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regret not being able to finish what I had begun. I thank you for the charts of the Rovuma, and shall endeavour to take soundings, not on the bar, for there it none, but opposite the mouth. The only thing like a bar is a phenomenon which occurs at half-ebb, and up to the time when the tide turns, at which period the water, rushing out of the river, falls from 3 or 4 fathoms into 19 fathoms, and thus causes a commotion which might swamp a boat. It lasts, however, but a short time, for as soon as the flow begins all is smooth again. I believe that the Rovuma may be navigable for a vessel of light draught eight or nine months out of the twelve, and the bay is perfectly safe, and magnificent.

“ DAVID LIVINGSTONE.

“ P.S. 24th Feb. 1864.—The Bishop is off before me. I take the boys and children (40 in number) whom he wished to abandon, and send them myself to the Cape. Having once liberated them, I felt in honour bound to see them secure from a return into slavery, and am sure that the gentlemen who sent out the mission would have done the same.”

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XVII.—*Visit to Lingah, Kishm, and Bunder Abbass.* By Lieut.-Col. LEWIS PELLY, Acting Political Resident, Persian Gulf. (Communicated by the Secretary to the Government of Bombay.)

*Read, June 27, 1864.*

I LEFT Bushire in December, 1863, and landed at Lingah, whence I came on to Bassidore, visiting the salt-caves and naphtha-springs on the island of Kishm, and so, passing down the Clarence Straits, touched at Khumeer to see the formations of sulphur and red ochre, and thence crossing to Bunder Abbass, awaited there the return of the mail steamer to Bushire, visiting in the meantime the island of Hormuz.

Lingah contains a fort, and is surrounded by an unwallled town of stone, flanked on either side along the shore line by a series of clusters of houses, overhung with date-trees. The roadstead is open, and though sheltered from the north-west, is dangerous for shipping during the prevailing south-east and south-west winds; but a solid masonry breakwater affords protection to small craft. Lingah may be some 25 miles distant from Bassidore in a north-westerly direction, and is the chief-town of a district lying immediately between the sea and the barren and precipitous mountains which lead up through Lar, and so on to the Shiraz road. The district touches the Sheikhdome of Moghoo on the north-west, and



extends south-east almost to Bunder Mollum and the region farmed under Bunder Abbass by the Sultan of Maskat. About 4 miles south-east of Lingah lie the ruins of the Portuguese fort Kong. Portions of what seems to have been the factory and a half-moon casemated battery are still standing close to the water-line, as are also the ruins of a breakwater, from which probably the idea of that of Lingah was taken. The produce of the district consists of dates and some barley and wheat, sufficient for home consumption. The Sheikh of Lingah is an Arab, and claims to be a descendant of a family that emigrated to the Persian Gulf at the period when the Arabs were at the height of their power at Baghdad. He is, I believe, related to the Rasulkhymah Chief on the opposite coast. No import or export duty is due in Lingah, and it is probably to this fact, and to that of geographical position having preserved the port from governmental interference, that its hitherto prosperity is due. At present the township, with its adjacent suburbs, may contain from 8000 to 10,000 inhabitants, of whom the bulk are evidently Africans. The wealthier class are Persianised Arabs, and some Persians also have been attracted from the upper country for labour on the spot, or as carriers into the interior. There are also some twenty Hindoos residing in the place as agents for firms in Bombay or Kurrachee. It appears from this statement, as well as from the conversation of the merchants themselves, that the little commercial importance of this place is due to its being conveniently situated as a point of agency for trade coming from India and seeking a market along the Arabian coast of the Gulf, and to the Persian territory in the immediate neighbourhood of Lingah and towards Lar. Goods are landed, and, if prices pay, are sold on the spot and are sent towards the interior at the risk of the purchaser. Lingah merchants consider the road through the Eliant haunts too insecure to permit of their trading themselves with the interior. It is, however, I think, obvious that, unless owing to accidental circumstances, Lingah, from its geographical position and from its dangerous anchorage, would be quite unable to compete with the inland trade of Bushire or Bunder Abbass; and its statistics show that the bulk of its trade is with the maritime Arab ports, goods being reshipped thither in small coasting craft, according to demand and opportunity. Specie and pearls, and perhaps a little salt-fish, are, I believe, the only returns from the Arab ports. About eight or ten boats are engaged at Lingah for the pearl-fishery. There may be some 150 native craft of all sizes belonging to the people of the place; and it is remarkable that, although labour is cheap and efficient in boat-building along the western coast of India, yet the builders at Lingah prefer to import their wood from India and build their buglas (which seem of capital construction) on their own beach.

From Bassidore I crossed the island of Kishm to visit some salt-caves and naphtha-springs. The road, after leaving a ledge of rock on which Bassidore is built, descends a few feet into a plain, sprinkled here and there with a few date-trees, and passes the ruins of an old Portuguese fort, situated on a detached rock and overlooking the Clarence Straits. After some 7 miles you reach the village of Gooree, and thence wind among low hills for about 5 miles more into the plain of Kownee, distant only a mile or two from the southern shore. Leaving Kownee you pass eastward along a valley towards a range of dark-red hills: these form the salt-range. The general formation of the island, which, like that extending all along this and the Mekran coast to Kurrachee, is a coarse sandstone grit and conglomerate, overlying blue lias marl,\* now suddenly ceases, and the salt formation, which seems to extend some way into the interior of the island, abuts on the shore line, with which it runs parallel at a few hundred paces' distance for some 5 miles, when it again abruptly turns inland. The general aspect of the range is dark-red, alternating with slate colour, strewn in part with earth. The scarps are steep, and the height of the summits may vary from 300 to 600 feet. The entire range seems to be salt, and reminded me of the salt-hill near Nishapoor, on the road from Tehran to Meshed. The two sets of salt-caves which I visited were respectively at the two extremities of the shore-face of the range. The cave on the side nearest Kownee is comparatively small, and does not seem to be worked; but one of the caves on the further extremity is of truly noble proportions, being a vault of from 200 to 300 feet in height, of about the same length, and with a span of 60 or 70 feet. The entire arch of the cave is beautifully streaked, like marble, while large crystalline salites hang from the roof in festoons white as snow.

Another cave of smaller dimensions is in the immediate vicinity, and it is this one which is principally worked. It may be about a mile distant from the beach: a sufficiently good path for camels and donkeys leads up to it. The blocks of rock-salt quarried from the interior of the cave are laid in heaps at its entrance, to be carried by donkeys and camels to the sea-shore, where they are stowed in small native craft and carried to Maskat, for ultimate exportation to Calcutta and the east coast of Africa. The period of working is said to be about five months in the year, beginning from the early spring, when from 100 to 150 hands may be daily employed. The reason alleged for not working for salt during the remaining months of the year, is that boats cannot lay in shore for landing unless during the calm season; but I rather suspect that

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\* I speak of the prevailing character of the region, a good section of which is laid bare in the cliff at Munora Point, near Kurrachee.

the working is regulated by the demand. Every boat shipping salt pays two *krans*, or about one rupee per ton, to the Sheikh of Kishm, and every camel employed in carrying pays 5 *krans* per annum to the same authority. It is said (and from the general appearance of the place it seems certain) that working in them is dangerous, on account of the frequent falling of large blocks of salt from the roof and sides. Many labourers are said to have been killed in this manner; and among other numerous *débris* I noticed one solid mass of pure rock-salt, about 12 feet thick, with sides of 16 feet, which had recently fallen across the centre of the cave. It does not appear that the pure salites above mentioned are made use of, although I found the few specimens that I gathered to be the best and purest table-salt I ever tasted.

No fresh-water is found in the immediate vicinity of these caves: the labourers collect their drinking-water from a brackish well and one or two artificial rain-water tanks about 2 miles distant. The water that we drank, while pitched there, was brought from wells dug close to the base of the Kownee salt-range.

Leaving the salt-range and still following the shore-line eastward, the general formation of sandstone and blue lias is at once resumed. The valleys run parallel with the coast-line, and the strata rise on either hand in almost perpendicular scarps to the height of 100, 200, or 300 feet, topped with overhanging ledges of grit. It seems, indeed, as though the island had originally been a continuous table-land, which the scourings of the scanty rain, and prolonged exposure to the wind and atmosphere, had gradually broken into a series of gulleys and eventual valleys. The appearance of this side of the island is parched and barren as that of the Persian coast in general.

Passing along one of these valleys for about 6 miles, and about 3 miles before reaching the village of Saleek, a little inland, lie the naphtha-springs. I collected two bottles of the liquid in the stream, and it seems of average burning quality. The springs are, however, scant, and I should think of little value to trade.

Returning to Bassidore, I embarked again on the schooner and passed down the Clarence Straits through the narrow Kishm Channel. After a few miles the strait contracts to a breadth of a hundred yards or so, and winds for a distance of about 21 miles between low islands and banks covered with babool, and fringed below the water-line with mangrove. A creek then turns abruptly to the right and leads up to the small town of Luft. This township lies close to the shore at the foot of a scarped slope, the scarps being strengthened at their crests by curtains and flanking works. At the furthest side of the town is a square fort, with circular towers at the angles pierced for guns. The present inhabitants seem entirely ignorant of the history of these fortifications; but

from their construction and masonry I suppose them to be European.

Like the rest of the island of Kishm, Luft is farmed by the Sultan of Maskat, and is sublet to a Sheikh for about 1500 rupees per annum. It may contain 400 or 500 inhabitants, who seem entirely dependent for trade on the wood, which they collect on the neighbouring islands and re-export to all points round the Gulf, for whose firewood consumption the shores of the Clarence Straits form the natural store. Here, as at Bassidore, drinking-water is principally obtained from vaulted rain-water tanks. These tanks all along the coast-line seem of one construction, being oblong or circular vaulted masonry reservoirs cut in the soil at the foot of slopes. At Luft fort, however, there are also several wells cut deep through the sandstone, and from which water is obtainable when the tanks are dry.

Leaving Luft I crossed the Straits for Khumeer to visit the sulphur-mines, which are dug in a hill about a *fursac* inland from that township. The works are some height up the seaward face of the mountain, and pierce into the strata in long irregular galleries. The ore is brought out in small pieces, which are piled conically in kilns. These are ignited, and the sulphur falls through an aperture into a receptacle immediately below the centre of the kiln, where it is crystallised, leaving a conical refuse of white lime or gypsum. The sulphur-diggings are farmed by Maskat, and sublet to a Sheikh for 4100 *krans*. The Sheikh further pays a sum of 2400 *krans* in presents to the Persian authorities. The outlay of sulphur varies from 60,000 to 90,000 *muns* of 9 lbs. The lime is said to be of an excellent quality, and fetches about two rupees for 1000 *muns* of 9 lbs. when delivered on the sea-shore. The Sheikh told me that he re-lets the diggings in numerous sections, and that his own profit amounts to about one *kran* on the Delhi *mun* of 28 lbs. of sulphur. Khumeer itself consists of a township and fort, very similar in dimensions to that of Luft; indeed all the townships along this coast-line may be described as a cluster of flat, oblong stone boxes round a tumble-down stone fort, and with an outskirting of temporary date-leaf huts. Several craft were lying on the beach of various sizes. Along this shore, as indeed along all the shores of the Straits, are a series of slight fishing-stakes, fixed at low-water mark, and formed of strips of the date-leaves, neatly tied together. Fish, with dates, and a little coarse barley-bread, constitute the main food of the people. The fish most common and most relished is a large sort of mullet; soles and pomplet are caught, but do not seem to be much appreciated.

Leaving Khumeer the Straits widened to a breadth of 4 miles,

and on the Persian shore-line a salt formation, apparently a continuation of that on the island of Kishm, crops out immediately on the water-line to a height of about 600 feet, and turns eastward, following the line of the Straits for about 6 or 7 miles in a series of low hillocks of from 100 to 200 feet.

From the Straits I passed to the Island of Hormuz, visiting the ruins of the old Portuguese settlement. The fort, of solid masonry construction, is still standing, but is quite unrepared. A few useless guns, bearing date the early part of the eighteenth century, lie about the bastions. Three sides of the fort are washed by the sea, and the side facing inward is strengthened by a wet ditch, cut entirely through the narrow neck of land on which the place is built. It seems that during the occupation of the Portuguese a small inlet of the sea on the eastern side of the fort had sufficient depth of water for vessels of considerable tonnage to lie immediately under the wharves. This inlet is, however, now filled up.\*

The other side of the ditch forms the apex of the town, which stretched in an irregular triangular form along either coast-line, and till it reached a range of hills, forming at once the base of the triangle, and a natural wall of defence. The length of the perpendicular from the fort ditch to these hills may be about a mile and a half, while two towers, still standing, at either extremity of the base immediately above the beach, and marking the limits of the town, may be about two miles apart. The western of these towers still bears the name of Urgazec, and the eastern one that of Meshshateh. Outside the latter, and stretching south-eastward, seem to have been suburbs parallel with the shore-line, and leading down to a pier distant three or four miles. This pier and suburb, which bear the name of Trompuk, are alleged to be still standing, but I had not the leisure to visit them.

It is impossible to guess what may have been the greatest extent of the city of Hormuz at any one time. Tradition of course asserts that it covered the entire extent above defined, but I infer rather that the original Persian settlements may have been those which now bear the above ancient names; that afterwards, perhaps, the Arabs on taking possession had their Bunder at Trompuk; and that, finally, the Portuguese preferred the point where their fort now stands, because it was at once naturally protected, the nearest position to the old landing-place on the mainland, which

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\* I find that along the Bunder Abbass shore-line numerous creeks are silted up. To the northward on the contrary, for instance, on the Bushire peninsula, and, I believe, also on the opposite Arabian coast, there are signs of the land being constantly caved away by the sea. Near the fort of Reshire the section of soil laid bare along the beach-cliffs shows the débris of pottery for a considerable distance, and to a depth of 5, 6, or 7 feet. Some wells caved in still hang their sandstone apertures over the cliffs, and absolutely overhang the sea at high-water.

stood near the present Bunder Abbass;\* and because, thirdly, it admitted of the closest approach of vessels of tonnage, and at all times afforded shelter on either one or the other side of the fort.

Immediately opposite the Hormuz Fort on the mainland, and about four miles to the eastward of the present Bunder Abbass, are the traces of a small ancient creek, now silted up; some masonry work is still visible. It is at this spot that goods are said to have been shipped for, or landed from, ancient Hormuz. There are many traces of other small creeks along the shore-line, one in particular close to Bunder Abbass, and which has silted up in the memory of man. It was probably the presence of this latter creek which caused the present Bunder to be placed where it is, otherwise it would have been obviously much better placed some miles to the westward beyond Seroor, where a spit of land and the Kishm Island give much greater protection against the prevailing winds.

The description which old writers hand down to us of the splendour of Hormuz should, I think, be accepted with considerable care. For the period it was, doubtless, a first-rate emporium, but would at present, perhaps, be considered an ordinary oriental town. There are no traces of any ruins of either great extent or solidity. The most durable structures seem to have been their vaulted water-tanks, which of course, in a populous town wholly dependent on rain-water, were both numerous and of vital importance. The statement of Justamond,† that water was hawked about the streets on camels for the convenience of passengers, shows not that the town enjoyed an additional luxury, but that a necessary of life, which is elsewhere freely used, possessed a market-value in this utterly desolate island. I find it also difficult to credit that the thoroughfares tramped by camels were likewise spread with carpets and linen, since such an arrangement would not at all suit the habits of those animals. It is more probable that the old shops of Hormuz, like those of other eastern towns, were shaded by strips of awnings, with bits of carpets, for the transaction of business.

A local tradition alleges that the island of Hormuz was an appanage of the old Persian town of Minao, situated on the mainland, on the banks of a fresh-water river, immediately east of Hormuz. Minao still bears its old name, which is said to be derived from the words Min and Aub, that is to say, land and water, *par excellence*. The fact is, as a merchant of Bunder Abbass said to me, that mankind settled in the first instance on fertile land, and by the margin of sweet water; and wherever you

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\* Four miles east of Bunder Abbass.

† *Vide* Extracts from Justamond and Ralph Filch, p. 30, 'Government Selections,' No. XXIV. of 1856.

find these two essentials in the neighbourhood of other ruins, you may be sure of their claims to the priority of age.

As to the general character of the island of Hormuz, it seems to be very similar to that of the salt and sulphur formations in the neighbourhood of Khumeer, already described.

Leaving Hormuz, I sailed across to Bunder Abbass, distant about 12 miles, in a north-westerly direction. It is a walled township of about 8000 or 9000 inhabitants, with suburbs, extending along an open sea-beach, backed at a distance of about 15 miles, by a range of lofty and apparently desolate mountains, although the clefts in the middle slopes of this range produce excellent oranges,\* and are said to be otherwise studded with trees. Behind the present town are some large tombs of superior construction, but they are falling into ruins. To the westward lie the débris of an extensive former town, and among them the ruins of an English factory, which seems to have been in the first instance pulled down, to prevent its being used as a point of attack by any hostile force. A better and more sheltered position for a port lies about four miles to the westward, at the entrance of the Clarence Straits, which is said in former times to have been the site of a small Bunder. The present Bunder Abbass is destitute of any pier or other artificial improvement, and has only from two to three fathoms of water at a distance of two miles out, so that during the frequent southerly or south-eastern winds it becomes a lee-shore lashed by a heavy surf, rendering it necessary for craft to seek shelter under the islands of Hormuz and Kishm.

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XVIII.—*On the Comoro Islands.* By Captain ALGERNON DE HORSEY, R.N.

*Read, June 27, 1864.*

THE Comoro islands are four in number, and lie nearly midway between the northern extremity of Madagascar and the African coast; Comoro, the largest and highest of the four, giving its name to the group. The others are named respectively, Johanna, Mohilla, and Mayotta, and are all high and of volcanic origin. These islands, except Mayotta, are generally safe of approach for ships, having clear passages between them.

*Comoro Island.*

Comoro (also called Angazecha) is the northernmost as well as the largest and highest island of the group, its dimensions being

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\* Some of the finest sorts of oranges at Zanzibar are said to be grafts from the trees in this mountain range.