *Abu-sharirah*), mere sandy points with little projections of profile. After the gap of the Wady el-Ghál, we passed, at 10 A.M., Zibá with its dumpy tower. The high coralline bank, which forms the "Báb," runs some distance down shore, allowing passage to our ugly old friend, the Wady Salmá. Beyond that point the

Wadys Rank (رنق, "of turbid Water"), 'Amud (عمود, "of the Pillar"), and El-Baharah, none of them found on the chart, meander in usual Arabian fashion over all the land.

Off the northern Wady 'Amúd,* the recipient of the Abú Marwah gorge,† and by far the most important of these features, lay two Sambuks at anchor, and a long line of vegetation decks the shore. I cannot help suspecting that it is the

Wady 'Aúnid (عونيد) of geographers, a name utterly unknown to the Arabs of these parts. El-Idrisí can hardly be mistaken when he says (iii. p. 5) "Then, after 'Akabat-Aylá, you come to EL-'Aúnid, a haven with potable water; and *fronting it is the island El-Na'man* (read Nu'mán), 10 miles from the shore." El-Mukaddasi adds (i. p. 101), "El-'Aúnid lies on the coast of Korh (قورح),‡ near Hijr, a flourishing city, producing much

honey and possessing a fine port." Can Hijr here be Hajar, "the Village," the port of Strabo's Egra, the modern Wijh, and Korh the great Wady Kurr (قر) to the south of it?

Sprenger (Alt. Geog. p. 24), induced it seems by the similarity of sound, would derive the Ραυνάθου κόμη (Rhaunathi vicus), which Ptolemy places in N. lat. 25° 40', from 'Aúnid, justly observing that the Arabs often interchange the 'Ayn and the Ghayn (Gháunid = Rhaunathus), while the Latins convert the latter to "R," as "Razzia" for *Ghazweh*. Yet it is my belief that the true Wady 'Aúnid is the Wady 'Uwaynid, farther south.§

Below the Wady 'Aúnid, the Wady Dámah, halfway to the Wady Azlam, falls into the sea north of Abú Masárib (مساريب, "of Pastures"), which the Ad. Chart calls *Massahrib*, and Sprenger *Mazárib*. This long thin point, according to my friend, represents the Χερσόνησος Ἄκρα (*Chersónesi extrema*) which Ptolemy places upon the parallel of Rhaunathus. Here the coast-range, Jibál Tihámat Balawíyyah, now distinguished as the mountains of the lowlands of the Baliyy-land, begins to recede from the sea, and becomes mere hills and hillocks; yet

* There is a southern Wady 'Amúd, distinguished as the 'Amúd Zafar (ضفر), whose blue hills we shall see from Sharm Dumayghah.

† See Part II. sect. iv.

‡ "Kurb" with the short vowel would mean water gushing from a well.

§ See Part II. sect. iii. The 'Ayn is the Heb. Oin, and the Ghayn is not found in that dialect; hence "Oreb" (a raven) becomes in Arabic "Ghuráb," and so forth.

the continuity of the chain is never completely broken. At noon we slipped into the channel, about $1\frac{1}{2}$ (not 10 nor 60) mile broad, between the mainland and the islet known as the Jebel Nu'mán; similarly, Hassáni, island, is called *Jebel*, a hill, and never *Jeziat*, an island. This feature has a long lean tail, a sandy flat which projects far to the north-west several parallel lines of rainbow-green reef. It first appears as a narrow depressed quoin, 3 to 4 miles long by 1 broad; its Jebel is composed of two dwarf hillocks, one rounded, the other flattened. Both rise a little above the dorsum of desert-like material: yellow sandstones and corallines, whose dark-metalled surface is dotted with shrubs. We did not, however, find the Nu'mán plant (*Euphorbia retusa*), which is supposed to have given it a name. The rock gains height to the south-east, and forms four bluffs with horizontal and parallel stratification, much worked by wind and water. Two fine bays, facing the mainland, afford excellent anchorage. The northern showed a Sambuk hauled down for cleaning, a fishing-canoe lurking near the shore, and Arab tents on the plateau behind. The other, adjoining it to the south, is of larger size, not a little resembling Sináfir: at its bottom, behind the sands, rises a red *piton*, possibly the core of the islet, with a final rock not unlike, from our range of view, a gigantic "Krupp."

During the return cruise we landed upon Nu'mán, and examined it carefully. Like the Dalmatian Archipelago, it was once mainland, probably separated by the process that raised the maritime range. The rolling sandy platform and the dwarf wadys are strewn with trap and quartz, which were never produced *in situ* on this bit of rock. During spring-tide the Huwaytát transport their flocks in the light craft called "Kati'rahs," and keep them while the pastures last. We made extensive inquiries, but we heard of no ruins; and yet Sprenger would here locate the *Τιμαγένης νήσος* (*Timagenis insula*) of Ptolemy. If such be the case, either the Alexandrian or his manuscripts must greatly err. He places the bank in N. lat. $25^{\circ} 45'$, whereas its centre lies in N. lat. $27^{\circ} 5'$, a difference of $1^{\circ} 25'$. His 60 miles of distance from the coast, evidently the blunder of a copyist, must also be reduced to a maximum of three.

Passing the Wady Surayyá, and another old friend, the Aslah-Aznab, down whose head we had ridden to Shaghab, we crossed at 2 P.M. the mouth of the Wady Azlam ("of the Mountain Goat"), the "Ezlam" which Wellsted (ii. 183) unduly makes the southern frontier of the Huwaytát, and the northern limit of the Baliyy tribes. Here the Jibál el-Azlam trending from the north-east, abut upon, and run parallel with, the sea. Beyond

them lies the Sharm Jezai (جزاي, not Jizzeh nor Jezzay), a white gap in the line of dark-brown trap hills. Then comes the similar mouth of the once-populous Wady Dukhán (of "Smoke?"), faced by a large splay of tree-grown sand; on the opposite African shore the name always denotes places where furnaces have been at work. Follow the coast-islands of Marsá Zubaydah (not *Zebaidar*), connected by fords with the shore. Here the sea is bordered by the red-yellow coast range, whose fretted sky-line of peaks and cones, "horses" and "hogs'-backs," are cut by deep wadys, and drained by dark "gates." The background is a long regular curtain of black hills, whose white sheets and veins may be granites and quartz.

We then passed the little creek Mínat el-Marrah, one of the many openings grown with vegetation; here the ruins El-Nabagah (نبقة, "of the Single Lote-tree"), are spoken of. At

4 P.M. we doubled the Ras Lebayyiz (لببيز, not *Lebayhad*),

a long flat tongue projecting well from the coast-range and defending its valley, which lies to the south. In the Far'at ("upper part"), some five hours' march from the mouth, lie important remains of the "Mutakaddimín," tall furnaces and scoræ; an "irregular" militant at El-Wijh confirmed this report. The Wady Lebayyiz nearly fronts the Nabakíyyah Island, a mere raised reef, with the sea breaking around it: here lay two fishing Kati'rahs, hunting mother-of-pearl. The Shakk el-'Abd ("Slave's Cleft") is another small Mínat (refuge-harbour), a break in the shore between the Ras Lebayyiz and the Ras Salbah (ثلبه, not *Telbah*). And now the coast-range retreats far to the east, while its continuity is completely broken up into a multitude of dwarf cones.

The next important feature is the Wady Salbah, also lying south of its headland: we shall have much to say concerning its inland continuation, the Wady Nejd. On the dark hills of Salbah, the gloomy range ahead of us, appear the granite peaks and "pins" of Jebel Libn, gleaming white and pale in the livid half-light of a cloudy sunset. After 12 hours' steaming over 70-72 knots of reefy sea, we ran carefully into the Sharm Dumayghah, which my 'Pilgrimage' (I. xi.) called Damghah, one error amongst many rectified in my last volumes.* This lake-like, land-locked cove is by far the best of the many good dock-harbours which break the Midian coast.

I resolved to pass a day in surveying the port; the Hydro-

* 'The Land of Midian (Revisited),' chap. xiv.

graphers give plans of Yáharr and Jibbah, ignoring one far more important. Distant only 30 miles of easy and safe coasting navigation, it is *the* harbour for the pilgrim-ships which El-Wijh endangers. The work of the Egyptian officers shows on the map an oval, about 1 knot in length, disposed north-west to south-east, with four bulges on the northern shore: the breadth may be 1200 yards. It appears to be the embouchure of the Wady Dumayghah, which falls into its head, and which, in the days of forests, must have rolled a large stream. The entrance is defended by a feature common on this coast, a natural breakwater, denoted by a dot upon the chart; it measures 340 yards by half that width, and it may be the remains of the coralline bed in which the torrent carved out the port. The northern inlet is a mere ford of green water; the southern, 25 fathoms deep, has 160 fathoms of clear way between the reef and shallows of either side. The bay shoals to the south-east, and the best anchorage for ships lies to the north-west, almost touching land: a reef or rock is reported to be in the middle ground, and native craft usually make fast to a lumpy natural mole of sandstone north of the entrance.

We landed to inspect the country, which belongs, not to the Juhaynah, but to the Baliyy, mixed with a few Kura'an-Huwaytát and Karáizah-Hutaym. Most of the shells were broken, not including, however, the oysters; and the usual eight-ribbed turtle appeared to be common. M. Lacaze picked up, on the northern sands, a large old bleached skull, which went into my collection. We failed to find any neighbouring burial-place: striking, however, inland, towards the "Fort (Ruin)" of the Chart, we came upon an old cemetery to the north of the bay, and concluded that the graves had originated the mistake.

The Jibál el-Salbah, and its wadys to the east, showed the familiar low-level conglomerates, and quartz-seamed high ranges of dark traps. The mouth of the northern gorge is blocked by a vein of finely-crystallised carbonate of lime, with an astringent taste, possibly resulting from the presence of alumina. Signs of Arabs appeared everywhere, but we were unable to ascertain the extent or even the existence of water, an important consideration if this is to become the port of El-Wijh. The Hajj-road, running some miles inland, is doubtless supplied with the necessary, and these Bedawin could hardly live without it. Shaykh Furayj pointed out to us, far in the north, the blue peaks of the 'Amúd Zafar, in whose branch-wady stand the ruins of M'jirmah. The day ended with a sudden trembling of the ship, as if straining at anchor; the apparent direction of this earthquake, or rather waterquake, was from north to south, time 9.10 P.M., and duration 20". According to the Arabs, the

motion is not uncommon in Midian, especially about the vernal equinox: on the present occasion it ended the spell of damp and sultry weather, which began on March 16, and which may have been connected with it.

March 23rd.—The soundings were not finished before 7.40 A.M., when the old corvette resumed her rolling, rollicking way southward; as usual, she was without ballast. After steaming 1 hour (= 7 miles) we sighted the green mouth of the Wady 'Antar, in whose Istabl, or upper valley-course, the pilgrims camp. It drains a small inland range to the north-east; this feature bore 80° (mag.) when we were 2 miles south of Dumayghah, and it was then hidden by the taller block to seaward. The Ad. Chart, besides confounding the two, has applied "Istabl" to the height instead of the hollow. Jebel Libn, vulgò "Libin," suggests grey granite and white quartz; hence, probably, the name, identical with Lebanon and Libanus, the "Milk-mountain." The Bedawin have, doubtless, their own terms for every feature: the citizens divide it into two, El-Áli (the "upper") being its southern, and El-Asfal (the "lower") its northern section. It is a little brother of the Shárr, measuring 3733 instead of 6000-6500 feet. We first see from the north a solid block, capped with a mural crown of three peaks. When abreast of us, the range becomes a tall and fissured wall, perpendicular to the west: it reposes upon a base which slopes at the angle of rest; and it falls into the sandy environing wady. To complete the resemblance, even the queer "pins" are not wanting. It is said to abound in water; and a Nakhil ("date-grove") is described as growing near the summit. The tribe which owns the most of it, the despised Hutaym, claims the negro hero, poet and lover, 'Antar, as one of their ancestors—hence, probably, his connection with the adjoining mountain and "the Stable."

I will here briefly consider the status and the relations which this block bears to the western Gháts of Northern Arabia. The "Jebel Libn" is the great feature of the Tihámat Baláwiyyah; for many days it will appear to follow us, and this is the proper place for assigning its site and status to it. We have prospected about EL-'Akabah, the northern head of the Gháts or coast-ranges, the single chain of Jebel Shará, the "Sa'ar of the tribes of the Shasu" (Bedawi)* in the papyri; and the Hebrew Mount Séir, the "rough" or "rugged." Farther south we have noted how this tall eastern bulwark of the great Wady el-'Arabah, bifurcates, forming the Shafah chain to the east; and westward of it, in Madyan Proper, the Jibál el-Tihámah, of which the

* See my vol. i. chap. vii.

Shár is perhaps the culmination. We have noted the accidents of the latter as far as Dumayghah Cove; and now we descry in the offing the misty and distance-dwarfed forms of the Jebel el-Ward, the Jibál el-Safháh (صفحة), the two blocks south of the Wady Hamz, known as the Jibilayn el-Rál, and their neighbours, still in the Tibámat Baláwiyyah. Lastly we shall sight behind El-Haurá the Abú Ghurayr,* and a number of detached blocks which, like the former, are laid down, but not named, in the Admiralty Charts.

Beyond El-Haurá the chain still stretches southwards its mighty links with smaller connections. The first is the bold range Jebel Radwah, the "Yambo Hills" of the British sailor, rising some 6000 feet high, and lying 35 miles behind the new port.† Passing it to left on the El-Medinah route, I heard the fables which imposed upon Abyssinian Bruce; "all sorts of Arabian fruits grow in perfection on the summits of these hills; it is the paradise of the people of Yenbo, those of any substance having country houses there;" and so forth. This was hardly probable in Bruce's day, and is now impossible: the mountain is held by the Beni Harb, a most turbulent tribe, for which see my 'Pilgrimage,' vol. i. pp. 364-5. Their head-shaykh Sa'd the Robber, who still flourished in 1853, is dead, and has been succeeded by one of his sons, Shaykh Hudayfah, who is even worse than the sire. Between these ill-famed haunts of the Beni Harb and Jiddah rises the Jebel Subh, which Raper (p. 527) calls Jebel Soubah. It is "a mountain remarkable for its magnitude and elevation" (4500 feet), inhabited by the Beni Subh, a fighting clan of the "Sons of Battle."

The largest links of these west Arabian Gháts are composed of white-grey granite, veined and striped with quartz; and they are subtended inland by the porphyritic traps of the Jibál el-Shafah, which we shall now trace in the parallel of El-Hamz, the end of Egypt. I cannot, however, agree with Wellsted (ii. 242, 3) that the ridges increase in height, as they recede from the sea; or that the veins of quartz run horizontally through the "dark granite." The greater altitudes (3000-6000 feet), visible from an offing at 40-70 miles, are connected by minor heights: some of them, however, are considerable, and here and there they break into detached pyramids. All are maritime, now walling the shores, like the Tայyib Ism and

* Perhaps from Ghurayrá, the name of an aromatic plant.

† The old being the classical 'Ιαμβλα κώμη (*Iambia vicus*), now Yambu' el-Nakhil ("Spring of the Palm-tree"), in Ptolemy's time a sea-port, at present 15 miles to the north-east (N. lat. 24° 12' 3"?) of the modern town in N. lat. 24° 5' 30" (Wellsted, ii. 220). According to the Arabs it lies 6 hours' march from the sea.

Mazhafeh, then shearing away from it, as about the Rál, where a broad "false coast" has been built by Time.

These western Gháts, then, run down either in single or in double lines the whole length of occidental Arabia, and meeting a similar and equally important eastern line they form a mighty nucleus, the mountains of El-Yemen. After carefully inspecting, and making close inquiries concerning, a section of some 500 miles, I cannot but think that the mines of precious ore, mentioned by the mediæval Arabian geographers,* lay in offsets from the flanks either of the mountains or the inland chain; that is, they are either on the Tihámah, the coast lowlands, or in El-Nejd, the highland plateau of the interior.

What complicates the ground is the long line of volcanic action which, forming the eastern frontier of the plutonic granites and of the modern grits, may put forth veins extending even to the shores of the Gulf of 'Akabah and the Red Sea.† The length, known to me by inquiry, would be about three degrees between N. lat. 28° and 25°, the latter being the parallel of El-Medínah: others make them extend to near Yambu' in N. lat. 24° 5'. They may stretch far to the north, and connect, as has been suggested, with the Syrian centres of eruption, discovered by the Palestine Exploration. I have already explained ‡ how and why we were unable to visit the "Harrah," lying east of the Hismá; but we repeatedly sighted its outlines and I determined that its lay is from north-west to south-east. Farther south, as will be seen at El-Haurá, the vertebræ curve seawards or to the south-west, and seem to mingle with the main range, the mountains of the Tihámat-Jahaniyyah, of the Juhayni. Thus the formation assumes an importance which has never yet been attributed to it, and the five several "Harrahs," reported to me by the Bedawin, must be studied in connection with the mineralogical deposits of the chains adjoining them. It must not be forgotten that a fragment of porous basalt picked up by the first Expedition near Makná yielded a small button of gold.§

Dreadfully rolled the *Sinnár* before the long heavy swell from the north-west. It was a bad time off the Dabbat ("high land") || el-Marga'h ("of Refuge," not *Ras Margah*); a little relief, however, was felt when running down the channel between the mainland and the reef Kata' el-Ras (قطع الراس):

* See my vol. i. chap. ix.

† 'The Land of Midian (Revisited),' chap. vi., describes one of these sporadic (?) outcrops near Tayyib Ism; and chap. ix. notices the apparently volcanic sulphur-mountain near El-Muwaylah.

‡ Vol. ii. chap. x.

§ See my vol. i. chap. xii.

|| Dabbat properly means a sand-hill or heap.

the chart does not name it, but notes "good anchorage on the east side of these shoals." The long, low island of Raykhah (ريخة, "the loose or straddling"), to the w.s.w. of El-Wijh, may protect the port in that direction, and form, as Wellsted says (ii. 185), an "excellent mark for entering," but it did us no good. The nuisance returned in force as, doubling the Ras Muraybit (مريبط, not *Marabut*), we sighted El-Wijh. The gape of its wady is backed by the Hamirat, or "Red Range," and fronted by its two towers, the round Burj and the cubical lighthouse. And we were quiet once more when the *Sinnár*, at 12.15 P.M., having covered her 30 miles in 4 hours 30 minutes, cast anchor in the usual place, south-east of the northern jaw. The log showed a total of 102 miles between the Sharms Yáharr and El-Wijh, or 107 from the latter to El-Muwaylah.

El-Wijh,* meaning the "Face," an abbreviative form of El-Wijh el-Bahr (the "Face of the Sea"), lies in N. lat. 26° 14'. It is evidently an old site, although the ruins have been buried under generations of modern buildings; Sprenger (p. 21) holds it to be the seaport of "Egra, a village in the territory of Obodas," a corruption of the Arabic El-Hajar, the town or townlet. Hence, according to Strabo (xvi. cap. iv. § 24) Ælius Gallus embarked his baffled troops for Myus Hormus.† Pliny (vi. 32) also mentions the "Tamudæi, with their towns of Domata and Hegra, and the town of Badanatha." It is generally remarked that "Egra" does not appear in Ptolemy's lists, yet one of the best texts (Carolus F. A. Nobbe, Lipsiæ, 1843) reads *Εγγρα*, instead of the Negran (Nejrán), which Bilibaldus Pirckheymerus (Lugduni, MDXXXV) and others placed in N. lat. 26° 0'. Sprenger formerly believed El-'Amúd to be Strabo's "Egra," the haven for the northern; as El-Haurá was for the southern, and El-Wijh for the central regions.

I have no intention again to describe El-Wijh,‡ except as a quarantine station connected with the Pilgrimage-Caravan. It has been admirably adapted to such purposes, after laying out much money in a lighthouse, a masonry landing-pier, doctors' quarters, guard-houses, bake-houses, and an establishment for condensing water. It has been abolished, very unwisely, methinks, in favour of "Tor Harbour." The latter, inhabited by a ring of thievish Syro-Greek traders, backed by

* In classical Arabic Wajh is a face, and Wijh a side.

† See my vol. i. chap. viii.

‡ See 'The Land of Midian (Revisited),' chap. xiv.

a wretched sandy wild, comfortless enough to make the healthiest lose health, is—worst of all—so near Suez that infection can travel easily. A wealthy pilgrim has only to pay a few gold pieces; his escape to the mountains is winked at, and thence he travels or voyages comfortably to Suez and Cairo. Even without such irregularities, the transmission of contaminated clothing or other articles would suffice to spread cholera, typhus and small-pox. Tor is, in fact, an excellent medium for focussing, and for propagating contagious disease; and its vicinity to Egypt, and consequently to Europe, demands that it should at once be abolished.

The objections to El-Wijh are two, both equally invalid. The port is dangerous during westerly winds; and pilgrim-ships bank their fires ever ready to put to sea. True; but, as has been shown, Sharm Dumayghah, the best of its kind, lies only 30 knots to the north. The second, the want of water, or of good water, is even less cogent. The seaboard wells supply the poorer classes and animals; and we shall presently see the Fort wells, which in their day have watered from 20,000 to 30,000 thirsty men and beasts. So far from the condensers being a failure, the tank still holds 20 tons of distilled water, although it gives drink to some thirty mouths composing the establishment. Finally the tanks of the old paddle-wheel steamer, moored off the town, have done good work, and are ready to do it again.

Thus the expense of laying out the quarantine ground at El-Wijh has been pitifully wasted. That, however, is a very small matter; the neglect of choosing a proper position is serious, even dangerous. Unlike Tor, nothing can be healthier or freer from fever than the Pilgrims' Plateau. From El-Wijh, too, escape is hopeless; if a pilgrim left the caravan a Bedawi bullet would soon persuade him to stop. Here, then, should be the first long halt for the "compromised" travelling northwards. When contagious disease has completely disappeared, the second precautionary stoppage might be either at Tor or, better still, at the 'Uyún Músá (Moses' Wells) near Suez; where sanitary conditions are far more favourable, and where supplies, including medical comforts, would be cheaper as well as more abundant. Briefly, it is my conviction that, under present circumstances, "Tor" is a standing danger, not only to Egypt, but to universal Europe, and that its only remedy would be El-Wijh.

II. *To the Southern Sulphur Hill and Cruise to El-Haurá.*—At El-Wijh I again divided the party. MM. Marie and Philipin, with Lieut. Yusuf as surveyor, were directed to march southwards to inspect a sulphur-hill, and to report upon the Wady

Hamz and a ruin near its banks. Meanwhile the rest of us would proceed in the *Sinnár* to El-Haurá, a roundabout cruise of 100 miles or so southwards.

There is no need to describe M. Marie's march, which covered ground afterwards travelled over by the united Expedition. He was successful in discovering the sulphur-hill, the third now known upon the Midian coast. After riding 5 hours 40 minutes (= 17 miles), the party reached the base of the Tuwayyil el-Kibrít, the "Little long (Ridge) of Brimstone." It appears from afar a reddish pyramid, rising about 2 miles inland of a fine inlet, which is said to be safe navigation. Thus far it resembles the Jibbah find; on the other hand, it is not plutonic but chalky, like those of Makuá and "Sinai," the crystals being similarly diffused throughout the matrix.

The travellers slept at the base of the "Tuwayyil." Next morning M. Philipin proceeded to collect specimens of the sulphur and chalcedony-agate strewn over the plain. M. Marie and Lieut. Yusuf rode on to the banks of the Wady Hamz, and in 3 hours (= 9 miles) they came upon the ruins of a Gasr ("castle") that unexpectedly turned up trumps. I had carelessly written for them the name of a ruin which all believed would prove to be one of the normal barbarous, "Hawáwít." They brought back specimens of civilised architecture; and these at once determined one of the objectives of our next journey. On March 28th the party returned to El-Wijh in the highest of spirits, after a successful trip of more than 50 miles.

Meanwhile I steamed southwards, accompanied by the rest of the party, including the Sayyid, Furayj and Mohammed Shahádah, ex-wakil ("agent") of the Fort el-Wijh, a prosperous merchant much trusted by the Bedawin. He brought with him, by way of Ghafir, or "guide," one Rájih ibn 'Ayid of the Fawá'idah-Juhaynah; and the fellow was not a good specimen of his ill-favoured and ill-famed tribe.

March 24th.—We set out at 4.30 p.m.; and steamed due west till we had rounded the northern end of Raykhah Island. We then went to the south-west and passed to port the white rocks of Mardúnah Island,* capping the ugly reefs and shoals that forbid ships to hug this section of the shore. The patch fronts the headland Ras el-Ma'allah, where, as at El-'Ákabah and Makuá, sweet water springs from the salt sea-sands—a freak of drainage so common on the dismal Somali coast. We then ran along the Sharm *Habbán* (not "Abbán"), and the Ras Munaybarah (منسبري); and before nightfall we had sighted

* Mardún in the dictionaries is a kind of wasp.

Ras Kurkumah (كركمة), which Keith Johnston writes "Ras Ghurkuma." This yellow point, so called from its "curcuma" (turmeric, saffron, dioscorides), here faces the islet-tomb of Shaykh Marbat (مربط), not "Shaykh Hasan el-Márabit ('Pilgrimage,' I. xi.), nor *Morābit* (Wellsted, ii. 183). Upon this part of the shore, I was afterwards told, are extensive ruins, not visited by Europeans on account of the dangerous Juhaynah. The south-eastern background is formed by tall and misty highland blocks, the Gháts of the Tihámat-Jahaniyah. Northernmost, and prolonging the Libn, runs the regular wall of the Jebel el-Ward; then rise the peaks and pinnacles of the Jibál el-Safhah; and, lastly, the twin massifs, El-Rál. Faint resemblances of these features sprawl, like huge caterpillars, over the Admiralty Chart, but all sprawl unnamed.

March 25th.—The consequence of yawing and of running half-speed by night was that we reached Jebel Hassáni just before noon, instead of at 8 A.M. The island is a long yellow-white ridge, a lump of coralline 400 feet high, bare and waterless; yet at certain seasons it feeds the Bedawi flocks. Buttressed and bluff to the south-west, whence the strongest winds blow, it is prolonged by a flat spit to the south-east, and by a long tail of two vertebræ trending north-west. Thus it gives safe shelter to Arab barques, as noticed in my 'Pilgrimage' (I. xi.), where, however, it is erroneously called "Jebel Hasan." Its parallel is a few miles north of the "Dædalus Light" (N. lat. $24^{\circ} 55' 30''$) to the west; and it lies a little south of El-Haurá on the coast (N. lat. $25^{\circ} 6'$), and of El-Medinah, distant about 130 direct miles in the interior. If Ptolemy's latitudes are to be consulted, J. Hassáni will be the "Island of Timagines" in N. lat. $25^{\circ} 40'$; while the Chersonesus Point (also in N. lat. $25^{\circ} 40'$), "Jambia," being in N. lat. $24^{\circ} 12'$, would be represented by the important and well-marked projection of "Abú Madd" ("Father of the Flux" or high tide), which intercepts the view to the south.

Rounding the southern spit we turned to north-east and by east, and passed, with a minimum of 7 fathoms under keel, between J. Hassáni and the flat Umm Sahr (سحر); this "Libnah" of Wellsted (ii. 195) is a sandbank hardly visible from the shore, and deserves its name, "Mother of Deception." Here lies the only good approach to the saline and spacious bay, on which was built the southernmost Nabathæan port-town; all the others either require skilful pilots, or they are sealed by reefs and shoals. With the blue and regular-lined

curtain, Abú 'l-Ghurayr (غزير), in front, stretching down coast to Ras Abú Madd, we bent gradually round to the north-east and east. We then left to starboard the settlement El-Amlj (املج),* a scatter of the usual dull, dark-brown huts. We ran for safety $1\frac{3}{4}$ mile north of the exposed Ras el-Haurá; and at 1.30 P.M. (=21 hours) the *Sinnár* anchored, in 9 fathoms, under the protecting shallows Katá 'at El-Wazamah (وضمة).

El-Haurá is not found either in the charts or in Ptolemy's and Sprenger's maps. It lies in N. lat. $25^{\circ} 6'$, about the same parallel as El-Medinah; and in E. long. (Gr.) $37^{\circ} 13' 30''$. For these observations, which were taken by Násir Effendi Ahmed, First Lieutenant of the *Sinnár*, I am not answerable, although the latitude cannot be far out. Thus the latitudinal distance between El-Haurá and El-Wijh (N. lat. $26^{\circ} 14'$) would be 68 geographical miles. Wellsted (ii. 195) heard of, but never saw its ruins. He greatly errs when he makes this station, or its neighbourhood, the frontier of the "Bilí" and the "Johéinah": this line, as has been seen, lies nearly 50 geographical miles farther north. He also translates the word (ii. 461) "the bright-eyed girl," instead of the White (Village), *Albus Vicus*. He ignores, again, its other name Dár el-ishrín ("No. XX. Station"), so called because the Cairo caravan formerly reached it in a score of days, now reduced to nineteen.

According to Sprenger, the White Village, or Castle, was a Nabathæan, not a Thamudite port. Here Ælius Gallus disembarked his troops from Egypt. Strabo (xvi. cap. 4, § 24) shows that *Λευκὴ κόμη* was the starting-place of the caravans which, before the Nile-route to Alexandria was opened, carried the merchandise of India and of south Arabia to Petra. Thence the imports were passed on to Phœnicia and Egypt, and these pages have shown why the journey would be preferred to the voyage northwards. He is confirmed by the *Periplus* (cap. xix.), "from the Port and the Castellum of Leukè Kóme, a road leads to Petra, the capital of the Malicha (El-Malik), King of the Nabathæans; it also serves as an emporium to those who bring wares in smaller ships from Arabia. For the latter reason, a Perceptor, or Toll-taker, who levies 25 per 100 *ad valorem*, and a Hekatontarchus (centurion) are there stationed." As the Nabatæ were vassals of Rome, and the whole region had been ceded to the Romans (Byzantines) by a chief of the

* Amlaj is either a brown and barren waste or a myrobalan-tree.

Beni Kudá' tribe, this Yuzbashi, or military commandant, was probably a Roman.

El-Haurá, like most of the old coast-settlements, shows two "quarters," a harbour-town, and what may be called a country town. The latter is built upon a long tongue of land backing the slope of the sea-cliff, and attached to the low whitish hillocks rising down south; it is now a luxuriant orchard of emerald palms forming three large patches. Behind it swells a dorsum of golden-yellow sand, and the horizon is closed by ranges of hills and highlands, red and white, blue and black. The region is far more riant and amene than that higher up coast; and the whole shore-line seems to be broken with verdant valleys. The Wady el-'Ayn with its many branches beautifies the north; and, in the southern part, the Wady el-Daghaybij (دغيبج)* supplies water between its two paps.

Before the evening we landed at a shallow bay bearing 30° (mag.) from the corvette's anchorage. A few yards walk inland led to the unimportant Wady el-Sannah (سمنه),† draining low hills of the same name. The loose sand is everywhere strewn with bits of light porous basalt, which comes from the Harrat el-Buhayr (بحير), a bluff quoin to the north-west.

About El-Haurá, I have said, the volcanic formations, some 60 miles inland on the parallel of El-Muwaylah, approach the coast.

We were guided to the ruins by the shouts of sundry Arabs defending their harvest against a dangerous enemy, the birds:—rattles and scarecrows were anything but scarce. Apparently the sand contains some fertilising matter. A field of dry and stunted Dukhn (*Holeus Dochna*), or small millet, nearly covers the site of the old *Castellum*, whose outline, nearly buried under the drift of ages, we could still trace. There are two elevations, eastern and western; and a third lies to the north, on the right side of the Wady Samnah. Scatters of the usual fragments lay around, and the rocks of white coralline explained the old name—"Whitby." The Bedawin preserve the tradition that this was the most important part of the settlement, which extended nearly 4 miles southwards. The dwarf valley-mouth is still a roadstead, where two small craft were anchored; and here, doubtless, was the hive-corner allotted to the community's working-bees.

* Daghajat means driving to water every day.

† Samnah, the grains of a shrub like pepper, made into a fattening medicine for women.

March 26th.—We set out shortly after dawn, with a strong party of marines, to visit the south end of Leukè Kóme. A mile's row to 127° (mag.) landed us at a modern ruin, the work of a Yambú' merchant who had here failed to establish a store. Thence a few minutes' walking over loose sand led to the Hajj-road; it is paved, like the shore, with natural slabs and ledges of soft modern sandstone, which, being foot-worn, makes good "metal." The broad highway, scattered with quartz and basalt, greenstone and serpentine, crossed a branch of the Wady el-'Ayn, whose rich and saltish sand grew "Dukhn" and the Nilotic Halfá-grass (*Cynosurus durus*), tamarisk-thicket and tufts of fan-palm. On its left bank a lamp-black vein of naked basalt, capped by jagged blocks, ran down to the sea and formed a conspicuous buttress. The guides spoke of a similar volcanic outcrop above Point Abú Madd, and of a third close to Yambú' harbour.

A slow hour showed us the first ruins; wall-bases built with fine cement crowning the summit of a dwarf mound to the left of the road. We then entered the palm-orchards fenced with thorn, tamped earth and dry stone: young trees had been planted; and Dukhn-fields gave an agricultural touch to the scene. The high-road path to the Wady Haurá (حورا), where the caravan camps; it still shows all the requisites of an "eligible position," a quarter inhabited by rich citizens.

At the third or southern palm-patch we found remnants of the only public works still visible. This Káriz, or underground aqueduct, conducted towards the sea the drainage of the Jebel Turham (ترهم), a round knob shown on the Ad. Chart;

which bears 121° (mag.) from the conduit-head. The line has long ago been broken down by the Arabs; the 'Ayn ("fountain") may be seen issuing from a dark cavern of white coralline; it then hides itself beneath several pittings that represent the old Najwah (air-holes); and, after flowing under sundry natural arches, the remains of the conduit-ceiling, it emerges in a deep fissure of saline stone. From this part of its banks we picked up fair specimens of saltpetre. The lower course, abounding in water-beetles and choked with weeds, ends in a shallow pool grateful to birds.

The turbulent Juhaynah were mostly in the upper country; a few wretched fellows, however, assembled and began to squabble about the right of leading strangers into our country (*bilád-ná*). They and the guides gave us discouraging details concerning a ruin represented to lie some hours off, in the

nearest of the southern Harrahs. According to them the Kasr el-Bint ("Maiden's Palace") was in the same condition as El-Haurá; showing only a single pillar, perhaps the "Columns" to which Wellsted alludes. The young person whose vague name it bears was a sister of the well-known Warakat ibn Naufal (ورقة ابن نوفل); the former settled upon the

mainland, while the brother built a corresponding castle upon Jebel Hassáni. Neither here nor elsewhere could I learn anything concerning the human skeleton which Ibn Mujáwar, some 600 years ago, found imbedded in a rock near the sea-shore.

A few words concerning the "Harrahs" of this part of Arabia. The author of the *Kitab Futúh el-Buldán* ('The Conquests of El-Islam') states that the lands known to Arabia as *El-Harrah* are eight; of these he and Ibn Khaldún (*El-Ibar*) mention two—1. Harrat Beni Sulaym, from a tribe now vanished; and, 2, the Harrat el-Nár, lying between Taymá and the Wady el-Kurá (the Wady Hamz?). The learned Dr. Wetzstein, in the Appendix to his 'Reisebericht,' &c.,* records a conversation with A. von Humboldt and Carl Ritter (April 1859), respecting the specimens which he had brought from the classical Trachonitis. Their fresh texture and appearance led the latter to question whether the latest eruptions of the Harrat Rájl, as it is called from a neighbouring wady, may not have taken place during the historic period, and he referred to Psalm xviii. as seeming to note the occurrence, during David's reign, of such a phenomenon in or near Palestine. Humboldt deemed it probable that the Koranic legend (cap. cv.) of the Abyssinians under Abraham being destroyed by a shower of stones baked in hell-fire, referred, not to small-pox,† as is generally supposed, but to an actual volcanic eruption in Arabia.

"With what interest would that great man have learned," writes Wetzstein, "that as I was turning over the leaves of Yákút's 'Geographical Lexicon,' I found no less than 28 different volcanic regions between Haurán and Báb el-Mandeb known to the Arabians!" Later still Dr. Otto Loth published an elaborate paper "On the Volcanic Regions (Harras) of Arabia, according to Yakut," in which these eruptions are nearly all identified and described.

* This is the volume which I have translated. See also Dr. Beke's papers in the 'Athenæum' (Feb. 8th and 15th, 1873), his 'Mount Sinai a Volcano,' (*passim*); and his 'Sinai in Arabia,' p. 535.

† There are, as far as we know, two great centres whence this foul disease spread. The eastern is Mongolian-China, which retains traditions of it in n.c. 1122; the western, intertropical Africa: from the latter it is supposed to have invaded Europe in the sixth century.

"Among the numerous volcanoes thus found to exist within the Arabian Peninsula," remarks Dr. Beke, "the only one recorded as having been in activity within the historic period is the Harrat el-Nar* (Fire Harrah), situate to the north-east of Medina, in the neighbourhood of Khaibur (Khaybar), in about 26° 30' N. lat. and 40° E. long.; which, being traditionally said to have been in an active state six centuries before Mohammed, had actually an eruption in the time of the Prophet's successor, Omar. To the north-west of this 'Fire-Harra' lies that known as the 'Harra of (the tribe of) Udhra' (El-Azrá); again to the north of this is 'Harra of Tabúk,' so called from the station of that name on the Hadj road from Damascus to Mekka, the position of which is in about 28° 15' N. lat. and 37° E. long., and beyond this last, farther to the north, and consequently between it and the northernmost Harra of the Râdjil, or Trachonitis, is the Harra Radjlâ.† . . . Its designation, which means 'rough,' 'pathless,' seems to indicate its peculiarly rugged surface, and to lead to the inference that it is an immense field of lava."

Hence my late friend concluded that his "true Mount Sinai" was the focus and origin of this volcanic region; and that the latter was the "great and terrible wilderness" (Deut. i. 19) through which the children of Israel were led on their way to mysterious "Kadesh-barnea." Thus, too, he explained the "pillar of cloud by day" and the "pillar of fire by night" (Exod. xiii. 20).

Returning along the shore, we embarked and bade adieu to Leukè Kóme. The old corvette made the usual semicircle, but the sea had subsided to a dead calm, and we reached El-Wijh in 18 hours 15 minutes.

III. *The March to the Gold Mines.*—The preliminaries of our journey were soon settled at El-Wijh; and the Baliyy tribe made no difficulties. We were to be escorted by old Shaykh Mohammed 'Afbán, his son Sulaymán, his two nephews, Hammád and Náji, his factotum, the mulatto Abdullah, and his wákil ("agent") the big black slave, Abdullah Mohammed. The immediate objective of this, our last march, was the Badá plain and the Mochoura of the ancients, the mediæval Marwah or Zú Marwah. I also determined to visit a traditional coal-mine; and, finally, to return to El-Wijh *viá* the Wady Hamz, inspecting both it and the ruins first sighted by MM. Marie and Philipin.

March 29.—At 1.45 P.M. we left El-Wijh, with 58 camels, of which 7 were intended to carry water—as will be seen, they

* See Wallin, p. 327.

† Rajlá in Arabic means rough and stony ground = Trachonitis. Râjil is a well-girt walker.

were necessary. The afternoon was hot and unpleasant; in later March the Harwá el-'Uwwah,* a violent sand-raising norther, sets in and lasts a fortnight. It is succeeded (early April) by the calms El-Ni'am ("the Blessings"), which, divided into the Greater and the Less, last 40 days. Then the summer.

From the raised and metalled bank where the Burjstands, we rode down to the broad mouth of the Wady el-Wijh, draining the low, blue-brown hills that form the eastern horizon. On our left opened the dull embouchure of Wady Mansá (منصا); and to the right lay el-Mellábah, the Salina, distant about a mile from the town. It is an oval of some 1800 yards from north to south; and the banks are padded with brown slush frosted white, which in some places "bogs" men and asses. Beyond it are sparkling, glittering, dazzling blocks of pure crystallised salt, and the open water in the middle is tenanted by wild-fowl. At the lower or northern end, a short divide separates it from the sea, which during westerly gales runs far inland: it would be easy to open a regular channel between the harbour and its saltern. The head is formed by the large Wady Surrah, whose many feeders at times discharge heavy torrents. The walls of the valley-mouth are marked, somewhat like the Wady Hárr, with caverned and corniced cliffs of snow-white, canary-yellow, and rose-pink corallines.

Ascending the Wady el-Wijh, we left to the right the two brackish pits or wells, Bir el-Isma'il and El-Sannúsi (سنوس), which supply the poor of the port. After 1 hour 15 minutes, we passed through a "gate" formed by the "Hamírat-Wijh," the Red Hill, noticed when we approached the town. Here the gypsum, white and black, ruddy and mauve, overlies rounded masses of granite; and the Secondary formation is succeeded by the usual red felsites and green traps—a copy of the Wady Sadr in the northern Shafah range. A fine vein of sugary quartz also trended north-south. After 1 hour 45 minutes (= 6 miles), we suddenly sighted the inland fort, whose littered environs show the camping-ground of the Pilgrim-Caravan. Here we were welcomed by its commander, Lieut. Nassár Ahmed, whose garrison, 13 regulars, looks clean and healthy, and who keeps his castle in excellent order. It is the usual square, straight-curtained work of solid masonry with a circular bastion at each angle. The northern face is subtended by 3 large cisterns, all strengthened at the inner angles by the stepped buttresses,

* 'Awwá in Arabic is the name of the thirteenth mansion of the moon, or four or five stars in Virgo.

first noticed among the ruins of Magháir Shu'ayb. The only object of interest in the fort is the inscription with an illegible date, bearing the name of Ahmed ibn Taylún, who founded his dynasty in A.D. 868. This is another proof that the Mamlúk Soldans were lords of the soil, and that South Midian was, even in the ninth century, a dependency of Egypt.

Up the valley, and north-east of the Fort, lie the palm-plantations, the kitchen-gardens, and the far-famed wells of El-Wijh. The sandy bed, disposed east-west, is streaked, dotted, and barred with outcrops and walls of the hardest green stone; and those disposed north-south must arrest, like dykes, the subterranean flow. Of the six masonry-revetted pits four, including El-Tawilah, the deepest, supply brackish water, and the same is the case with a fifth inside the Fort. The sweet wells are the Bir el-Za'farániyyah ("of Saffron"), and its eastern neighbour El-'Ajwah (the "Date-paste"). The latter measures 4-5 fathoms, and water appears under a boulder *in situ*, projecting from the southern side. Higher up the wady, a reef is laboriously scraped with Bedawi "Wusúm" and with Moslem inscriptions comparatively modern. Hereabouts, and to the north-east of the Fort, we picked up old and well-treated scoríæ, suggesting a more ancient settlement. Perhaps it was the locale preferred by the owners of the slaves, who worked the inner mines hidden from view and from the sea-breeze by the hills.

March 30th.— We set out at 5.30 in disorderly "starting" style; and struck up the Wady el-Wijh, which now becomes narrow and gorge-like, with wells and water-pits, old and new, dotting the sole. Half an hour's walk led to the famous "written rock," which none of our guides seemed to know. Wellsted (ii. 189) erroneously calls the place "Wádí-l-Moyah" (Máyah), the name of a feature farther south. Moreover, he has copied the scrawls with a carelessness so prodigious, massing, in a single woodcut (p. 189), what covers many square feet of stone, that we failed at first to recognise his original. I deeply regret having republished this rubbish in 'The Gold Mines,' &c., p. 213. We (M. Lacaze and I) drew the inscriptions and the rude pictures as carefully as we could; and the former, on April 10, was sent back to photograph them.

Presently leaving the Wady el-Wijh, which extends for some 2 hours eastward, we struck E.S.E. up the left bank of the Wady Zurayb (زريب), of the "little Sheepfold". This ugly rocky torrent presently abuts upon an undulating plateau with low rises, almost bare of trees, bone-dry and utterly waterless. Raise it from 500 to 9000 feet, and it would be the model of a

Peruvian *cerro*. The material, porphyritic trap, everywhere showed scatters and large veins of quartz, mostly running north-south: large trenches, dug by the ancients; and small cairns, modern work, were also pointed out to us. Crossing the heads of the Wadys el-'Arykab (عريقب)* and Fishayk

(فسيق), we fell into the Wady Umm el-Karáyát ("Mother of the Villages"), also called Umm Karáyát ("Mother of Villages"). Kar ("town") appears in the classics, at least if "Carthago" be compounded of it; and Karyat, or Kiryat (plur. Kurá and Karáyát) is still used throughout Egypt and Syria, or, rather, wherever Arabic is spoken.

This wady begins, as is here the rule, with a gravelly bed; it then breaks into ugly rocky drops and overfalls; and, finally, the mouth becomes a matured copy, on a larger scale, of its head. Immense blocks of quartz garnish its base at the left bank. Presently a great white heap, some 200 feet high, capped and strewn with snowy boulders, rose above us; and in the watercourse at our feet lay the dark oblongs denoting the house-foundations of porphyritic walls. We had reached the celebrated Umm el-Karáyát, little expecting to finish the 4 miles' march of the guides in 2 hours 15 minutes (= 6½ miles).

The Jebel el-Marú (quartz-hill) showed, for the first time during the whole journey, signs of systematic and civilised work, shafts and air-holes, tunnels and galleries. The labour suggested Pliny ('Nat. Hist.,' xxxiii. 20), "Tertia ratio opera vicerit gigantum. Cuniculis (galleries, tunnels) per magna spatia actis, cavantur montes ad lucernarum lumina," &c. Instead of being a regular round-headed cone, like the Jebel el-Abyaz, for instance, the summit is distinctly crateriform, the apex having "caved in," or rather, having been carried off bodily to be worked. *Negro-quartz* was abundant, but we came to the conclusion that the rock mostly treated was, like that of Shuwák, a very mauve-coloured schist, with a deep-red fracture and pleasing tender colours before they are oxygen-tarnished. It abounds in mica which, silvery as fish-scales, overspreads it in patches; and the precious metal had probably been sought in the veinlets between the schist and its quartz-walling. Two pieces showed specks, or rather *paillettes*, lightly and loosely adhering to the "Marú"—so lightly, indeed, that they fell off when carelessly pocketed.

Leaving the mining details for another place,† I will notice

* It would be the diminutive of 'Urkub, which means besides the tendon Achilles, a winding track through a valley, or a narrow mountain-pass. .

† See 'The Land of Midian (Revisited),' chap. xvi.

the topographical details of the "Mother of the Villages." A view from the summit of the decapitated, honeycombed mound gave us at once the measure of the past work, and a most encouraging prospect for the future. All around us lay a true quartz-region. The main hill projects a small southern spur, also showing traces of the miner; and the same is the case with the quartz-veined block of green trap to the south-west. There are detached white-yellow *pitons* to the north-east, the east and the south; whilst a promising hillock is appended to the north of the main outcrop. All have rounded conical summits and smooth sides, arguing that they are yet virgin; and here, perhaps, I should prefer to begin operations.

This Jebel el-Marú rises from the left bank of the wady, whose short gravelly reach is disposed north-west-south-east. The ruins, in N. lat. $26^{\circ} 13'$,* lie upon a fork where two gorges, running to the east and the north-east, both fall into the (northern) Wady el-Khaur (خور, "of the low ground"):

our caravan ascended this line to-day, and to-morrow we shall descend it. The remains on the upper or eastern branch-valley show what kind of work was done, by a number of grinding implements—the common Mahrakah (محرآكه) or rubstone, and

the handmill, large and small, coarse and fine, all violently broken. In the south-western, which is the main valley, are the principal ruins, forming a rude parallelogram, disposed north-east-south-west. The ground-plan presents the usual formless heaps, squares and oblongs of stones and pebbles; and the general appearance is that of an *ergastulum*. Here perhaps the rock was crushed and smelted, especially that which was not worth sending down the wady, to be worked by water where the inland fort now lies.

During the day Lieut. Amir, guided by Nájí, set out to inspect some ruins to the south-west (240° mag.). After a mile's ride, reported to be a dozen, he found a long-mouthed pit sunk some 4 fathoms in the trap hill-slope. Eastward of it, and at the head of the Wady Shuwaytanah (شويطنه, the "Devilling"), lay a square ruin like a small "Mashghal." Here also were three stones, scribbled in a modern Kufic with pious formulæ. The southern Wady el-Khaur was afterwards visited on April 9.†

I lost all patience with Wellsted, whose blunders became

* The observations are all by Ahmed Kaptán.

† See Part III. sect. vi.

inexcusable. He makes (ii. 185) the inland fort "about three miles in the interior," whereas the distance is double. At p. 187 it becomes "five miles from the anchorage." He reaches these ruins after 10 miles from the Fort, whilst they lie 12 to 13 miles from El-Wijh. He calls the porphyritic trap "dark granite," noticing "the thin and shining white veins, which run either vertically or diagonally between the masses." But the grand quartz-formation is changed to "limestone." He descends the "caves" with ropes and lights; and he fails to understand that they are mining shafts and tunnels. The Ad. Chart, just as bad, after correctly placing the inland fort $6\frac{3}{4}$ miles from the anchorage, thrusts the mine $10\frac{1}{4}$ miles eastwards from the Fort, when the latter distance is about the same as the former. Moreover the ruins are laid down a little to the north, whereas they lie one mile south of the latitude of El-Wijh. It ignores the porphyritic sub-range, in which the "Mother of the Villages" lies; and it brings close to the east the tall peaks of the Tihámat Balawíyyah, which, from this point, rise like azure shadows on the far horizon. Lastly it corrupts Umm el-Karáyát to "Fayrabat."

In Ritter's 'Erdkunde' (von Asien, Edit. of 1847, West Asien, IV. Abtheilung, § 78, vol. iii. pp. 276-277) I find that the celebrated French Arabist, Fulgence Fresnel, afterwards Consul de France at Jeddah, visited "Wedjh-Albahr (Wijh el-Bahr), on April 28, 1844, long enough after Wellsted to have read his work.* Accompanied by the Shaykh of the "Beli" (Baliyy), whom Ritter calls "Bily," a man who had guided Wellsted (?), he visited the ruins miscalled in the Admiralty Chart "Fayrabat" (our Umm el-Karáyát). Fresnel calls them Umm Foukhayyérát, which again he holds to be an inversion, *more Arabico*, for *Hhoufayyérát* ("excavations"), a diminutive form of "Hafirát." He also calls the valley Wady Fushaygh, the diminutive of Fushágh, a mistletoe-like plant which acts parasite to the mimosa. The Shaykh, who, like other Bedawin, feared evil spirits, assured him that the Englishman had descended the mine, and had carried off a human skull wrapped up in a cloth. All were careful before going down to show contempt for the ghosts by spitting over the left shoulder. Fresnel did not remark any signs of architecture, or of ruins, nor was a single hewn stone found near these caves (mines); but he observed the normal fragments of coarse glass like that of our bottles, and the many slags (*schlacken*), which seemed to show that here had been some mining-huts.

* Carless "Memoir," 'Proceedings Bombay Geographical Society.' Bombay, 1837. Wellsted's visit was in 1838.

In the Wady Zurayb (or Az-Zourayb), not far from the Hajj-station, Fresnel found the inscriptions which, I have shown, Wellsted places in the Wady el-Moyah, and Ritter seems (p. 277) to be puzzled by this difference of names. He locates them together upon a natural slab of rock extending 40 to 50 paces; they are either roughly scratched in or cut into the "granite" by hard stones like quartz. The characters numbering from 3, 4, to 12, refer apparently to one subject; some are disposed in straight perpendicular lines, or, where the rock did not give space, obliquely, and even horizontally, ranged one under the other. In the selection copied by Fresnel, each row separated by lines is complete in itself: * the whole is accompanied by rude figures with horned beasts, as gazelle and ibex, like those brought from Sinai by Niebuhr (vol. i. Plate L.). The traveller seems to have thought that the characters are old-Phœnician or Nabathæan. He returned to El-Wijh without going farther inland.

March 31st.—We set out, at 5.10 A.M., in puffs of a warm wind that promised three days of the "Dufún;" and, leaving El-Karáyát by the upper (east) valley, fell into and descended its recipient the Wady el-Khaur el-Shimáli (of the north). On the right bank of this broad Fiumara rose the lesser "Mount of Quartz;" and for the next 2 hours (= 7 miles) we saw on both sides immense veins and outcrops of "Marú." Presently these made way for a yellow-white heat-altered clay, often retvetted with iron. The hills on either side of the valley form no regular line; they are detached pyramids of black, red, and rusty traps, here and there cliffing, as if in presence of the sea. With our advance the vegetation improved; the trees were no longer black and leaf-stripped, and the familiar growths presently reappeared. Shepherds' tents and flocks showed that water was not far off; and the young Baliyy women seemed to have no fear of the white face.

After a slow dull ride we crossed the head of our ugly acquaintance Wady Zurayb, did the same to the Tala' el-Nimr, and entered the Wady el-Kubbah ("of the Dome"), which finds its way through the Wady Zá'im (زاعم) to the sea. Before us rose a grizly black saddle-back; and upon its tall northern end, the pommel, stands the promised "cupola." Rounding the block to the north, we followed the wady to the Máyat el-Kubbah, water-pits in the sand, whose produce had been truly reported to be salt, scanty and stinking. The path then turned

* Under B, Fresnel gives the only two-lined perpendicular inscription: those labelled A and C are taken by Wellsted.

up a short broad branch-valley, running south-north, and entering the left bank of the main line: a few yards then brought us to a halt at the mines of El-Kubbah; and our morning's ride had lasted 4 hours (= 13 miles).

The ruins lie in the uneven quartzose basin at the head of their nullah, and the only peculiarity of the place is a broken-down Sâkiyah ("draw-well") with a basin of weathered alabaster. The rocks here worked were apparently the *Negro-quartz* and the rosy micaceous schist. Meanwhile the juniors ascended the Kubbah-hill (aner. 29·34) about 120 feet above the sole (aner. 29·46). The "dome" was nothing but a truncated circle of wall, porphyry and cement, just large enough to hold a man; and adjoining it was a rock-cut pit, some 15 feet deep. These look-out places are peculiarly Arab.

The caravan was sent forward to reach the only good water reported to be distant. We followed it, and, after half an hour, were led out of the Wady el-Kubbah, whose head, our proper line, lies to the north, with an eastern affluent, the Wady el-*Dasnah* (دثنه, of "little water"). Here we found the tents pitched near a large pit, the *Máyat el-*Dasnah**, which lies in n. lat. 26° 23'. Our afternoon's ride was of 45 minutes (= 2½ miles); and the total was 4 hours 45 minutes (= 15½ miles), another day nearly half wasted.

April 1st.—The proverbial Fools'-day was a second that deserved marking with a white stone. We set out at 5.10 A.M., expecting to make the Umm Gezáz pits; but luckily I had ordered the water-camels to be loaded. From the Wady el-*Dasnah* we struck north, over the rim of low trap-hill, by a short cut, evidently artificial, and regained the Wady el-Kubbah. In 1 hour (= 4 miles) we reached its head, a fine round plain some 2 miles across; girt with red, green and black highlands, it was a replica of the *Sadr* basin. There was even a *Khuraytah* at the northern end, but this Col is a mere "bogus" pass, not leading to a raised plateau.

An easy metallated path crossed a shallow prism, and presently fell into the feeding-basin of Wady *Musayrih* (مسيه). The latter led, by an ugly little gorge, to the broadest Fiumara we had yet seen, the Wady *Sirr* (سِر),* which, though far from its mouth, took us 45 minutes (= nearly 3 miles) to cross. We are now in the hydrographic area of the Wady *Nejd*, which was

* *Sirr*, a secret, a mystery, would here mean the best part of a valley.

confounded by Wallin with the Wady Hamz some 40 miles to the south. Numbering influents by the dozen, it falls into the Wady Salbah (سلبه) near Sharm Dumayghah. The guides call this SIRR "Asl el-Balawíyyah" (the old home of the Baliyy tribe). The view from its bed is varied and extensive. Westward lies the Tihámat Balawíyyah, the equivalent of the Gháts of North Midian between El-Záhd and El-Shá'rr; the items are the little Jebel 'Antar and the big Jebel Libn. In front (east) rise the pale-blue heights bordering the Wady Nejd to the north-west, and apparently connected with the Jebelayn el-Jayy (الجبي), far to

the north (30° mag.). To the north-east the view is closed by the lumpy Jebel el Kurr (the *Qorh* of Arabian geographers?), followed southwards by the Ward and the Safhah. For the last 18 miles we had seen no quartz, but now the SIRR-sole appeared streaked with snow; the stones are mostly water-rolled, the discharge of the watercourses. The ground was unpleasantly pitted and holed; and the camels, weakened by semi-starvation and the south-wester, kept their legs with difficulty.

Presently we struck up a short divide beyond the far bank of the Wady SIRR. It is strewn with glittering mica-schist that takes the form of rotten wood, and with purple-blue clay-slates, looking as if they had been worked. A counterslope of the same material placed us in the Wady Rubayyigh ("the little Rábigh," the "luxuriant in herbage," or "a green-grown spring"), a short broad branch draining to the Wady SIRR. Here large outcrops of quartz mingled with the clay-slate. A few yards farther, it abutted upon a small gravelly basin, with ruins and a huge white reef of "Marú," which caused a precipitate dismounting. We had marched only 4 hours (= 13 miles), and the Arabs congratulated us upon reaching a part of their country absolutely unvisited by Europeans.

The site of our find was the water-parting of the Wady Rubayyigh with the Wady Rábigh, both feeders of the Wady SIRR—this to the north, that to the south. The ruins are known as Umm el-Haráb (حراب); in classical Arabic this would mean "Mother of the War," of Desolation; but the Arabs seem to understand by it "Mother of Notoriety." They are the usual basements, almost buried and swept away, occupying an utterly waterless basin, that lies west of the White Reef, Marú Rubayyigh. They bear nearly north of Umm el-Karáyát, in N. lat. 26° 33' 30"; and the altitude, by a mean of three observations, is upwards of 1000 feet above the sea-level (aner. 28·92).

At Umm el-Haráb we see, for the first time, an open mine

scientifically worked by the men of old. I must again quote Pliny (loc. cit.), whose valuable chapter is an epitome of Roman mine-craft: "Relinquantur itaque fornices (arches) crebri montibus sustinendis," &c. The workmen chose a pear-shaped quartz-reef, the upper dome exposed, the converging slopes set in green trap to the east, and the invisible stalk extending downwards, probably deep into earth's bowels. They began by sinking, as we see from certain rounded apertures, a line of shafts striking N.N.E. (45° - 50° mag.) to S.S.W., across the summit, which may measure 120 yards. The intervening sections of the roof are now broken away; and a great yawning crevasse in the hilltop, a saddle-back of bare cream-coloured rock, gives it the semblance of a comb or cresting-reef. For the details of the work; for the use of fire and water, which here took the place of the classic vinegar; and for the fine granite mills here used, the reader is referred to another volume.*

In the evening we ascended the porphyritic hills to the north of the little camping-basin, and found the heights striped by two large vertical bands of quartz. The eastern had a north-east-south-west strike (45° mag.), like the Jebel el-Marú; the western ran east-west with a dip to south. From the summit we could also see that the quartz mountain, as usual an exaggerated vein, was hemmed in on both sides by outcrops and hills of trap, black, green, and yellow, which culminated eastwards in the Jebel el-Guráb (جراب). We had a fine view of

the Wady Rábigh, and of our next day's march towards the Shafah mountains: the former was white with quartz, as if hail-strewn. Far beyond its right bank rose an Ash'hab (أشهب), ash-coloured, or "grey-head," which apparently promised quartzose granite—it will prove an important feature. Before sleeping, I despatched to El-Wijh two boxes of micaceous schist, and two bags of quartz, loads for a pair of camels.

IV. *To El-Badú.*—After the exciting scenes of the last two days we shall have some dull riding, and consequently, I fear, dull writing.

April 2nd.—At 5.10 A.M. we set off afoot down the rough line of the little watercourse draining the "Marú Rubayyigh" to the Wady Rábigh. We then crossed the latter, another of the short broad valleys which distinguish this section of South Midian. The bed-sides, especially the right, showed heaps and mounds of snowy quartz, with glittering crowns of rock and boulders, veins in the grey granites, whose large coarse ele-

* 'The Land of Midian (Revisited),' chap. xvi.

ments had been decomposed by weather. The aspect was peculiar; they seemed to pour from the dark rocky masses bordering the bed, and they looked like *Goz* ("sand-heaps") banked up by the wind. We then entered a lateral valley, *Khurm* (hole of) *el-Mahásh* (مأحاش); and a short divide led to *El-Bahrah* (بحره), a basin feeding the *Wady Sirr*.

Then began a long up-slope, with a longer counter-slope, the *Wady Mulaybij* (مليبيج), which gave us a prospect of *Jebel Raydán*, with its familiar head and dorsum. The watercourse, after forming a "round point," narrows to a gut, and presently debouches upon the broad *Wady el-Ghamís* (غميس). We crossed the latter diagonally, and fell into the equally wide *Wady Abá 'l-Gezáz* (قزاز); the name, probably a corruption of *Zujáj* (زجاج), would mean "Father of Glass," either from the ruins on its bank, or from the strews of quartz. This tributary of the *Wady Sirr* reminded us of the *Dámah*, with its fine vegetation of fan-palm, Daum-trees, asclepias, tamarisk, and wild castor-plant, whose use is unknown. Yet the Arabs complained that their camels found no forage. Water wells up abundantly from a dozen shallow pits, old or new, in the sand of the southern (left) bank. Here the flow is arrested by a tall rocky buttress.

Ending our short march of 4 hours (= 12½ miles) we camped to await the caravan, which had gone round by the *Wady Rábigh*, and for the benefit of the mappers. This place forms an excellent connecting-link between north and south. In the former direction we see the *Zigláb*-block of *Shaghab* bearing nearly north (350° mag.), and the adjoining *Jebel el-Aslah*, also a blue cone on the horizon, about 352°: to south-east lies the *Jebel el-Kurr* (قر), along which we shall travel.

In the evening we found an *atelier* adjoining our camp, but apparently unknown to the guides, and we called it "*Mashgal Abá 'l-Gezáz*." The site is the slope of a trap-hill facing the *Wady el-Ghamís* and the "mesopotamian" plain below. Both highlands and lowlands are white-patched with mounds, veins, and scatters of quartz. This great line of valley was probably occupied along its whole length by many a settlement, whose very names are unknown. The same was remarked

of the Wady Dámah. Here we are about a day and a half's march from the sea.

April 3rd.—At 5 A.M. we struck up the Wady Abá 'l-Gezáz, loose sandy soil, so honeycombed that neither man nor beast could tread with safety. Animal life was unusually abundant, wolf, hare, porcupine and hedgehog; hawks, owls, and crows; pigeons and ringdoves, swifts and swallows; the water-wagtail and the merops; the hoopoe and the butcher-bird. Charred circlelets in the sand showed where alkali had been burnt for shipping at El-Wijh.

After 1 hour 30 minutes (= 5 miles) the "Father of Glass" changed his name to *Abí Daumah* ("Father of the single Daum-palm"). Porphyritic trap lay on both sides of us. To the right rose the Jebel 'Ukbul (عقبيل), whose grey head (*El-Ash'hab*) we had seen yesterday; the four cones forming the south-western rim of the Badá saucer are known as El-'Akábil. Below these blocks the wady-sides are cut into buttresses of yellow clay, powdered with Šabkh, or impure salt. The water, when there is any, swings under the left bank, and forms two principal pools or holes. The Bedawin, failing to make us halt, declared that the pits had been buried, but the escort soon found them out. The Arab ever loves the night journey, enabling the camel to work in the cool hours, and to graze during the day: moreover both wild men and citizens are equally fond of "sitting up" and talking interminable "shop." The Mahattat (محطت) el-'Orbán, "the halting-place of the Arabs," is determined by water and forage, so as to vary from 5 to 25 miles. Consequently the Baliyy would reduce our stages to four hours a day, and they hate the regularity of our work.

Hitherto we had been marching south of east. Presently, where the pretty green Wadys el-Surúm (سروم) and el-Marwát fall into the left bank, we turned a corner, and saw before us (north) the great plain El-Badá. It is backed by a curtain so tall that we seemed, by a common optical delusion, to be descending, when we were really rising rapidly. The black range, El-'Akábil, had projected a loop of some 10 miles to be rounded, whereas a short cut across it would not have exceeded three. And now the wady abruptly changed formation, the red and green traps of the right side at once made way for grey and quartz-veined granites weathered to the quaintest forms. The basin is soled with sides comfortably metallised, and with falls of sand unpleasantly loose and

honeycombed. After a total of 4 hours 45 minutes (= 16 miles) we dismounted at the celebrated palm-grove of El-Badá (بدا).

The next day was devoted to inspecting the Bújat-Badá (the "wide plain of Badá"), as this choice site is distinguished by the Bedawin. It fulfils all the conditions required by the centre and head-quarters of Thamuditis. The position, topographically speaking, is a bulge in the Wady Nejd, before it becomes the Wady Abú Daumah, between the Shafah Mountains to the east, and the Tibámah range seawards. The latitude (Ahmed Kaptán's observation of Polaris) is $26^{\circ} 45' 30''$, Ptolemy being as usual low (N. lat. $25^{\circ} 30''$): thus it is $0^{\circ} 31' 30''$ north of El-Wijh. From a little way south of our camping-ground the Jebel Zigláb bears 32° , and the Aslah cone 30° (both mag.). It lies, therefore, south of Shuwák, with a little westing, and Yákút (iii. 302) makes it one day's march from "Shaghba" (Shaghab). The altitude is upwards of 1200 feet above the sea (aner. 28.72, the mean of six obs.). The size of the oval is about 9 miles (statute) from north to south, by 12, an area of some 108 square miles. The general aspect of the plain suggests that of El-Haurá. The growth is richer than the northern, but not equal to that of the southern country. The ruins belong to the Magháir Shu'ayb category, and the people compare the "Hawáwít" with those of Madáin Sálih. Such is the great station on the Nabáthæan highway between Leukè Kóme and Petra; the commercial and industrial, the agricultural and mineral centre which the Greeks called *Bedais*, and the Romans *Badanatha*. In the days when the Hajj-Caravan used to descend the Wadys Nejd and the "Father of Glass," it was known to Arab geographers as the Badá Ya'kúb, that now forgotten patriarch being supposed to have visited it from Egypt or Syria.

The Bújat Badá is floored with grey granite, underlying a modern sandstone, which, not unlike coral-rag, served for building purposes. Through this crust outcrop curious hillocks, or rather piles of hard, dark-red and iron-revetted rock, with a white or a rusty fracture. They form the characteristic features of the basin. The lower levels are furrowed, as usual, with thin threads of sand by the rain-torrents discharged from the mountains. The Shafah curtain to the north breaks into a number of peaks named after their wadys. Beginning from west are Jebels Sehayyir (سحير), 'Unka (عنقا, the Griffin), Marakh (P. N. of shrub), Genayy (جنى), El-Hazzah (حضة), El-Madhanah (مدهند), Buza'mah (بضعمة), and Urnuwah

a Pool of Bethesda for suffering Arab humanity. Shaykh 'Afnán, whose tents are pitched one day ahead of us, confirmed these statements, adding that the Shafah Mountains are a mere ridge, not the seaward walls of a plateau; and that the land east of them is exactly that which we have already traversed. He spoke of brimstone being picked up on the hill-flanks, and he had heard of El-Kohl (Stibium or Collyrium) being found about El-Muharrak. At Wady Abá 'l-Gezáz, Mohammed destroyed all our surviving hopes by picking up a black stone which, he said, was the object of our search. Schist with a natural fracture not unlike coal, and weathered into the semblance of wood, it unfortunately did not contain an atom of bitumen. I have too much faith in Arab acumen to reject the lesson.

April 5th.—At 4.45 A.M. we took the track which crosses the Bújat Badá to the south-east. For a few yards it is vilely rat-eaten; presently it issued upon stony ground; and, after 1 hour 15 minutes (= 4 miles), it entered the Wady el-Marwát, a vulgar gorge, broad, rough, and unpicturesque, marked by a round head to the north, Jebel Wásil (واصل), "that joins or connects." The sole shows several dry-stone piles, ruins of "boxes" in which the Arab traveller passes the night, whilst his camels are tethered outside. Crossing the mouth of the Wady Nakib el-'Arús, which drains the hill of the same name, to the Wady el-Marwát, we entered the upper course of the latter. After a total ride of 3 hours 45 minutes (= 11 miles), we reached its head, a "Khuraytah" rising some 2100 feet above the sea-level. "Marwát," as the Baliyy called it, shows worked veins of snowy quartz, a few ruins which supplied me with a Kufic inscription, and a fine reef of "Marú," 8 feet wide, and trending 332° (mag.).

From the Col two roads lead to our nighting-place. Rejecting, on account of our unshod mules, the short cut to the right, reported as rough and stony, we followed the long slope that led to the Wady Zíkah (ضيقه), and eventually to the Wady el-Kurr, draining the block of that name to the Wady el-Miyáh. Despite the many Zawábahs (dust-devils) we pushed on for another 1 hour 30 minutes (= 4½ miles), and a total of 5 hours 15 minutes (= 15½ miles), before halting to break our fast. Resuming the way after the usual hour, we rode down the valley, meeting only a few men driving asses; and presently we sighted the grand "Gate" of the reach, here running north-south. The material is porphyritic trap, red, green, yellow, and white, with argile, almost enveloping the rounded

Huzaybat (هَضِيْبَة, or isolated hillock). On the plain to its north are ruins, probably of a work intended to defend the eastern approach, and to the south appear the usual signs of an *atelier*.

To conclude. The beautiful Bújat Badá has, according to the Baliyy, seen worse days. About twenty years ago, however, the wells were reopened, and the date-trees were replanted. As for its future, we may safely predict that, unless occupied by a civilised people, the fair basin will again come to grief. Nothing would be easier than to rebuild the town and to prepare the plain for cultivation, but destruction is more in the Bedawi line.

V. *To Marwát and the Wady Hamz.*—Before leaving El-Badá I was careful to make all manner of inquiries concerning stone-coal; and the guides confirmed the suspicions which had long suggested themselves. It is an old story. El-Mukaddasi (p. 103) has the following passage unconnected with those which precede and follow it. "A fire arose between El-Marwat and El-Haurá; and it burned even as charcoal (*el-fahm*) burns." Prof. Sprenger—who, by-the-by, first brought to light the MS. published by Prof. de Goeje in his 'Bibliotheca Geographarum Arabicorum'—probably read "and it (the stone) burned as charcoal burns;" suggesting that the houses and huts were built of some inflammable material, like the bituminous schist of the Brazil; and that the Arabs were surprised to see them taking fire. Evidently, however, the text refers to an eruption in one of the many volcanic districts (*Harrahs*). My learned friend writes to me in June 13, 1877, "it is likely that west of Marwa, on the way to Hawrá (which lies on the seashore), coal is found. I confess that the prospect of discovering much coal in Arabia does not appear to me very great; still it would be worth while to make inquiries." Subsequently (December 8, 1877) he gave up all hopes of the pure mineral; but he still clove to inflammable matter.

At El-Wijh, I consulted the Wakíl Mohammed Shahádah. In past times he had sent for a camel-load of the stuff; but, he declared, it would not take fire. He then travelled in person to the Jebel el-Muharrak ("burnt Mountain"), which he places 5 short marches inland from El-Badá, and behind its northern curtain, the Jibál el-Shafah. According to him, El-Muharrak is part of the great Harrah; and El-Jaww, which stretches north (?) of it, is a prolongation of the Hismá plateau, here belonging to the Baliyy. The mountain is tall and black: near its summit lies the Bir el-Shifá ("Well of Healing"), a pit of cold sulphur-water, excellent for the eyes and generally

Leaving the curious white divide, we file into the Wady Gámirah (جامري), with the dwarf range of the same name on the right bank; it is also an affluent of the Wady el-Miyáh. After 1 hour 45 minutes (= 4 miles), we halted for rest, resuming our march at 11.45 A.M. down the bed. A short divide then placed us in the Wady Samad, which belongs to the same basin. The Shaykhs then led us over another water-parting to the Wady el-Laylah, which drains both the Shafah and the Tihámah ranges: the line lies too far east; we should have followed the western Wady el-Tufayyah (طفية),* in which ruins are said to exist. However, we had no reason to repent. Hills of "Marú" now appeared on either side, creamy-coated cones each capped by its own sparkle, whose brilliancy was set off by the gloomy traps which they sheeted and topped. In some places the material may have been the usual hard, white, heat-altered clay; but the valley-sole showed only pure quartz. The height of several hills was nearly double that of the northern Jebel el-Abyaz, and the reef-crests were apparently unworked. We rode on for 2 hours (= 6 miles), making a total for that day of 7 hours (= 18 miles), when we were begged to halt in the broad, open, and waterless Wady Laylah.

April 7th.—At 5 A.M. we resumed our way up the Wady Laylah, which here makes a large bend to the north, whereas our direction was to the south-west. Having heard of a short cut to the west, a continuation of the Wady Tufayyah line, I set out on foot in the latter direction; Abdullah, the Mulatto, shouted "Wa'r" ('Ware rocks!); but this was "crying wolf" for the second time. After a steep descent, without difficulty to loaded camels, we hit the little Wady Zuraydim (زريدم), a

feeder of the Wady Laylah. Here the line forks. I tried the southern section or up-stream, which would indeed have been a short cut: unfortunately it ended in a wall of rock, the Sha'ab Abú Siyál. A water-pool explained the meaning of the broad footpath which had deceived me. After losing 10 minutes, we retraced our steps, and, following the northern fork, at 6.30 A.M. (1 hour 30 minutes = 5 miles), we regained the Wady el-Laylah in time to see the caravan, which had taken the longer line, pass in review before us.

At this point the Wady el-Laylah changes name to the Wady el-Birkah ("of the Tank"); and we shall follow its course till

* The classical Tufyah is a "malignant serpent, marked on the back with two black lines."

received into the mighty arms of the Wady Hamz, some 3 miles from the sea. This upper part commands fine views of the Jibál el-Safhah (صفحة), the "Mountains of the Plain," so-called from their rising suddenly out of a dead level. Seen beyond the dull traps that hem in our wady, the noble blocks, especially the lower features, the mere foothills, assume every quaintest variety of hue and form. The fawn-grey ground-colour of the granite, here shining as if polished by "slickensides," there dull and roughened by the rude ungentle touch of Time, is a neutral tint that takes every glazing with which sun and moon, mist and cloud paint the world. Changeable as the chameleon's, the coating is never the same for two brief hours. The protean shape, seen in profile and foreshortened, from the north or south, appears as blocks bristling with "pins" and points, chimney-tops, horns, and beaks. Viewed from the east the range splits into a double line, whose ranks have never been "dressed" nor sized; whilst a diagonal prospect so alters their features that they seem to belong to another range.

After much time wasted in ascertaining the names of the several items, I give them as they were told to me, declining, however, to answer for their correctness. The principal blocks number three; the two first are in the Safhah and the third lies south of it.

1. The *Jebel el-Ward*, a white-streaked and regular wall visible from the sea. It is separated by a broad valley from its southern neighbour; and its outliers are the pale-white and jagged *Jebel 'Afyar* (عفير)* and the long and lumpy, low and dark *Jebel Tufayyah*.

2. The *Ghalab* (غلب) or *Ughlub*, a monstrous "Parrot's Beak" of granite, continued by a long dorsum to the south. Its four outliers are the *Jebel Natash* (نتش), † perpendicular buttresses pressed tightly together; the *Tala't Muhajjah* (طلعت مهجة), a broken saddle-back with two monstrous towers; the *Jebel Umm el-Natakah* (نطقه), all blocks and blocklets, bristling like the fretful porcupine; and lastly, the *Jebel el-Khausilah* (خوسله), in appearance thoroughly architectural.

* El-Ufayr was the name of the ass ridden by Mohammed.

† The dictionaries explain Natash as the "herb gromwell."

3. The *Jibilayn el-Rál* are separated from the Khausilah by the Wady Hamz; these two conical peaks are divided and drained by the broad Wady el-Sula' (صلح), down which the Egyptian Hajj, returning northwards from El-Medinah, debouches upon the maritime plain of South Midian.

Presently falls in a remarkable affluent from the left or east, the Wady el-Nábi' (نابح), garnished with a long line of Daum-palms, and the main line bends from north-east to south-west. After riding about 3 hours 30 minutes (= 8 miles) we reached the Birkah, where the great wady narrows and forms a river-like run about $1\frac{1}{2}$ mile long. The large blue-green pool on the right side is set in dense beds of rushes, which shelter a variety of water-fowl; about the run are dwarf enclosures where even water-melons have been sown. Whilst the camels drank, we halted for a few minutes under the masses of trap which wall in the left bank; and then we pressed forwards down-stream, following the threads of fluid. Farther on was another fine "Gate," whose right jamb was the Jibál el-Tibgh, fronting the Wady M'jirmah. The narrows showed two Arab wells; and there was no break in the continuity of the quartz. Having travelled down sundry bends, we halted under the usual thorn at 11 A.M.; thus ending a second stage of 2 hours (= 6 miles). Here a fine *Cerastes* was brought to me.

The Shaykhs were anxious to push on for another 30 minutes to a rain-pool which they reported in the ravine Sha'b el-Kahafah (كهف); but we had been told of another in the Sha'b el-Hárr, which might serve our photographer. The result is curious, showing how jealously water-secrets are kept in these lands. The next thing I heard was that the water had waxed salt, then it had dried up; and, lastly, it was in the best possible condition, the truth being that there was none at all. Consequently we were obliged to send back four camels and two men from our next camping-ground to the Sha'b el-Kahafah. Resuming the road at 2.30 P.M., we entered the western Wady el-Birkah, which here, finally, becomes the Wady el-'Ajáj (عجاج, "of Dust"). In 2 hours 15 minutes (= 6 miles), and a total of 7 hours 35 minutes (= 20 miles), we camped at a noble reach and enjoyed a glorious night.

April 8th.—There were differences of opinion concerning the stage ahead. Lieut. Amir's map made it 11 geographical miles

long; the Arabs said 4 hours; the Frenchmen 10 hours, and the moderates 6 hours—even they were 45 minutes too slow. Setting out late, at 5 A.M., delayed by the Shaykhs and too much whisky, we reached in 30 minutes a lower and a larger bulge of the bed, whose water is known as *Máyat el-Badí'ah* (بديعة, the "Wonderful"). At 6 A.M. (1 hour = $3\frac{1}{2}$ miles) we ended the hilly encasement of the Wady with *El-Adrá* (عدر, the "Rainy"), a red *butte* to the left, and, on the right, a quartz-veined green knob, the *J. el-Yakhmúm* (ياخوم). Though 400 feet above sea-level, the land commands no sea-view, and yet there is nothing monotonous in it. To the south lies the boundary line *Ras Kurkumah* ("Turmeric Head"); the *Jebel el-Birákh* rises to the left beyond the raised bank of the great *Wady Hamz*, which, sweeping with a mighty curve from north-east to west, stretches across our path. Knobby hills are scattered over the plain; and on our right appears the *Jebel el-Juwayy* (الجوى, the "unwholesome"),

a black mound with white-sided and scarred head, whose peculiar shape—a crest upon a slope—represents once more the familiar Secondary formation of north-western Arabia. Thus the gypsum has been traced from the Sinaitic shore as far south as the *Wady Hamz*, and doubtless it does not end here.

At 7.35 A.M. (2 hours 35 minutes = 8 miles) we crossed a winding, broad and spreading track, the upper road by which the Egyptian "*Mahmal*" passes, when returning *viâ* the *Wady Hamz* from *El-Medinah*. A few yards farther on showed us a similar line, the route taken by the caravan when going to *Meccah viâ Yambú'*. The two meet in the *Wady Wafdiyyah* (وفديه),* to the north-east of the site which we shall visit to-morrow.

A little past 10 A.M. (5 hours 15 minutes = $16\frac{1}{2}$ miles), we crossed the deepest vein of the *Wady Hamz*, and reached the *Gasr* ("Palace") of *Gurayyim Sa'id*—*Sa'id the Brave*.

Our march to the farthestmost southern point of *Egypt-land* had lasted 11 days (March 29–April 8) without including the single halt (April 4), and the two days' march re-

* "*Wafd*" is the summit of a sandy hill.

turning to El-Wijh. The following is a list of stations and dates:—

1.	March	29.	El-Wijh to Inland Fort	1 h. 45 m. = 6 miles.
2.	"	30.	To Umm el-Karáyát	2 h. 15 m. = 6½ "
3.	"	31.	" Máyat el- <i>Dasnah</i>	4 h. 45 m. = 15½ "
4.	April	1.	" Umm el-Haráb	4 h. 0 m. = 13 "
5.	"	2.	" Abá'l-Gezáz	4 h. 0 m. = 12½ "
6.	"	3.	" El-Badá	4 h. 45 m. = 16 "
	"	4.	Halt at El-Badá.	
7.	"	5.	To Marwát and 'Ayn el-Kurr ..	7 h. 0 m. = 20½ "
8.	"	6.	" Wady Laylah	7 h. 0 m. = 18 "
9.	"	7.	" Wady el-'Ajaj	7 h. 35 m. = 20 "
10.	"	8.	" the Gasr (Wady Hamz)	5 h. 15 m. = 16½ "
Totals				48 h. 20 m. = 144½ "

VI. *The Palace of Sa'id the Brave; The Mine of "Marwah."*—For architectural details concerning the "Gasr," I must refer my readers to another place.* Here its geographical position only will be described.

The site of this classical building, the sole remnant of its kind found during the four months of exploration, lies in N. lat. 25° 55' 15" (Ahmed Kaptán's solar observation); and the centre of the "Libn" block bears from it 339° (mag.). It stands upon the very edge of the Wady Hamz's left bank, a clifflet some 25 feet high, sloping inland, with the usual dark metal disposed upon loose yellow sand. Thus it commands a glorious view of the tree-grown valley, or rather valleys, beneath it; and of the picturesque peaks of the Tihámát Balawíyyah in the background. The distance from the sea is now a little over three miles—in ancient days it may have been much less.

The condition of the digging proves that the remains have not long been opened: the Baliyy state less than half-a-century ago, but exactly when, or by whom, are details apparently unknown to them. Before that time the locale must have shown a mere tumulus, a mound somewhat larger than the many which pimple the raised valley-bank behind the building. As at Uriconium, a wall is said to have projected above ground; this may have suggested excavation, besides supplying material for the Bedawi cemetery to the south-west. The torrent-waters have swept away the whole of the northern enceinte, and the treasure-seeker has left his mark upon the interior. Columns, and pilasters, and cut stones, morticed and bevelled, have been hurled into the wady below; the large pavement-slabs have

* See 'The Land of Midian (Revisited),' chap. xix.

been torn up and tossed to a chaos; and the restless drifting of the loose desert-sand will soon bury it once more. The result of all this ruthless ruin was simply nil; the imaginative Náji declared that a "stone-dog" had been found, but what had become of it nobody knew.

The "Palace" is a Roman building of late style, but whether Nymphæum or Heröon, temple or tomb, we had no means of ascertaining. It must have been a bright and brilliant bit of colouring in its best days: hence possibly the local tradition that the stone sweats oil. The Baliyy declare that the quarries are still open at Abú Makharír under the hills embosoming Abá 'l-Marú: the whole ruin, from pavement to coping, a square of 27 feet, is of alabaster, plain white, and streaked with ruddy, mauve and dark tints, whose mottling gives the effect of marble. Although the Meccan Ka'bah is, as its name denotes, a cube, the workmanship of this square box is too careful to suggest either Arab or Nabathæan origin. Perhaps an investigation of the ruins at Ras Kurkumah, and the remains of Madáin Sálih may throw some light upon the mystery. At present I can only suggest that it is a *Naós* or shrine, evidently a remnant of the days when the Romans held the whole country as far south as El-Haurá.

The town probably stood on the left bank of the Wady Hamz, to judge from the many mounds which rise behind the "Gasr." I opened one of these tumuli, and found the interior traversed by a crumbling wall of cut alabaster—regular excavation may some day yield important results. A Bedawi cemetery, adorned with the mutilated spoils of the classical building, adjoins it, and here we picked up two imperfect skulls and four fragments. Not a word of inscription, not a mason's mark was to be found. A little to the south-west lies a manner of ossuary, a tumulus slightly raised above the wavy level, and showing a central pit choked with camels' bones. This is a memorial of a certain

Sa'id, surnamed *El-Gurayyim* (قریم), a word derived from the

root *Garam* (Karam), *i.e.* "having an insatiable appetite for a flesh diet;" the vulgar understand by it a stout fellow, a brave fighter. At first I thought it was derived from Jarím (جریم),

a large-bodied man, but no one wrote it after that fashion. This negro was promised his owner's daughter in marriage by way of reward for some doughty deed; when difficulties were made he carried off the girl, and built this "Palace" by way of a home. He scandalised the neighbourhood, however, by plundering the

herds and eating a camel every day, till at last he was slain by the followers of Diyáb ibn Ghánim, one of the notables celebrated in a romance called 'Sirat Abú Zayd.' *

April 9th.—On the finest possible morning, when the world was all ablaze with living light and rosy flame, we walked down the immense watercourse known universally in these parts as the Wady Hamz (حمض). The root has a signification of "sourness," and gives origin to such branches as *Humayzah* ("Sorrel") and so forth. The watercourse, which has already been mentioned as the southern frontier of Egyptian Midian, and the northern limit of the Ottoman Hejaz, is the most notable feature of its kind upon the north-western Arabian shore. Yet Sprenger clean ignores the name, although he mentions its branches; and, of course, it is utterly neglected by the Admiralty Chart. Wallin has unjustifiably described and inscribed it "Wady Nejd," † confusing it, as we have seen, with a northern basin, whose mouth the Salbah (Thalbah) we passed before reaching Sharm Dumayghah. His account of it (pp. 321-23) is marvellous, but excusable because he derives it from the Bedawin. In the first place he describes it as a "large valley which, continuing in a south-easterly direction, descends towards the interior of Arabia," in fact flowing upwards. Secondly he reports it as "descending in a direction to Wagh (El-Wijh), and in another towards Medíná," thus half flowing one way and half another; prudently adding, "not having visited that part myself, I cannot accurately define its course." He also makes it "run along the southern side of the Harrah Mountains," which extend nearly a hundred miles to the south; and he depicts "al-Gaww" (El-Jaww) as an "extensive plain of sand like the Hismá" (true), but also "the southern and almost only inhabitable part of the Harrah"—confusing a sandy with a volcanic tract. Afterwards he determines the Wady el-Kurá, concerning which Arab geographers give such discrepant accounts, to be a valley "whose mouth is at El-Wijh and its head at El-Hijr;" and such garbled description can apply only to the Wady el-Hamz.

This main approach to the Arabian interior is not a fissure, like the vulgar wady, but rather a broad *campo* opening to the north-east, where the maritime chain breaks to the north and south of it. Distant one long or two short marches from El-

* For a sadly superficial account of the latter see Lane's 'Modern Egyptians,' III. chap. xxi.

† Besides our Wady Nejd, Burckhardt (p. 418, 'Travels in Syria, &c.') describes a northern feature of the same name near Shobak. The term is common enough in Arabia, meaning the "watercourse that drains the Nejd or uplands."

Wijh, its mouth is in N. lat. 25° 55', and it is said to head fifteen days inland, in fact beyond El-Medinah, from which it curves with a south-westerly bend. It receives a multitude of important secondary valleys. Amongst them is the Wady el-'Uwaynid, universally so pronounced. I cannot help thinking that this is El-'Aúnid of El-'Mukaddasi, which El-Idrisí (erroneously?) throws into the sea opposite Nu'mán Island. If my conjecture prove true, we then have a reason why this important line has been inexplicably neglected. "El-'Uwaynid" is not an uncommon name in this part of Arabia. Wallin (p. 311) describes a "Wádi 'Uweinid" which debouches upon the Hismá plain: here he found sundry inscriptions (see my Vol. I, p. 210). Another branch is the Wady el-Is (عيس), Sprenger's "Al-'Yç" (pp. 28-29), which he calls "a valley in the Juhaynah country," and makes the northern boundary of that tribe. The word is written with a "Sín" and not with a "Sád" (عيس), and pronounced like "Greece" without the Gr. *Klingt für den Fremden Ayz*, says Sprenger (p. 154), speaking to the German stranger. He mentions two others of the same name, one in the Yambú' country, not far from the Red Sea, and connected by history with the Apostle of Allah; and the second (No. 3) in the Lands of the Sulaym above El-Suwárkiyyah.

Ethnologically considered, the lower Wady Hamz is now the southern boundary of the Balawíyyah (Baliyy country), and the northern limit of the Jahaníyyah or Juhaynah-land, the latter popularly described as stretching down coast to Wady Burmah, one march beyond Yambú' (?). Higher up it belongs to the "Alaydán-'Anezahs under Shaykh Mutlak—these were the Bedawín who, during our stay at the port, brought their caravan to El-Wijh. Both tribes are unsafe, and they will wax worse as they go south. Yet there is no difficulty in travelling up the Hamz, at least for those who can afford money and time to engage the escort of Shaykh Mutlak. A delay of twelve days to a fortnight would be necessary, and common prudence would suggest the normal precaution of detaining one of his Alaydáns as hostage in the seaboard settlement. Wallin does not mention this clan; he writes only the Wuld Sulaymán; the Bishr and the Wuld 'Ali; who, with their chief sept, the Beni Wahab, occupy the country between Hijr, Tabúk, Taymá and Khaybar. Water is to be found almost the whole way,* and the usual provisions are to be bought at certain places.

* From 'Ilá to Taymá, meaning a solitude or desert, 2½ days in a north-easterly direction, there is said to be no water, except in rain-pools and cisterns.

The following notes upon the ruins of the Wady Hamz were supplied to me by the Baliyy Bedawin, and the citizens of El-Wijh. Six stages up the lower valley, whose direction lies nearly north-east, lead to El-'Ilá (عَيْلَا), Wallin's "Ela," Niebuhr's 'Olá, and Burckhardt's El Olla. The place, which belongs to the 'Anezahs, is described as resembling Tabúk on a small scale, many of the people being mulattos who trade with El-Wijh, El-Medinah, and Yambú'. According to Ahmed el-Dimishkí (*Akhar el-Duwal*, the "Notices of Kingdoms,"* finished in A.H. 1008 = A.D. 1599), it is a village on the Syrian pilgrim-road, five days' march from El-Medinah, and situate in a wady possessing date-plantations, and a spring of running water. Now, however, the highway runs about 6 hours (= 18 miles) to the north-east of the settlement. Burckhardt (*loc. cit.*, Appendix iii. p. 660) notices only "its rivulet and agreeable gardens of fruit-trees."

From El-'Ilá a short day to the north, with easting, places the traveller at El-Hijr on Madáin (not Madyan nor Medínat) Sálíh, the fourth pilgrim-station from Tabúk. The site of the city is described to be somewhat off the main valley, which is here broken by a "Nakb" (?); and those who have visited both, declare that it exactly resembles Nabathæan Magháir Shu'ayb in extensive ruins and catacombs covering the hill-sides. The name Madáin ("cities") is a plural of Midyán, more commonly Madínah; not a dual as some travellers make it; and it reminds us of the title given by Mesopotamian Arabs to the twin settlements Madáin el-Kisrá (the cities of Chosroes), Seleucia and Ctesiphon on Tigris' banks.

Also called El-Hijr, this city is made by Sprenger (p. 20) the capital of Thamuditis. The latter province was the headquarters of the giant race called the "Sons of Anak" (Joshua xi. 21); the Thamudeni and Thamudæ of Agartharkides and Diodorus; the Tamudæi of Pliny; the Thamyditæ of Ptolemy, and the Arabian Tamúd (Thamúd) who, extinct before the origin of El-Islam, occupied the seaboard between El-Muwaylah and El-Wijh. Their great centre was, I have shown, the plain El-Badá, and they were destroyed by a mysterious and terrible *vox* from heaven, the Beth-Kol of the Hebrews, after sinfully slaughtering the miraculously-produced camel of El-Sálíh, † the Righteous Prophet (Koran, cap. vii.). The exploration of "Sálíh's

* In the "Notes to Dr. Wallin's Route in North Arabia," *Journal R. G. S.* vol. xx. p. 343, the title is translated 'The History of the Changes of Fortune.'

† Prof. Palmer (*loc. cit.* p. 52) "fancies," and with considerable power of fancy, that "we may recognise in the tradition (of the she-camel produced from the rock) a distorted reminiscence of the history of the Israelitish law-giver himself."

cities" will be valuable if it lead to the collection of inscriptions sufficiently numerous to determine whether the Tamúd were Edomites or kin to the Edomites; also, which of the two races is the more ancient, the Horites of Idumæa, or the Horites of El-Hijr.

Between the "Palace" and the sea, the Wady Hamz is liberally supplied with water: the whole vein (*Thalweg*) subtending the left bank would yield to tapping. The well "El-Kusayr," just below the ruin, contained till late years a large quantity: about half a mile to the westward is, or rather was, a saltish "Hufrah" surrounded by four sweet pits. Almost all are now dry and filled up with fuel. A sharp walk of 45 minutes leads to the Bir el-Gurnah (قرند), or "Well of the Corner," in a district of the same name lying between the ruin and the shore. It is a great gash in the sandy bed; the taste of the turbid produce is distinctly sulphurous; and my old white mule steadfastly refused to touch it. The distinct voice of the Red Sea told us that its shores were not more than a mile distant.

From the well we struck north-east over the Sabkhah, or salt maritime plain, white with efflorescence; grey where dry, and chocolate-coloured where damp. Hard on our right was the well-wooded Wady el-Zuhayr (ضهير), which flows to the sea united with its northern neighbour Wady el-Marrah. To the left was a sand-strip profusely grown with the pink and white sea-lavender (*Statice*), and with clumps of the salsolaceous tree, enjoyed by camels: the Arabs call it *Shorá*, or *Ishrírah* (اشريرة); and here, like the African mangrove, it forms regular "forests of the sea." We then entered the fine Wady Umm Gilifayn (جليفين), which rises from the seaward base of the Abá 'l-Marú hills and hillocks; and whose mouth has a good Marsá (anchorage-place) for native craft. North of it, and about 2 miles inland, rises the Tuwayyil el-Kibrít, the third or southern sulphur-hill before alluded to.* The Secondary formations and the conglomerates of the adjoining cliffs and hills take all shades of colour, marvellous to behold when the mirage raises to giant heights the coast-banks patched with pink, red, mauve, and dark brown. Here, too, are the quarries of mottled alabaster which yielded material for the "Palace." Among the many thorn-trees of the wady we saw several small troops of gazelles.

* Part III. sect. ii.

After riding 2 hours 40 minutes (=8 miles), we entered a safe gorge, draining a dull-looking unpromising block, the hills of Abá 'l-Marú. We at once found *in situ* chalcedony-agate which strews the seaboard flat. The veins, varying in thickness from an inch to several feet, and mostly striking east-west, overlie the grey granite and underlie the superficial strata of schistose gneiss. The latter, comprising the greater part of these hills, is striped and banded yellow and dark brown; and, in places, it looks exactly like rotten wood. A small specimen of chalcedony in my private collection was examined at Trieste, and contained dendritic gold, visible to the naked eye. Unfortunately M. Marie, the engineer, had neglected this most important rock; and only a few ounces of it, instead of as many tons, were brought back for assay.

A short and easy ascent led to a little counterslope, the Magráh Mujayrah (مقرح مقيره), whose whitening sides announced quartz. We rode down towards a granitic island where the bed mouths into the broad Wady Mismáh (مسماه), a feeder of the Wady 'Argah (عرجة). Here after 3 hours

10 minutes (=10 miles) from the well, Nági, the guide, who thus far had been very misty in the matter of direction, suddenly halted, and pointing to the left bank of the "Magrah," exclaimed in his showman style, "Behold Abá 'l-Marú!" (the "Father of Quartz"). It was another surprise and our last, this snowy reef with jagged crest, at least 500 yards long, forming the finest display of an exposed *filon* we had yet seen; but the first glance told us that it had been worked.

† The caravan did not come in till very late; the guides having taken the wrong pass down the Wady Mismáh. My first step was to connect our site with the Umm el-Karáyát; and at 11.55 A.M. Lieuts. Amir and Yusuf were despatched on dromedaries under charge of 'Abdullah the mulatto. They rode down the Wady Mismáh for a few yards, to the mouths of the Wady [Musaymit * Khuwayshah (مسيهت خويشة) and the

Wady Musaymit el-'Abd, till they entered the Wady el-'Argah running nearly north (330° mag.). On its left bank they found a large vein of quartz; and in a total of 1 hour 30 minutes (=6 miles) they reached the ruins of the Marú el-Khaur el-Kibli, also on the left side. This dependency of Umm el-Karáyát bears nearly due south (340° mag.) from the

* Others pronounce the word "Musaymiyyat."

pit and walls visited by Lieut. Amir on March 30th; the interval between the two being about 4 miles. Lying to the N.N.W. of our camp, the *atelier* showed two larger heaps of quartz to the north and to the south-east of the irregular triangle of ruins, whose blunted apex faced north. To the south-east an irregular Fahr (فجر), or pit, in the Marú, leads to a number of little tunnels and galleries.

When the violent dusty wester, a sea-breeze which had nearly blown down our big tent, and which made the vegetation look dead as chaff and timber, had somewhat subsided, we sallied forth to study the quartz-reef. It is the normal vein, in grey granite, running south-north, and falling, in the latter direction, to the valley-plain. Here is a small white outlier, where the quarrymen were ordered to spring a couple of "lagham" (mines); but the snowy stone looks barren. Proceeding northwards the vein disappears below the surface, rising in *filets* upon the farther side of the W. Mismáh. The dip is to the east, where a huge strew of ore-mass and rubbish covers the slope that serves as base to the perpendicular reef. The *Negro-quartz*, which must have formed half the thickness, had been carried bodily away: if anything has been left for posterity it lies below ground. Not the least curious part of this outcrop is the black thread of iron silicate which, broken in places, subtends it to the east. Some specimens have geodes yielding brown powder, and venous cavities lined with botryoidal quartz of amethystine tinge. In other parts of the hills we found, running along the quartz, double as well as single lines of this material, which looked uncommonly like clay.

Continuing our walk up the "Magrah," we hit upon a variety of quartz-veins, showing the same strike as the monster below. Returning to camp we ascended the Wady Mismáh to the east, and inspected the ruins of a large settlement, which extended right across the big Fiumara, and up a minor feature on the southern or left bank. As the guides seemed to ignore its existence, I took the liberty of naming it "Kharábat Abá 'l-Marú"; and next morning the two Lieutenants were left to survey it. Some of the ruins are on a large scale; and one square measured 20 yards. Here the sole peculiarity was the careful mining of a granitic hill on the southern bank. The whole vein of *negro* and white quartz had been cut out on the northern, southern, and western flanks, suggesting the idea of catacombs; farther west another excavation of the same kind of rock was probably the town-quarry. Again, down the watercourse a clump of smaller remains is reported on the left bank.

Here I would place the *Móχουρα* (Móchoura), which Ptolemy locates in N. lat. 24° 30' instead of about N. lat. 26°; and here, assuredly, is the famous mine called by the mediæval Arab geographers, El-Marwah or Zú 'l-Marwah. From El-Mukadasi* (vol. i. p. 101) we learn "between Yambú' and El-Marwah are mines of gold." He adds in his Itinerary (I. 107) the following route-directions. "And thou takest from El-Badr† to El-Yambú' 2 stages; thence to the Ras el'-Ayn (?) ‡ 1 stage: again to the Ma'dan (the Mine, i.e. of Gold) 1 stage: and lastly to El-Marwah 2 stages. And thou takest from El-Badr to El-Jár § 1 stage, thence to El-Jahfah (جحفه?) or to El-Yambú' 2 stages each. And thou takest from El-Jiddah (Jeddah) to El-Jár or to El-Surrayn (?) 4 stages each. And thou takest from El-Yasrib (Jatrippa, now El-Medinah) to El-Suwaydíyyah (?) or to Batn el-Nakhil (?) 2 stages each; and from El-Suwaydíyyah to El-Marwah are equal distance (i.e. 4 marches); and from the Batn el-Nakhil to the mine of silver, a similar distance. And if thou seek the Jáddat Misr,|| then take from El-Marwah to El-Sukyá ¶ (سقى?); and thence to Badá Ya'kúb 3 marches; ** and thence to El-'Aúnid (عونيد) †† 1 march." Hence Sprenger would place Zu 'l-Marwah "four days from El-Hijr on the western road to Medina;" alluding to the western line from Syria, now disused. It ran between the Wady el-Kurá (قرى), that is, El-Hijr, alias Madáin Sálíh and El-Medinah. The modern line of El-Hijr runs farther east, about 15 miles from Khaybar.

We have now seen, lying within short distances, three several quartz-fields known as: 1. *Marwah*, i.e. the single bit or hill of "Marú" (quartz). 2. *Marwát* (in the plural), the places of "Marú," and 3. *Abá 'l-Marú* the "Father of Marú"; not to

* The passage was copied for me by my learned friend the Aulic Councillor, Ritter Alfred von Kremer.

† El-Badr, meaning the "full moon," is a common name of Arab settlements. That in the text lies on the western or maritime road between Meccah and El-Medinah; it is celebrated for the Apostolic battle which took place there in A.H. 2.

‡ The names marked with interrogations are unknown to the Arabs whom I consulted: they are probably obsolete.

§ Identified by Niebuhr and Wellsted with certain ruins south of Yambú'. See 'The Land of Midian (Revisited),' chap. iv.

|| Meaning the straight path, the highway to Egypt or Cairo, *viâ* Suez and the old railway line.

¶ Elsewhere called Sukyat-Yezíd, a name now forgotten.

** As has been said, the Patriarch has fallen into oblivion. See part III. sect. iv.

†† See part III. sect. i.

speak of a *Nakb Abú Marwah* further north, or of a multitude of outcrops locally termed "Jebel el-Marú": "Jebel el-Abyaz," and so forth. The conclusion forced itself upon me that the celebrated Arab gold mine, El-Marwah or Zu l-Marwah, applied to a whole district in South Midian; and then came to denote the chief place and centre of work. To judge from the extent of the ruins and the signs of labour, this focus was at Umm el-Karáyát, the "Mother of the Villages," which, as has been shown, is surrounded by a multitude of miner-towns and *ateliers*. And the produce of the "diggings" would naturally gravitate to El-Badá, the great commercial station upon the Nabathæan "overland" and highway.

Thus El-Marwah would signify the "Hill of Marú" or "Quartz-land"; even as Ophir means "Red-land." A reviewer of my first book on Midian objects to the latter derivation, "as Seetzen, among others, has conclusively shown that Ophir, the true translation of which is 'Riches,' is to be looked for in Southern Arabia." I question the "true translation"; and, whilst owning that one of the many Ophirs, or Red-lands, lay in the modern Yemen, somewhere between Sheba (Sabá) and Havilah (Khaulán), I see no reason for concluding that this was the only Ophir. Had it been a single large emporium on the Red Sea, which collected the produce of Arabia and the exports of India and of West Africa, the traditional site could hardly have escaped the notice of the enquiring Arabian geographers. The ruins of the port would have remained, and we should not be compelled theoretically to postulate its existence.

VII. *Return to El-Wijh.*—We had done our work, "and now the hills stretch home." Nothing remained but to escape as quickly as possible from the ugly Wady Mismáh, with its violent dusty gale, and its blinding glare, reflected and reverberated by the snowy quartz. The last of our marches was on:—

April 10.—The camelmen, reckless of orders, began to loaf and slip away shortly after midnight; even the bugler sounded the *réveillé* of his own accord. MM. Lacaze and Philipin were sent by the round road, *viâ* the inland fort, which added 1 hour 30 minutes to their labour; a guide was directed to accompany them, but all shirked the task. Even the mules, now become terribly intelligent, seemed to guess that they were going homewards. In fact it was a general *saue qui peut*. The caravan had been marching only 13 days, and yet it was like a herd of asses returning to the stall and stable. Setting out at 4:45 A.M., we took the medial line between the inland route and the Secondary and the conglomerates of the coast, where Lieut. Yusuf had surveyed the route. Descending the Wady Mismáh

and Musaymit, after 1 hour 15 minutes (= 5 miles), we crossed the head of the Wady el-'Argah. Lower down this bed, and on the north-east side of a hill facing the valley, the detachment under M. Marie had come upon a rock scrawled over with the normal religious formulæ in a comparatively modern Arabic character. The inscriptions lie at some distance to the left of the shore-road and to the right of the pilgrim-highway, thus showing that miners, not passing travellers, have here left their mark. I did not think them worth a visit.

We now traversed the mid-valleys, whose upper courses had become familiar to us: here the exceedingly broad beds were divided by the usual long lines and waves of Nature-metalled ground. The line was one mass of quartz in veins and scatters proceeding from the hills to the right and left. The principal heights are the Jebels El-Misayk (مسيك), "of hard waterless ground;" El-Fishaykh (فشيح); El-Kharáwah (خراوه); and

El-Hashímah further east. In fact the whole world was white as we had seen it at the "Divide of the Ram;" and it surprised not a little those who, having travelled along the coast, never suspected the existence of quartz. Presently on our left rose the Hamírat Habbán,* a Mismár ("nail"), as the Arabs call these detached knobs. According to Lieut. Yusuf's plan it gives birth to the Wadys Habbán, Habíbayn, Abú Markhah, Abú Marákhah and Abú Yábit. To the north-east of this red *butte* are the Jebel and Wady El-Kurr, the latter an old acquaintance. Then come successively the Wady Habíbayn (حبيبين), which anastomoses with the Wady Abú Markhah (مرخه); the small Abú Yábit (ياپت); and another familiar form, the huge Wady El-Miyáh, which has a brackish well near the sea.

Presently appeared on the left the second of the Hamírahs, a granite mass somewhat resembling those which we had noticed in the Wady El-Wijh; it is distinguished as the "Hamírat el-Nabwah" (نبوه); we then suddenly began to tread upon the Secondary formation of the shore-line. After quitting the Wady el-Makhayt (ماخيطة), and leaving eastward the third "Hamí'rah," El-Surrah (صري), we entered the great Wady Surrah.

* Wellsted (ii. 194) speaks of the "Sharm 'Abbán (for Habbán) as a good and land-locked anchorage for three or four vessels, lying east of Mardúnah Island.

This feature is described by the Arabs as draining the Hamíratayn, or "Two Reds" (Nos. 2 and 3). Its proper and direct mouth would be the Wady El-Gá'h (قاعة = Ká'h, *i.e.* the hall); but it winds northwards and forms the Melláhah, or Salina.

Our last stage ended happily. At 10.15 A.M., after riding 5 hours 30 minutes (= 17 miles), we found ourselves once more upon the seaboard. Our kind host, Captain Hasan Bey, commanding the *Sinnár*, came out to meet us in his gig. The quarter-deck was dressed with flags as for a ball; and, before twelve bells had struck, we had applied ourselves to an excellent breakfast in the gunroom of our old lodgings.

We had left the Sharm Yáharr on March 21, and returned to it on April 13, a total of 34 days. The actual march through South Midian, which had lasted 13 days (March 29–April 10), described a semicircle with El-Wijh about the middle of the chord. The length is represented by 170 miles in round numbers; as usual, this does not include the various offsets and the by-paths explored by the members; nor do the voyages to El-Wijh and El-Haurá, going and coming, figure in the line of route. The number of camels varied from 58 to 64, when specimens were forwarded to the harbour town. The expenditure amounted to 92*l.* 13*s.*, including pay and "backshish" to the Baliyy Shaykhs.

CONCLUSION.

I shall hurry over our last proceedings in Arabia, which have no geographical interest. We tarried at El-Wijh long enough to pay our debts and ship the men, mules, and the material collected on the southern march. The venerable 'Afnán and his Baliyy were not difficult to deal with; and they went their way homewards fully contented. We exchanged a friendly adieu, or rather an *au revoir*, with our travelling companion Mohammed Shabádah, ex-Wakil of El-Wijh; and I expressed my sincere hopes to find him, at no distant time, Governor of the restored Quarantine Station.

On the morning of April 12 we set out early, and passed the night in one of the snug bays of Jebel Nu'mán. The next day placed us at Sharm Yáharr, where the process of general distribution happily ended. Shaykh Furayj at once set out to rejoin his tribe up the country; while the Sayyid 'Abd el-Rahím gallantly stayed with us till the end. These men had become friends; and our sorrow at parting with them was softened only by the prospects of presently seeing them again.

The Expedition in its urgent desire to return northwards was not seconded by weather. Despite an ugly gale, the *Sinnár*

boldly attempted giving the slip to Arabia on April 16; but she was beaten back before she reached El-Muwaylah. After another stormy day, we again got up steam, and, fighting hard against adverse winds and waves, we reached Suez on April 20.

The following list of stations between El-'Akabah and El-Haurá, our furthest northern and southern points, is taken from the 'Route of the Pilgrims from Cairo to Meccah,' p. 541 of the *Jihán-numá*, or *Speculum Mundi*. The author was Háji Khalífah, whom Joseph Hammer ('Ancient Alphabets,' &c., London, Nicol, 1806) calls "Chalabizaade Hadshi (Háji) Khalifa, encyclopædist and bibliographer." He is also known as Katib Chelebi. He died A.H. 1068 (= A.D. 1658); Flügel adds in the month of September.¹ The chief interest of his itinerary is that it describes the modern line laid out by Sultan Selim. The older route lay further east and inland; passing *viâ* the Goz el-Hannán, Zebayyib (Wady Surr) Tuwayl el-Súk and the ruins of Shuwák and Shaghab.

"Sat'h el-'Akabah (the plain, or the summit of the ascent), *i.e.* the 'Akabah (ascent) of Ailah (Aylah), where there was anciently a large town, now in ruins. In a low place near it there is a well lined with stone, the water of which is sweet, in a palm-grove. The Arabs settled there are those of Howeítát (Huwaytát).²

"The next station completes the first quarter of this route.³ Its water is sweet and plentiful. It (*i.e.* the road) all passes along the sea-shore. On the left⁴ side is Mount Tór, stretching out for a space of several miles in extent. In the latter part of it there are two descents and narrow gorges (bogház), in which are pits with wells of sweet water. Thence there is an ascent to the:—

"Dhahr himár ("Ass's Back"), a rocky acclivity.⁵ Thence to:—

"Jurfein ("the two Gullies").⁶ Thence to:—

"Sherfehi Beni 'Atiyeh ("the Turret or Watch-tower of the Children of 'Atiyeh"), where there is much wood.⁷ Thence to:—

¹ The translation is taken from Lieut. Wellsted (vol. ii., Appendix). The few notes with numerals are my own.

² The "plain" alludes to the head of the pass; whereas the ruined town is at the mouth of the valley below. The "low place" is the site of the present settlement. See 'The Land of Midian (Revisited),' chap. vii.

³ *I.e.*, from Cairo to Meccah.

⁴ That is, going from Meccah to Cairo.

⁵ So called from a rise in the south. The modern station is El-Hagul (Hakl). the Ancale of Ptolemy. See chap. viii. *loc. cit.*

⁶ "Rather the "two high nullah-banks;" the place is generally called Umm Jurfayn.

⁷ "Sharaf Beni 'Atiyah," that is the high-place of the tribe now called the

"Matlát ("the salt Slough"), between two mountains. Here is the permanent abode of the Beni Lám.⁸ Thence to:—

"Maghárehi Sho'aib (the Cave of Sho'aib, father-in-law of Moses). There is sweet water in its pits, a palm-grove, and many ethl (tamarisk) and mokl (or dúm)⁹ trees like those that grow near the river Nile.¹⁰ There are here also inscribed tablets (alwáh = rock-faces) on which the names of ancient kings are engraven. Thence to:—

"Kabr-el-tawáshi ("the Eunuch's Grave").¹¹ Thence to:—

"'Uyun Kasab ("Reed Springs"). It is a watery, rushy, and excessively hot valley (wádi). In summer-time many persons die there suddenly.¹² The grave of the children of Abraham, near the sea there, is a place of pilgrimage (ziyáreh). Thence to:—

"Sherm ("a Creek") near the sea; on the left of it there is a mountain called Isháreh ("the Mark").¹³ Thence to:—

"Mowilahb, on the seashore: there is water, but it is rancid.¹⁴ Thence to:—

"Dár Kait-Bái (Kaït Bai's House), so named from that sultan having stopped there when performing the pilgrimage; before that they used to stop at Batn Kibrit ("Sulphur Belly"),¹⁵ a narrow, stony place. Thence to:—

Beni Ma'ázah. The site is popularly known as El-Sharaf. Caravans halt at El-Rijm, the "Heap of Stones," about 1 hour 30 minutes to the south, and find water. The distance to Magháir Shu'ayb is the normal stage of 12 slow hours.

⁸ The name "Matlát" is unknown, and the Beni Lám of Midian survive only in a proverb Kaf'at Beni Lám (the "Cutting off of the Beni Lám"), said when a thing is clean gone. The tribe, however, is still great and powerful in Mesopotamia between Baghdád and the Persian Gulf.

⁹ Crucifera Thebaica, or bifurcate palm, the Palma Thebaica of the ancients.

¹⁰ Magháir is a plural, "caves" (catacombs). "Mukl" (*i.e.* bdellium-tree) is a word unknown to the modern Midianites, who eat the fruit (Wagul = Wajul) of the Palma or Crucifera Thebaica. This fan-palm, when young and bushy, is called Saúr (صور). In the Sudán it is one of the most useful of growths, and supplies

everything from sandals to drinking-cups.

¹¹ The Eunuch's grave is still seen at the head of the Zibá Cove. See chap. xii. of the 'Land of Midian (Revisited).'

¹² This description of 'Aynúnah is not borne out by the accounts of the Bedawin, who praise both its water and its air. The visitation-place mentioned in the text is wholly forgotten, and the nearest spot held holy by the Arabs is the Goz el-Hannán (the "Moaning Sandheap") east of Sharmá. See chap. ii. *loc. cit.* Either one or both of them may have inherited the honours of the ancient pilgrimage to the "Gods of the Grove" ('The Gold Mines of Midian,' p. 182).

¹³ The Wady and its ruins are called Sharmá, an Arabic word showing that the classical name is forgotten. The "Mountain-Isharah" is the modern Shárr. See chap. xiii.

¹⁴ Read "unwholesome," fever-breeding.

¹⁵ The memory of the Circassian Mamlúk Soldan, El-Ashraf Abu'l-Nasr Ká'id Bey el-Záhiri, who, after a successful campaign against the Turks, made peace with them in A.D. 1490-91, is now forgotten. The "Sulphur-belly," which should be rendered "hollow below the sulphur-cone," is our "Sulphur-hill" (Tuwayyil el-Kibrit), at the head of the Jibbah Creek, where the caravan now encamps.

"Kabr Sheikh el-Kefafi. Sheikh el-Kefafi having been killed by a spear, was buried there, and his grave is a place of pilgrimage.¹⁶ Thence to:—

"Azlam (a very smooth Arrow). The second quarter [of the whole distance] a salt, marshy place, without any herbage, and having water which is salt. In the midst of these mountains there is a desert plain (Sahrá). Mecca senna is found here.¹⁷ Thence to:—

"Simák (Sumach), also called Rakhánin;¹⁸ it is a valley (wadi) in which there are many thorns. After passing it is:—

"Istabl 'Antar (Antar's Stable), an open plain among the mountains, where Arák [*Salvadora Persica*] is found, and on the borders of it there is sweet water.¹⁹ Thence to:—

"Sherenbeh (the thick-pawed Lion),²⁰ a mountain cape. Thence to:—

"Wejh (the Face) a valley (wadi), in which there are wells of sweet water. They were renewed by Ibrahim Páshá, in the year 930 (A.D. 1524), and are supplied by rain and torrents.²¹ Thence to:—

"Bir-el-Karawí ("Villagers' Well). Thence to:—

"Haríreh ('milk Porridge'). Thence to:—

"Haurá ('the black-eyed Girl'),²² where there is water, but it is bitter."

¹⁶ See chap. xii. 'Midian (Revisited).' The tomb still exists between Wady Kifáfah (North) and W. Selmá (South).

¹⁷ From Ziba (Eunuch's Tomb) the first march is to the Wady Azlam, where a ruined fort and two wells of brackish water are found. See chap. xiv.

¹⁸ May be the Wady Dukhán, or Abú Dukhán, which contains ruins. See chap. xiv.

¹⁹ The second camping-place from Zibá. This "wady" drains the little Jebel 'Antar, a range rising north of the great Jebel Libin (or Libn), and it is supposed to be the site of the ancient Rhaunathos. For the errors of the Admiralty Chart see chap. xiv.

²⁰ Humayrát el-Shurumbah (the "Red Hills of Shurumbah") is the name of certain waterless hillocks south of El-Wijh, here called Wejh.

²¹ See chap. xvi.

²² I cannot understand why Prof. Palmer ('Desert of the Exodus,' p. 319) says that "El-Haurá" in the Negeb has "some such primary signification" as *City of Cisterns*. The word, which is the feminine of Ahwar, simply means "Pagus Albus," Whitby. The Wady el-'Ayn, in which the caravan camps, supplies excellent water.

NOTE.—The map which accompanies this paper has been reduced from the original drawing executed by the officers of the Egyptian General Staff engaged in the Survey of the country; but it will be noticed that it differs very materially in several places from Captain Burton's narrative, besides being deficient in marking many prominent features which he describes.—W. J. T.