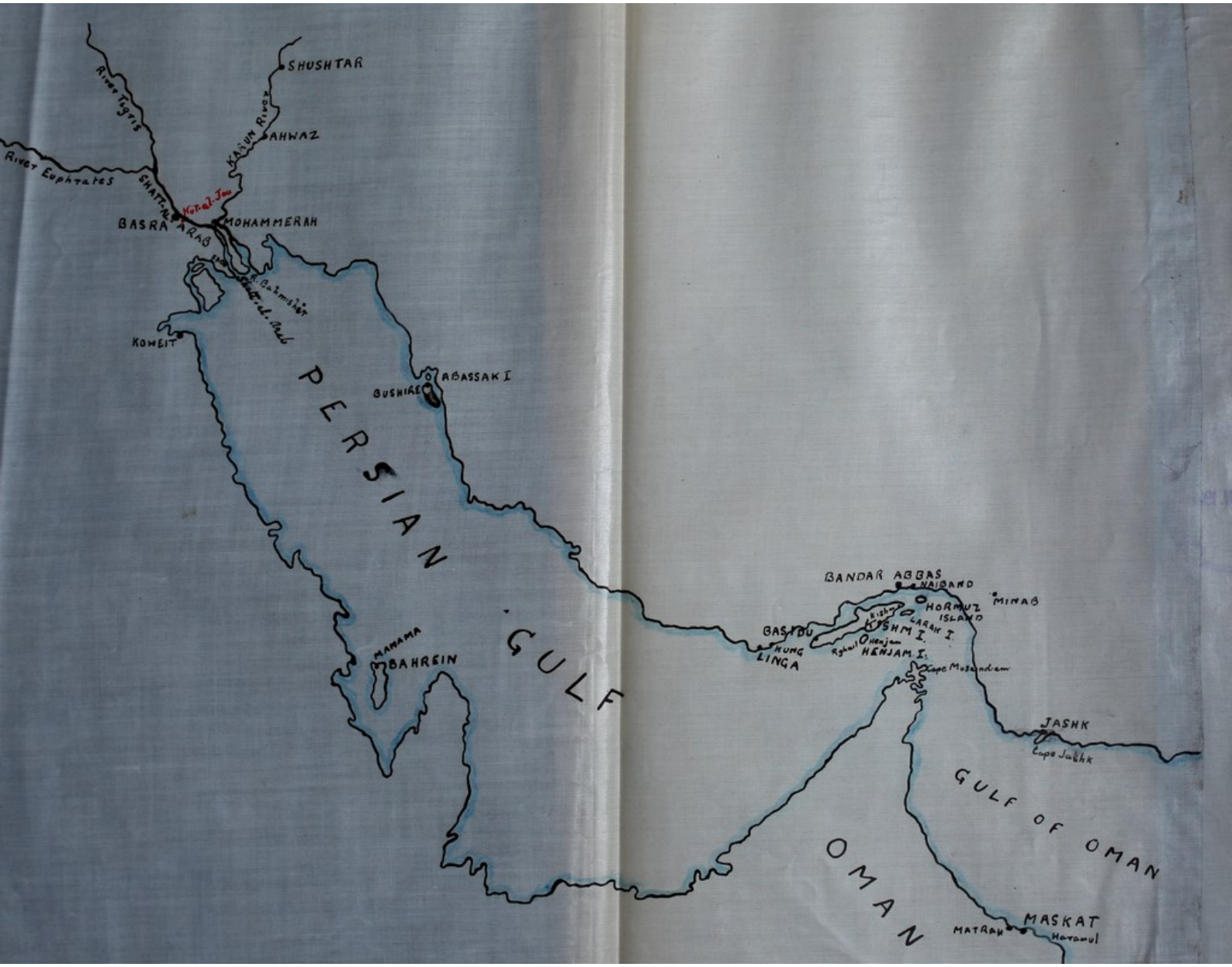
Report by Dr Theodore Thomson on the sanitary requirements of certain places in or near the Persian Gulf, &c.;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BAHREIN
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NAIBAND
MINAB
HORMUZ ISLAND
QARAK I
KISHM I.
BASIDU
HUNG
LINGA
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Henjam
HENJAM I.
Cape Mosandam
JASHK
Cape Jashk
GULF OF OMAN
OMAN
MASKAT
MATRAH
Haramul

SHUSHTAR

AHWAZ

MOHAMMERAH

BUSHIRE

BAHREIN

PERSIAN GULF

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CONFIDENTIAL.

(8700.)

Report by Dr. Theodore Thomson on the Sanitary Requirements of certain Places in or near the Persian Gulf, &c.

Dr. Theodore Thomson to Sir Edward Grey.—(Received July 16.)

Sir, *Local Government Board, Whitehall, July* 14, 1906.

IN accordance with instructions, I visited certain places in and near the Persian Gulf, in relation with the question of the sanitary defence of these regions, and have the honour to submit herewith my Report on this subject.

I have, &c.

(Signed) THEODORE THOMSON.

Inclosure.

Report by Dr. Theodore Thomson on the Sanitary Requirements of certain Places in or near the Persian Gulf, in relation with the protection, not only of Countries adjacent thereto, but also of Europe, against invasion by Cholera and Plague; and, more particularly, as to the desirability or otherwise of the establishment of an Observation Station near the Entrance of the Gulf, and the Degree in which Hormuz, Henjam, or other Place may be regarded as affording a Site suitable for this Purpose.

THE sanitary defence of the Persian Gulf has in the past received, and still continues to receive, considerable attention, not only in the interests of countries adjacent thereto but also because it is maintained by some authorities that cholera and plague are particularly likely to invade these regions, by reason of their nearness to and frequent communication with India, and thence to extend overland to Europe. This view was voiced by M. Barrère, one of the French Delegates at the International Sanitary Conference of 1897, when he classified the Persian Gulf along with the Red Sea as the "routes naturelles des maladies pestilentielles" (*procès-verbaux*, p. 24). In relation with this aspect of the matter, the question of what measures should be adopted with a view to guarding against the suggested danger to Europe was discussed at the International Sanitary Conferences of 1894, 1897, and 1903; and in each of the Conventions drawn up at these Conferences clauses were incorporated embodying measures intended to secure this end. The 1894 Convention provided for the establishment of a large lazaret with complete sanitary staff and equipment at Fao, a small lazaret near Basra, and sanitary posts at Basra (then already established), Koweit, Manama in Bahrein, Bandar Abbas, Bushire, Mohammerah, Gwadar, and Maskat. The British Government, however, did not accept that part of the Convention which embodied these proposals, and the scheme was not carried out. This scheme, indeed, was thrown overboard at the 1897 Conference, the Convention of that year providing simply for a sanitary station near Basra and another at or in the neighbourhood of the Island of Hormuz or of Kishm, near the entrance to the Gulf. These proposals were accepted by the British Government, and Persia also ratified the Convention, subject to the reservation that the station at the entrance to the Gulf

should be under the Persian flag and should have Persian guards. The 1903 Convention provides for the Basra station as before, and for a sanitary station at Hormuz. The British Delegates were empowered by His Majesty's Government to sign that Convention, subject to reservations regarding the finding of the funds for the construction of the proposed station near the entrance of the Persian Gulf, and the reorganization of the Constantinople Superior Board of Health, which is charged, under the Convention, with the construction, upkeep, and control of this station. The British Government, however, through its delegation, expressed its doubts as to the necessity of such a station, pointing out that the experience of recent years lent no support to that view, and, in addition, called in question the suitability of Hormuz, with its unhealthy climate, as a site for that purpose.

The 1903 Convention has not yet been ratified; and, meanwhile, a proposition has been made that the observation station near the entrance to the Gulf, which has never yet come into being, should be placed on the Island of Henjam, and should be constructed, maintained, and controlled by the Persian Government instead of the Constantinople Superior Board of Health.

The Present Sanitary Defence of the Persian Gulf.

In the course of my inquiries into the present sanitary defence of the Persian Gulf I visited Maskat and Jashk, in the Gulf of Oman; Bandar Abbas, the Islands of Hormuz, Kishm, Henjam, and Bahrein, Koweit, Bushire, and Linga, in the Persian Gulf itself; Mohammerah, on the Karun River; and Fao and Basra, on the Shatt-al-Arab. In Appendix 1 of this report each of these places is described in some detail; while an account is given, in Appendix 2, of the administrative procedure, as regards plague and cholera, at the ports of Maskat, Jashk, Bandar Abbas, Linga, Bushire, Mohammerah, Basra, Koweit, and Bahrein. I do no more here, therefore, than briefly recapitulate the points of chief importance.

All these places are characterized by many conditions prejudicial to health. Water supply, with few exceptions, is liable to dangerous pollution, and is frequently inadequate in amount. Systems of sewerage and drainage do not exist. In the better class of house slops and excreta pass to rudimentary cesspools, seldom or never cleansed. Generally, liquid and solid refuse is cast in the vicinity of the dwelling, while the seashore, open spaces, and, not infrequently, streets, and even roofs of houses are fouled by excretal deposits. Many of the houses are in bad condition, and much of the population live in mat huts. Streets are frequently very narrow, and are unpaved, uneven, and generally filthy.

The foregoing description is not, however, equally applicable to all the places I visited. In certain respects, noted in Appendix 1, some are less unsanitary than others.

In none of these places is there any provision for isolation of cases of infectious sickness other than in connection with the quarantine station, when such exists. There are quarantine stations only at Maskat, Jashk, Bandar Abbas, Linga, Bushire, Mohammerah, and Basra; but in no instance is the accommodation for infectious cases satisfactory. Of these stations, the best equipped is that at Bushire. Efficient means of disinfection are provided only at the Bushire and Basra stations. The measures adopted with a view to guarding against invasion by cholera and plague, recounted in Appendix 2, are generally satisfactory in Persian ports* except where limited by inadequate observation and isolation accommodation, or by absence of efficient means of disinfection. At Maskat* they are less satisfactory; at Basra they are unreasonably stringent, with the result that they defeat their own object; while at Bahrein and Koweit no measures of this sort are in force.

It is evident, from the foregoing account, that the sanitary defence of the Persian Gulf is weak, both by reason of deficiencies in, or absence of, measures protective against invasion of places there by cholera and plague, and also because of the existence of conditions at these places favourable to the spread of these diseases, should they establish a foothold there. On the other hand, there are two conditions which afford some degree of protection, the one against invasion of these places by cholera and plague, the other against extension of these diseases therefrom to adjacent countries, and therefore, ultimately, to Europe. The first of these conditions is found in the fact that at all, except the river ports of Mohammerah and Basra, large vessels lie offshore at distances ranging from half-a-mile to as much as five miles; only the smaller

* The Port sanitary administration of these places is at present conducted by officers of the Indian Medical Service (see Appendix 2).

native craft lie close to the shore or bring up to quays, when these exist. This materially diminishes the amount of communication between large ships and the shore; and, in so far as danger of plague is to be apprehended from infected rats on board, reduces this risk, in respect of these vessels, to vanishing point. There is little or no protection of this sort, however, against native craft; and these constitute the vast majority of vessels trading to and about the Gulfs of Oman and Persia. The second condition is the nature of the country abutting on the shores of the Persian Gulf and the Gulf of Oman. This is most conveniently considered in three sections, viz.: (1) the Arabian side of these gulfs below Koweit; (2) their Persian side, and (3) the northern extremity of the Persian Gulf, including Koweit, Mohammerah, and Basra.

As regards the first of these sections, the extension thence of cholera or plague by land is not to be seriously apprehended, because of the tracts of desert that lie along and beyond the shores of the Gulfs of Oman and Persia on the Arabian side, in consequence of which there is little or no communication by land with countries from which these diseases might conceivably spread in the direction of Europe.

As regards the second section, the danger of extension of cholera or plague by land cannot so readily be set aside, in view of the considerable amount of trade from the ports of Bandar Abbas and Bushire to the interior of Persia. Ordinary communication, however, is much restricted, as, indeed, that for trade purposes is undoubtedly hampered, by the difficult and often desolate nature of the tracks over the great mountain range that separates the shores of the Persian Gulf from the interior.

The third section is not characterized by these natural difficulties. Koweit is within 100 miles of Basra by land, and, although human habitations on the route are infrequent, the journey, which ordinarily takes three days, does not present serious difficulty. Communication, by this way, between Koweit and Basra, though not large in amount, is fairly constant. Basra itself has much and frequent communication with the interior of Mesopotamia by the Tigris and Euphrates valleys, while there are trade routes from Mohammerah to the interior of Persia up the valley of the Karun. Further, such protection against invasion by cholera or plague as may be referred to large vessels lying a long distance off-shore, is not afforded at Basra and Mohammerah. Such vessels, it is true, ordinarily lie towards the centre of the river, but even so they are within easy distance of the shore. This third section, therefore, is naturally less protected against invasion by cholera and plague, while the nature and amount of its communication with the interior is such as to render extension of these diseases thence to Mesopotamia in particular and, though in much less degree, to the interior of Persia, a good deal more probable than like extension from either of the other sections.

The History of Plague and Cholera in relation with the Question of the Spread of these Diseases from India to Europe by the Persian Gulf.

It is of interest to consider what evidence there may be to justify the classification of the Persian Gulf with the Red Sea as a natural highway for cholera and plague from India to Europe.

Europe has suffered in all from seven epidemics of Asiatic cholera. The first of these (1830–37), and also the second (1847–49), came from India overland through Central Asia to Russia, and spread thence throughout Europe. The third epidemic (1854–59) did not come from the East; it was a recrudescence from existing *foci* in several parts of Europe, where there had been no interval of entire freedom from the disease since 1849. The fourth epidemic (1865–67) reached Europe by way of the Red Sea and Egypt. The fifth epidemic (1869–74) appears to have been due to importation of the disease into Russia from Persia, which it had invaded either from India by way of Afghanistan or from Mesopotamia, or from both India and Mesopotamia. Mesopotamia had been invaded by cholera, both through the Persian Gulf and through Asia Minor from the Mediterranean. The sixth epidemic (1884–87) came to Europe by way of Egypt, which it reached presumably through the Red Sea. The seventh epidemic (1892–95) came from India overland through Afghanistan and Persia to Russia, and spread thence to other parts of Europe.

Outbreaks of plague in Europe have long been rare and of no serious consequence. This disease made occasional appearances in Europe in the earlier part of last century, after which it did not recur there, save for one exception of small importance, until 1899, when Oporto was the first European community to share in the great pandemic of plague that commenced in 1894. How the disease reached Oporto is not known,

but neither in relation with that appearance of plague nor with its other appearances in Europe during the last century is there any indication that its route from East to West had been by the Persian Gulf.

From these facts it is clear that the Persian Gulf cannot justly be described as a natural highway for cholera and plague from India to Europe; historical evidence indicates that these natural highways are two—the first overland through Central Asia to Russia, the second by the Red Sea and Egypt.

Recent experience of cholera and plague in the Persian Gulf goes to confirm a view, which has more than once found expression, that these diseases do not tend to wide extension there; for which some explanation may be found in the second of the two conditions, to which I have before referred as naturally protective, that characterize large part of the neighbourhood of the Gulf. In this connection it is to be noted that cholera, in addition to minor manifestations in these regions of late, was epidemic in the Sultanate of Oman in 1899, and continued to be prevalent there in the year following. At Basra also there was considerable prevalence of cholera in 1899. In 1902 Bandar Abbas was seriously affected with cholera, as also was Minab in 1903. In 1904 there were 220 deaths from cholera at Mohammerah; over 1,600 cases were reported to have occurred in Bahrein; and the disease is said to have caused great mortality in Trucial Oman. No material extension of the disease beyond the invaded localities occurred, however, save from Basra in 1899, when it spread some way northward into Mesopotamia. In like manner plague was epidemic at Maskat and Matrah in 1900, and at Bahrein in 1903 and 1905; yet there was no noteworthy extension of the disease beyond these localities.

The Measures which should be adopted with a view to securing the Sanitary Defence of the Persian Gulf.

The most effective defence of the Persian Gulf against cholera and plague would be the removal of the unhealthy conditions obtaining in these regions, and the provision of sufficient sanitary staff, with adequate equipment, at the more important ports and places there. But, in view of the character of the population and of the indifference of the ruling authorities to health considerations, such a scheme is to be regarded as purely Utopian, and must be dismissed as impracticable. It is no doubt in recognition of this fact that the alternative schemes embodied—one in the 1894 Convention and the other in the Conventions of 1897 and 1903—have been put forward. The former of these has been superseded by the latter and need not now be considered. The Conventions of 1897 and 1903 provide for the construction of what may be termed a sentinel station near the entrance of the Persian Gulf, to which all vessels must go before proceeding up the Gulf, and a terminal station near Basra. This scheme is based on an entire misconception of the conditions obtaining in the Persian Gulf; it would fail to secure the protection of places there against cholera and plague which it seeks to attain, and it would inflict upon commerce in these regions an amount of loss totally disproportionate to the degree of the danger it is intended to guard against. The disproportionate character of the conception involved in the proposal to establish a sentinel station near the entrance of the Persian Gulf is well illustrated by consideration of the measures applied to shipping proceeding to Europe by the Red Sea. There is close resemblance between the circumstances of the Red Sea and those of the Persian Gulf, and at the northern end of the one lies Suez, as at the northern end of the other lie Basra and Mohammerah. But there is no sentinel station, save for pilgrim ships, near the entrance of the Red Sea; ordinary shipping, whether for Europe or for Egypt, proceeds to Suez and is dealt with there. It is entirely unreasonable to impose upon shipping in the Persian Gulf measures more stringent than those in force in the Red Sea, when, as I have shown, the danger of transmission of cholera or plague to Europe by the former route is small in comparison with the danger of such transmission by the latter route.

The injury to commerce resulting from the obligation on all vessels to call at a sentinel station, there to undergo inspection and detention for such measures as might be applicable to them, before proceeding up the Persian Gulf, would be serious. In addition to the loss of time involved in deviation from their natural course, the amount of which would depend on the position of the station, to which I shall presently refer, there would be the further loss of time incurred by detention at the station, and the direct pecuniary loss in quarantine fees to be paid. It is true that, at a well-administered station, the period of detention need not, in many instances, be of long

duration if the principles of the 1903 Convention were applied; but if the administration were in the hands of either Turks or Persians it may certainly be anticipated that it would be bad and that it would not be based upon principles of a reasonable kind.

As I have already stated, this scheme would fail to secure the end it is intended to attain. Failure would ensue because of the deviation from their natural course imposed upon vessels. No doubt for a steamer this would be a less serious matter than for sailing-vessels, and the temptation, in the case of steamers, to give the sentinel station the go-by would be correspondingly less. Moreover, a steamer doing this could hardly hope to escape subsequent detection. But with the native craft, which not only trade coastwise in the Gulf but also trade in considerable numbers to and from it, matters stand in an entirely different position. These vessels are dependent for their progress on the direction and force of the wind, and a deviation of even a few miles from their course might, and, it may safely be averred in view of the well-known characteristics of the Gulf weather, frequently would entail for them the loss of days rather than hours. From this would assuredly result, in many instances, evasion of the obligation to proceed to the sentinel station; and, for craft of this sort, escape from subsequent detection is an easy matter in the Gulf. And yet these are precisely the vessels that, as carriers of cholera or plague, are the most dangerous, since, unlike the steam-ships, they can lie close inshore, or up to quays and banks, or can be beached. The establishment of a sentinel station at the mouth of the Gulf would indeed actually increase the danger from these craft, inasmuch as, after evasion of their obligation to proceed there, concealment of the infraction of this obligation would be necessary, with the result that they would avoid the sanitary authorities at their place of destination and so would escape sanitary control in any form.

Nor has the scheme in question taken due account of what is to happen in the event, which not infrequently occurs, of places in the Gulf itself becoming infected with plague or cholera. In such a case, are native craft that come from, or have called at, the infected place within the Gulf, to proceed to the sentinel station or to Basra before going elsewhere? If this be the intention, the briefest glance at the map of the Persian Gulf will satisfy any impartial observer that the probabilities of such an obligation being complied with are so small as to be a negligible quantity. And, if this be not the intention, the claims in favour of the creation of a sentinel station at the mouth of the Gulf, are thereby correspondingly diminished.

To these considerations, hostile to the creation of a sentinel station near the entrance of the Persian Gulf, has to be added the impossibility of finding, for this purpose, a site which is not open to the gravest objections. Maskat and Jashk, besides being unsuitable for reasons which will appear from the account of these places given in Appendix 1, are too short a distance from India to serve this purpose usefully, as also is Gwadar, which at one time was thought of in this connection. The neighbourhood of Cape Musandam, the promontory on the Arabian side of the entrance of the Persian Gulf, is impossible, because of its intolerable heat during the summer and autumn months. Topographical considerations exclude all other sites, with the exception of the Islands of Larak, Hormuz, Kishm, and Henjam; and of these Larak may be dismissed as wholly unsuitable by reason of its total lack of anchorage. There remain for consideration Henjam, Hormuz, and Kishm; there being, at each of the two first-mentioned, only one spot which can be regarded as in any way suitable as a site for an observation station, while at Kishm there are two such spots, one at its eastern extremity, near the village of Kishm, the other at Basidu, its western extremity. The distances of these places from the natural course up the Gulf are as follows:—

Henjam	10 miles.	Kishm	40 miles.
Basidu	30 „	Hormuz	50 „

As regards anchorage, all these places are fairly off, although in no instance is the anchorage completely sheltered from all winds; in this respect Henjam is the most satisfactory. A pier and landing stage would have to be constructed in each instance. At none of these places is there a sufficient supply of wholesome water; nor could potable water, free from all risk of dangerous pollution, be obtained at any of them, in quantity sufficient for the needs of an observation station, whether by sinking wells or by storage of rain and surface water in reservoirs. In each instance, plant for the distillation of water would have to be provided. Provisions for the staff and occupants of the observation station could not be obtained on any of these islands; they would have to be brought from Bandar Abbas to Kishm, Hormuz, and Henjam, and from Linga to Basidu. Bandar Abbas is 11 miles from Hormuz, 14 miles from Kishm, and 40 miles from Henjam, while Linga is about 25 miles from Basidu. The climate of

Hormuz, Kishm, and Henjam is locally said to be unhealthy and extremely trying during the hot season of the year. On this point actual statistics are lacking, except for Henjam. The Henjam meteorological records show that the climate there is characterized by great heat, frequently accompanied by much humidity of the atmosphere, during the months of May, June, July, August, and September; and the keeper of these records frequently notes the weather as having been "oppressive," "very oppressive," or "stiflingly oppressive." The records kept of the health of the telegraph staff at Henjam, about twenty in number, show that sickness is of common occurrence among them. The situation and the conditions of Kishm and Hormuz so closely approximate to those of Henjam that the data available regarding the climate and the degree of healthiness (or unhealthiness) of the latter place may fairly be taken as applicable to the former places also. In addition to disadvantages already enumerated, the eastern part, at least, of the Island of Kishm is liable to severe earthquakes; Basidu, however, is said not to suffer in this way. It is claimed as a special advantage for Henjam that there is a telegraph station there; a point, however, of minor importance, since there would not seem to be any difficulty in the way of laying a cable to Hormuz or Kishm.

It will be seen, from the foregoing account, that there is little to choose between these three islands as sites for an observation station, except that the liability of the eastern part of Kishm to severe earthquakes may properly be held sufficient to exclude it for this purpose. All are objectionable by reason of absence of good water supply, lack of provisions, and a trying and unhealthy climate. The construction of a proper observation station on any of them would be a costly affair, as also would be its upkeep. If, however, in the end, there should prove to be no escape from the creation of such a station, the Island of Henjam would, on the whole, provide the most suitable site, partly because of its better anchorage, partly because it would entail less deviation of vessels from their natural course up the Gulf.

I have already indicated the impracticability of securing a general defence of ports and places in the neighbourhood of the Persian Gulf in the interests, not of Europe alone, but of the inhabitants of those regions themselves. In so far, however, as opportunity may from time to time offer, influence should be brought to bear on the ruling authorities of these districts, with a view to securing such improvement as may be attainable.

In the meanwhile, it is desirable that a reasonably practicable scheme should be devised and put in operation, with a view to the ultimate protection of Europe against such danger as there may be of cholera or plague reaching it by way of the Persian Gulf. Such a scheme should be based upon the principle of concentrating sanitary defence against cholera and plague at those points from which these diseases, should they effect a lodgment there, would be most likely to spread overland in the direction of Europe. Looked at from this point of view, Bahrein and the Arabian side of the Gulfs of Persia and Oman below Koweit may be regarded as of little moment. More risk is to be apprehended from the Persian side; although it is to be borne in mind not only that there are natural obstacles which tend to limit communication from the coast to the interior, but also that the danger of cholera or plague reaching the interior of Persia from the coasts of the Gulf is small, as experience has shown, in comparison with that of its invasion by these diseases coming from India overland through Afghanistan. The greatest danger lies at the northern end of the Gulf, in that section which comprises Basra, Mohammerah, and Koweit. Each of these places should be provided with an adequate health staff and with a sanitary station comprising sufficient and suitable accommodation for the purposes of observation and of isolation of the infectious sick, and efficient apparatus for disinfection. The measures applied to shipping should be in accordance with modern principles and not, as is now the case at Basra, so unreasonably stringent as to afford direct incitement to their evasion. In my judgment, provision of the kind I have indicated is necessary for all these three places; the defence of Basra alone would not suffice, since there is easy communication by land between Mohammerah and Basra, and also communication in the same way, although less easy, between Koweit and Basra. To carry out this scheme effectively at Mohammerah the Indian Government, who in effect already control the Persian Port Sanitary Service, would probably have to advance the necessary funds to the Persian Government. At Koweit there may be more difficulty, since the Sheikh of that place does not look kindly on port sanitary precautions; and here, it is much to be feared, the Indian Government, should the Sheikh's consent to the establishment of a sanitary station at Koweit be obtained, would have to find the necessary funds and staff. At

Basra it may be that the Constantinople Superior Board of Health will presently replace their defective sanitary station there by one completely and suitably equipped. I am, however, little hopeful that they will abandon the antiquated principles on which some of the measures they apply to shipping are based.

On the Persian coast Bushire is already provided with a sanitary station, which, with the addition of satisfactory provision for the isolation of the infectious sick, would meet all necessary requirements. But, although in this way Persia complies with the international stipulation for at least one port on each seaboard sufficiently equipped and organized to deal with any ship, whatever its sanitary condition, yet there would, in my judgment, be advantage to commerce in also fully equipping the sanitary station at Bandar Abbas. Bandar Abbas is not only a base for important trade routes into Persia, but has also a very considerable trade by sea ; and, in the interests of shipping, it is not desirable that vessels should be sent thence to Bushire if their sanitary condition were such that they could not be dealt with at Bandar Abbas.

The circumstances, to which I have alluded, of Bahrein and the Arabian coast below Koweit, do not, from the point of view of the protection of Europe, call for the establishment of sanitary stations there, however desirable these may be in the interests of these localities themselves.

In substance, therefore, the scheme best adapted, in the circumstances, to secure a reasonable degree of protection to Europe and the minimum of interference with commercial interests in the Gulf of Persia, consists in the perfecting of the present sanitary stations at Mohammerah and Bushire, the establishment of a sanitary station at Koweit, and the creation of a new station in place of that now existing at Basra. Sanitary defence of the Gulf based on these lines will afford a greater degree of protection to Europe against plague and cholera than would be secured by a sentinel station near the entrance of the Gulf, combined with a terminal station at Basra ; and will not impose on shipping the unnecessary and prejudicial restrictions that would result from the latter scheme.

If this view should meet with acceptance, I would urge that steps should be taken to put the scheme I have suggested in operation with all possible speed. I view the alternative sentinel station project with apprehension, as calculated to be ineffective, expensive, and gravely detrimental to commercial interests—and these are mainly British—in the Gulf. Abandonment of this sentinel station project is much more likely to follow on knowledge that defensive measures, of the kind and at the places I have indicated, are in actual operation, than on mere announcement that such measures are in contemplation.

(Signed) THEODORE THOMSON.

July 12, 1906.

APPENDIX 1.

An Account of the Conditions, bearing on the subject of this Inquiry, of certain places in the Gulf of Oman and the Persian Gulf.

Maskat.

MASKAT, the capital of the Sultanate of Oman, is situated on the southern coast of the Gulf of Oman. The population of the town proper and its suburbs may, perhaps, be put at about 15,000. The town proper consists mainly of flat-roofed houses, usually two-storyed; the suburbs, where two-thirds or more of the population reside, are largely composed of mat huts. Streets are mostly very narrow, and are unpaved, uneven, and undrained. There is no sewerage system. Better-class houses drain to cesspools, which are seldom or never cleansed; the inhabitants of other houses and of mat huts cast their slops and house refuse on the streets or in the vicinity of their dwellings, and ease themselves on the sea-beach or any open space. Sometimes the street or the house roof is utilized for this latter purpose. The main streets, however, are scavenged, at the instance of the Sultan, and are kept fairly clean. The water supply is from wells lying a short distance to the west of the town; it is not distributed by pipes, but is carried thence by the inhabitants in skins or other receptacles. There is, however, a small aqueduct that conveys the water to the principal landing place in the harbour. The supply, unless after a long drought, is plentiful; but the position and construction of the wells lay their water open to some risk of dangerous pollution. The climate of Maskat is trying during the hot season (April–September), when the temperature is frequently very high. During the hot weather many of the inhabitants leave Maskat for other places where the heat is less severe. The rainfall is small. (Meteorological data are given in detail in Appendix 3.) No mortality records are kept in Maskat; but, save for considerable prevalence of malaria, it is said to be fairly healthy.

Maskat and Matrah (a town of some 20,000 inhabitants, about 2 miles west of Maskat) have a considerable amount of trade by sea. Matrah, however, although largely resorted to by native craft, is not a port of call for steam-ships; these go to Maskat. They consist mostly of the Persian Gulf service of the British India Steam Navigation Company, whose fast and slow boats both call weekly at Maskat in going to and returning from the Gulf of Persia. Other steam-ships coming from Bombay or direct from Europe, also call at Maskat more occasionally. They anchor in Maskat Cove, about half-a-mile from the town, which lies at the bottom of the cove. Native craft lie near the shore. Maskat Cove is about three-quarters of a mile in length and about half-a-mile in width; it affords good anchorage and shelter save against the Shamāl (north-wester), which, when it blows, renders landing a matter of considerable difficulty. The Shamāl is the prevailing wind in the Gulf.

There is a quarantine station at Harāmul, which lies in a small bay about 1¼ miles south of Maskat. It is accessible by sea save when a south-easter is blowing, and by land by a footpath from Maskat which, in the immediate vicinity of the station, where a precipitous hill has to be crossed, is somewhat difficult. The station, of which a general view is afforded by the accompanying photograph, lies on the shore of the bay in proximity to a small village of about a dozen houses. The structures which constitute the station are not inclosed by any wall or fence. They consist of:—

(1.) A new hut, with ten compartments.
(2.) An old hut, with six compartments.
(3.) Three old huts, with 4, 2, and 2 compartments respectively. These are about to be demolished and replaced by three new huts of 1, 2, and 4 compartments respectively.

The walls of these huts are constructed of date sticks, and they are roofed with matting. Each compartment is about 7 feet square, and 6 feet in height to the eaves. Their appearance is shown by the accompanying photographs.

There is also a stone mosque adjacent to the huts, which has been used for sheltering pilgrims.

In the event of infectious disease occurring among the occupants of the station, a hut, about 100 yards distant from any of the others, is utilized as an isolation hospital.

The foregoing accommodation is intended for third-class passengers only; no provision is made for first-class or second-class passengers.

There are no drainage arrangements in relation with the structures described: refuse and slops are got rid of in the vicinity of the station, and its occupants ease themselves on the sea-shore. The water supply is obtained from a neighbouring well, said to yield a plentiful supply, and apparently little likely to incur risk of dangerous pollution. Provisions are supplied from Maskat.

There is no disinfecting apparatus at the station.

Jashk.

Cape Jashk is a low, flat, sandy spit of land, jutting out for a distance of about four miles from the Persian coast of the Gulf of Oman. Ships calling here anchor either in the east bay or

Maskat Cove & Maskat. The principal landing place (where small boats are seen lying up) is in the centre of the photograph.

General view of Maskat & Suburbs from the East.

General view of the Maskat Quarantine Station at Haramal. The Quarantine buildings are towards the centre of the photograph: the adjacent fishing village, with boats drawn up on the beach, is on the extreme right.

Shows some of the structures at Maskat Quarantine Station. That in the centre, with the two figures standing in front, is the new ten-compartment hut (No. 1.). On the left is a hut in process of construction: on the right, the canteen. The stone building showing behind & on the right of the canteen is the mosque. In the background, on the extreme right, is seen part of the fishing village.

Shows some of the structures at Masket Quarantine Station. The nearer structure is the old six-compartment hut (No. 2.): the farther structure, behind & to the left, is the old four-compartment hut about to be demolished and replaced by a new hut.

General view of Jask Quarantine Station from the South.

To face p. 8.

Domed water-reservoir on the plain behind Bandar-Abbas.

General view of the Bandar-Abbas Quarantine Station at Naiband, showing the first & second class block, with kitchen, in the background near the centre; and, to right & left, nearer the foreground, some of the third-class huts.

8. e.

H 3

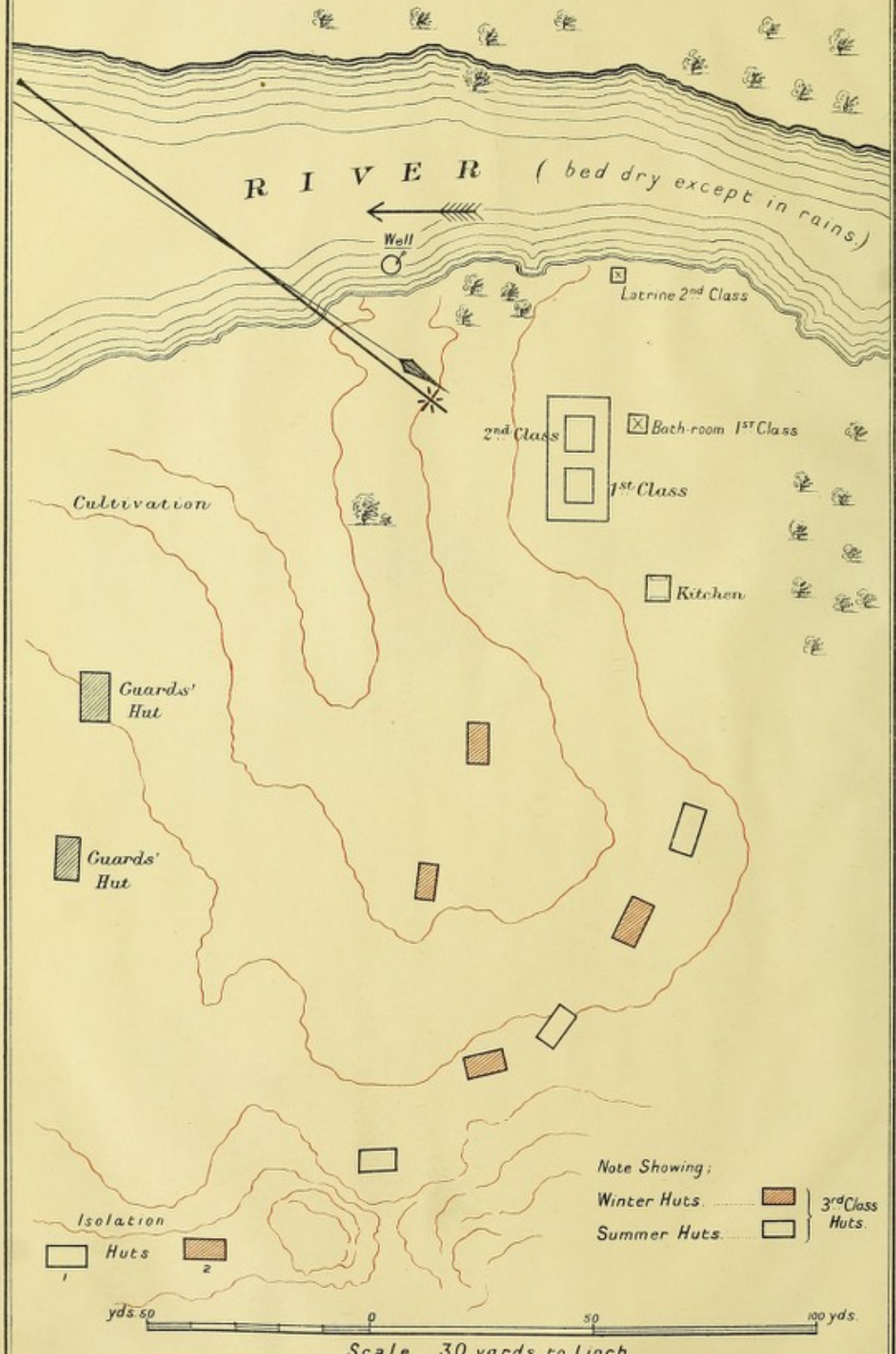
Bandar-Abbas Quarantine Station: view of the block for first + second class passengers. The block-kitchen is seen on the extreme right behind.

H 1.

Bandar-Abbas Quarantine Station: winter hut for third-class passengers.

QUARANTINE CAMP.

NAIBAND. BANDAR ABBAS.



BANDAR ABBAS.
27th February, 1906.

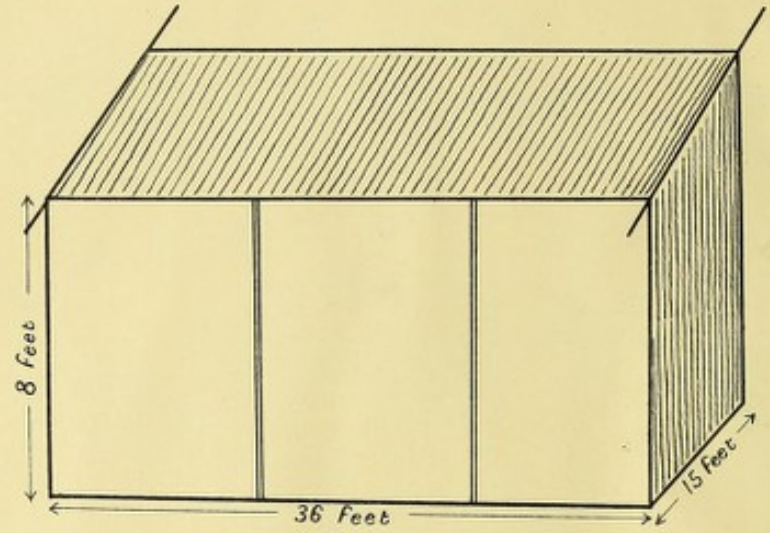
(80. 8. 6. 1313) F.O. 706

Harrison & Sons, Ltd. St. Martin's Lane, W.C.

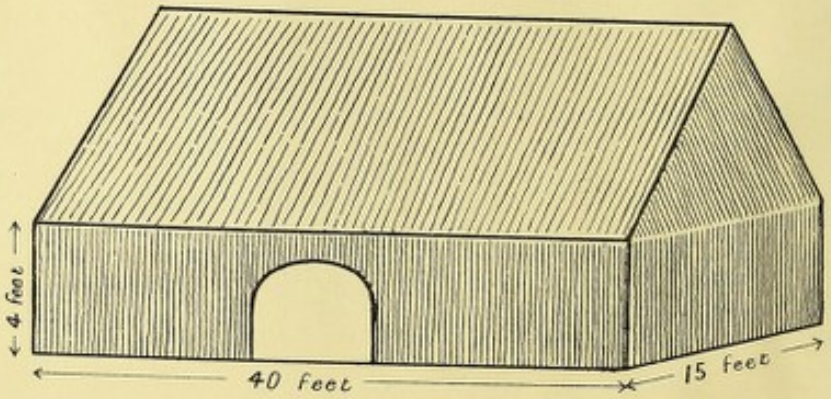
To face page 9.

BANDAR ABBAS QUARANTINE STATION.

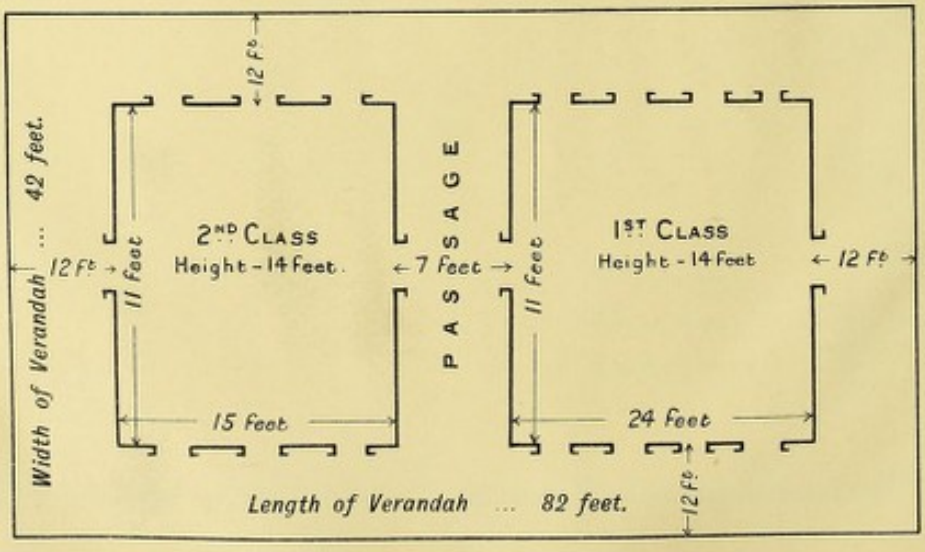
3rd Class Summer Huts.



3rd Class Winter Huts.



Ground Plan of 1st and 2nd Class Rooms.



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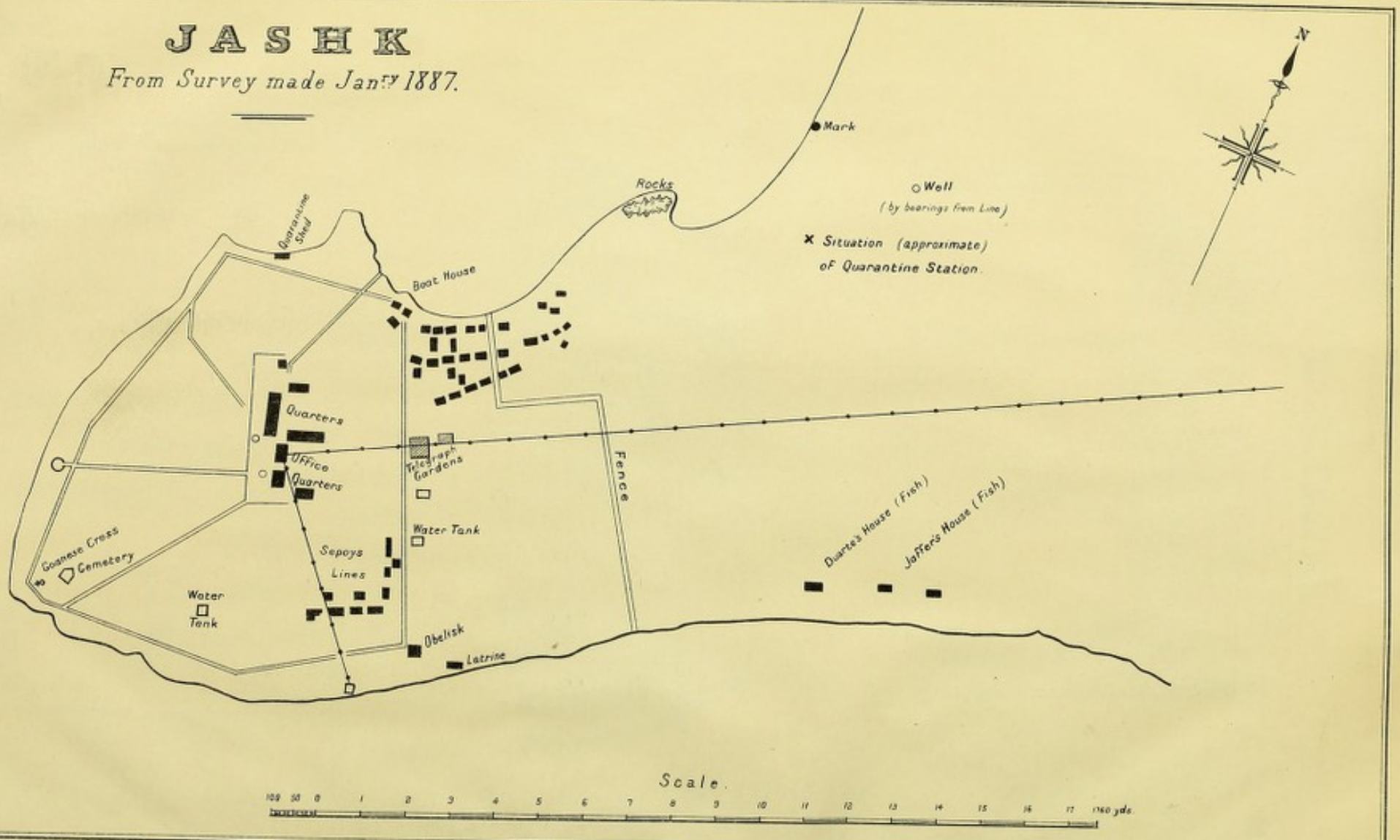
To face page 9.

JASHK

From Survey made Jan.ry 1887.



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in the west bay, according to the wind; lying, in the former case, about half a mile, and, in the latter case, about three-quarters of a mile or more off shore. The east bay affords shelter against north-westers, but is exposed to easterly and southerly winds; both bays lie open to south-westers. A British India steamer calls at Jashk fortnightly, and a few native boats trade to this port.

The south-western extremity of Cape Jashk is fenced off from the remainder of the promontory. This inclosed portion, which is about three-quarters of a mile in length, and rather more than half a mile in breadth, is occupied by the Indo-European Telegraph Station (*see plan annexed*). This station is an important one; the population within the inclosure amounts usually to about 120 persons. Near the station inclosure there is a Persian village with a population of perhaps some 300. About three-quarters of a mile north-east of the telegraph station there is a quarantine station, standing well away from other human habitation (*see plan*). It is, however, in a ruinous condition, as will appear from the accompanying photograph. It is a stone and mud structure, consisting of a court-yard, half the south-east wall of which is gone, and a building of one room, 30 feet by 9 feet, and 11 feet in height. This building has a flat roof of the same area as the room below; this can be roofed over with matting and utilized as further accommodation for the quarantined. There is no drainage or other system to secure proper removal of slops and excreta: the occupants of the station defæcate in its immediate vicinity or in the court-yard. The water supply is from a surface well in the court-yard: its water is brackish and liable to dangerous pollution. This station is intended for third-class passengers only: no provision is made for first-class or second-class passengers. There is also a "quarantine shed" on the shore of the west bay, consisting of a small mat hut, at which passengers who land at Jashk are inspected. There is no disinfecting apparatus at Jashk.

Wells sunk in the soil of Cape Jashk usually give brackish water, although one well, situated about a mile north-east of the telegraph station, is said to yield good water. The telegraph station is supplied by rain water, stored in underground tanks, which are estimated to hold enough to supply a population of fifty for one year and eight months. There are two of these tanks: one is 75 feet by 15 feet by 9 feet; the other is 68 feet by 10 feet by 9 feet. To a limited extent, provisions are obtainable locally or from the interior; but, if a quarantine station intended for the control of the Persian Gulf came to be erected at Jashk, reliance would have to be placed mainly on Karachi for victualling. There is abundance of good building stone locally, and the difficulty alleged as to shifting sand rendering it impracticable to find a good site is not true of that part of the promontory that lies between the present quarantine station and the telegraph inclosure, although it seems to be so of the ground lying immediately beyond the quarantine station. The climate of Jashk, like that of Maskat, is trying. The meteorological data given in Appendix 3 indicate that it is rather hotter at Jashk than at Maskat, and the variations in temperature during twenty-four hours are much greater at Jashk than at Maskat. The average annual rainfall is small.

Bandar Abbas.

Bandar Abbas is a town of considerable importance situated on the north coast of the Persian Gulf near its entrance. It stands at the bottom of a bay which affords good anchorage, and is sheltered against all winds save those from the south-east. By reason of shallowness of water inshore, ships anchor about 2 miles off the town. The British India slow steamers call weekly on both their way up and their way down the Gulf, and there is, in addition, a considerable amount of other shipping to this port. In 1903, 257 vessels, with a total tonnage of 236,275, called at Bandar Abbas. The town, which is an important trading base for southern Persia, has a population estimated at 10,000 in the cooler months of the year; during the hot weather a third or more of the inhabitants leave for Mināb and other places better off in respect of food, water, and climate. The general circumstances of Bandar Abbas are those common to towns in these regions, of which Maskat, already described, may be taken as affording a type. Bandar Abbas, however, is worse off than Maskat, in that its streets are more uneven, being, indeed, commonly furrowed by great gullies and scarred by deep holes; in the absence of scavenging other than by dogs; and in the quality of its water supply, which is inferior to that of Maskat. There are a few wells in the town, but the water of these is brackish and not used for drinking. Mainly, the supply of Bandar Abbas is derived from large domed reservoirs (*see photograph annexed*) constructed on the plain behind the town, and serving to store either flood-water from an adjacent stream or surface-water from the plain itself. This plain serves as pasture ground for herds of cattle, goats, and sheep, and is, moreover, not free from human excreta; water collected from it is therefore open to risk of dangerous pollution. It is also said to contain abundance of guinea worm. The more "particular" inhabitants of Bandar Abbas fetch their water from wells, of which the water seems to be fairly free from risk of dangerous contamination, situated at Naiband, 3 miles to the east of the town. The climate of Bandar Abbas has an evil reputation; it is said to combine high temperature with great humidity in the hot season. Exact records, however, are not available, save for a few recent months, particulars as to which are given in Appendix 3.

The quarantine station for Bandar Abbas is situated at Naiband, which lies, as already stated, 3 miles to the east of the town. It is not inclosed by any wall or fence; near it is a small village. The accommodation provided consists of one block, built of stone, for first-class and second-class passengers, with adjacent kitchen, bathroom, and latrine, and nine huts for third-class passengers. Of these nine huts, which are constructed of date-sticks and matting, five are for use in the cold weather, and are walled on all four sides; four are for use in hot weather, and are open on three sides. Two of the nine huts are utilized for isolation of cases of infectious disease. Annexed are a ground plan of the Station, drawn to scale, showing the position of the

several structures; a ground plan, drawn to scale, of the block for first and second-class passengers; a diagram showing the character of the winter and summer huts and their dimensions; and photographs of the site of the Station, of the first and second-class block, and of one of the winter huts. There is no disinfecting apparatus. The water supply is derived from an adjacent well, of which, as already noted, there are several in this neighbourhood, resorted to by some of the inhabitants of Bandar Abbas.

Hormuz.

The island of Hormuz lies about 11 miles south-east of Bandar Abbas. It is of approximately circular shape, with a diameter of about 4½ miles. For the most part it is covered with barren and rocky hills of singularly jagged outlines, with intervening desolate ravines. These hills average 300 to 400 feet in height; the highest is 690 feet. Most of them are composed of rock-salt, mixed with a reddish earth; ravines and valleys are in considerable part coated with a crust of salt. From the northern end of the island projects a low, flat promontory, towards the extremity of which is situated the village of Hormuz, the only group of permanent habitations on the island. This village is composed mainly of mat-huts; its population is estimated at about 1,000, save in the hot weather season (June to September), when most of the inhabitants migrate to Minab, on the Persian mainland. This migration is attributed to scarcity of food, fodder, and water at Hormuz during this season, and, by some, to the oppressive heat there at that time.

Hormuz is one of the places which have been put forward as affording a suitable situation for an observation station near the entrance of the Persian Gulf. This, it has been proposed, should be constructed on the plain lying immediately to the south of the present village of Hormuz (*see the accompanying photograph*). There is, indeed, no anchorage for the island except on the east and west sides of the promontory on which the village stands. The usual anchorage is E.N.E. of Hormuz village, about ½ a-mile from shore, sheltered from all winds save, according to the "Persian Gulf Pilot," from the north-east. I am advised, however, that owing to the lie and nearness of the adjacent Persian coast, little trouble is to be anticipated from north-easters; but that the anchorage is exposed to winds from the south-east. In either case, a vessel may find sheltered anchorage on the west side of the promontory.

There is but little water available for drinking save that derived from the collection and storage of rain in reservoirs. The streams are mere brine; the water of the few wells is brackish and scanty, with the possible exception of one situated some 2 miles E.S.E. of the village, which, it is alleged locally, does not go dry at any season. The inhabitants of Hormuz village resort to six reservoirs about ½ a-mile away, in the plain lying to the south; they are constructed of stone and cement. They take the surface water of the adjacent ground, and their water, although turbid, is free from risk of dangerous pollution save that liable to arise from the habits of the people. They go dry in summer, however. There are three large reservoirs in a disused Portuguese fort at the extremity of the promontory; these take the surface drainage of the roofs and courtyards of the fort. Only one of them is in moderate repair. There are also many disused and ruinous reservoirs in the plain to the south of the village, where the famous city of Hormuz once stood; the local estimate puts these at 300 to 400. These could be reconstructed, or fresh reservoirs could be built, inasmuch as building stone is available from the ruins of old Hormuz.

Provisions are scarce at Hormuz. Grain is not grown on the island in quantity sufficient for the needs of the inhabitants, who import this article of food. Vegetation is rare and scanty, and does not suffice for the 400 goats and the few cows belonging to the villagers, who take their herds with them when they migrate to the mainland in the summer. No records of temperature or rainfall are available; but the climate is said to be exceedingly trying in the summer months owing to the great heat combined with humidity.

Henjam.

The island of Henjam lies about 40 miles south-west of Bandar Abbas. It is some 5 miles in length, and about 2½ in breadth; it is hilly, and is mostly covered with coarse scrub. The population number about 1,200, of whom 900, or rather more, are at Henjam village, on the south-east coast of the island, about 150 are at Rghail village on the west side of the island, and about 140 are at its northern extremity. Of these 140, 20 are members of the staff employed at the telegraph station erected there, about a score are natives living in a small village near the telegraph station, and about 100 are coolies engaged in the construction of new telegraph station buildings.

Like Hormuz, Henjam has been recommended as a suitable situation for an observation station near the entrance to the Persian Gulf. For such a purpose as this, only the northern end of the island needs consideration, since at no other part of its coast is anchorage to be had. There is, however, good anchorage on the west side of the north point of Henjam, well sheltered against all winds except the Shamal (north-wester), which here blows from the south-west. Even against the Shamal there is partial shelter, but vessels can take refuge against it on the east side of the north point, where there is fair anchorage. Such procedure, however, is rarely likely to be necessary.

The northern end of Henjam is divided by a deep valley from the rest of the island; and all the northern portion thus delimitated is leased from the Persian Government for the purposes of the

View of the Northern end of Hormuz Island. The village of Hormuz lies approximately in the centre of the photograph, with the Portuguese fort on the right, and, on the left, the plain which has been suggested as a suitable site for an observation station. On the extreme left begin the hills which cover most of the island.

Hormuz Island; torrent bed hills. The white patches are incrustations of salt. Most of the island presents similar characteristics.

Hormuz village. A "mat-hut" (date-sticks with mat-roofing) and a native (Persian). Huts of this type are usual throughout the neighbourhood of the Persian Gulf.

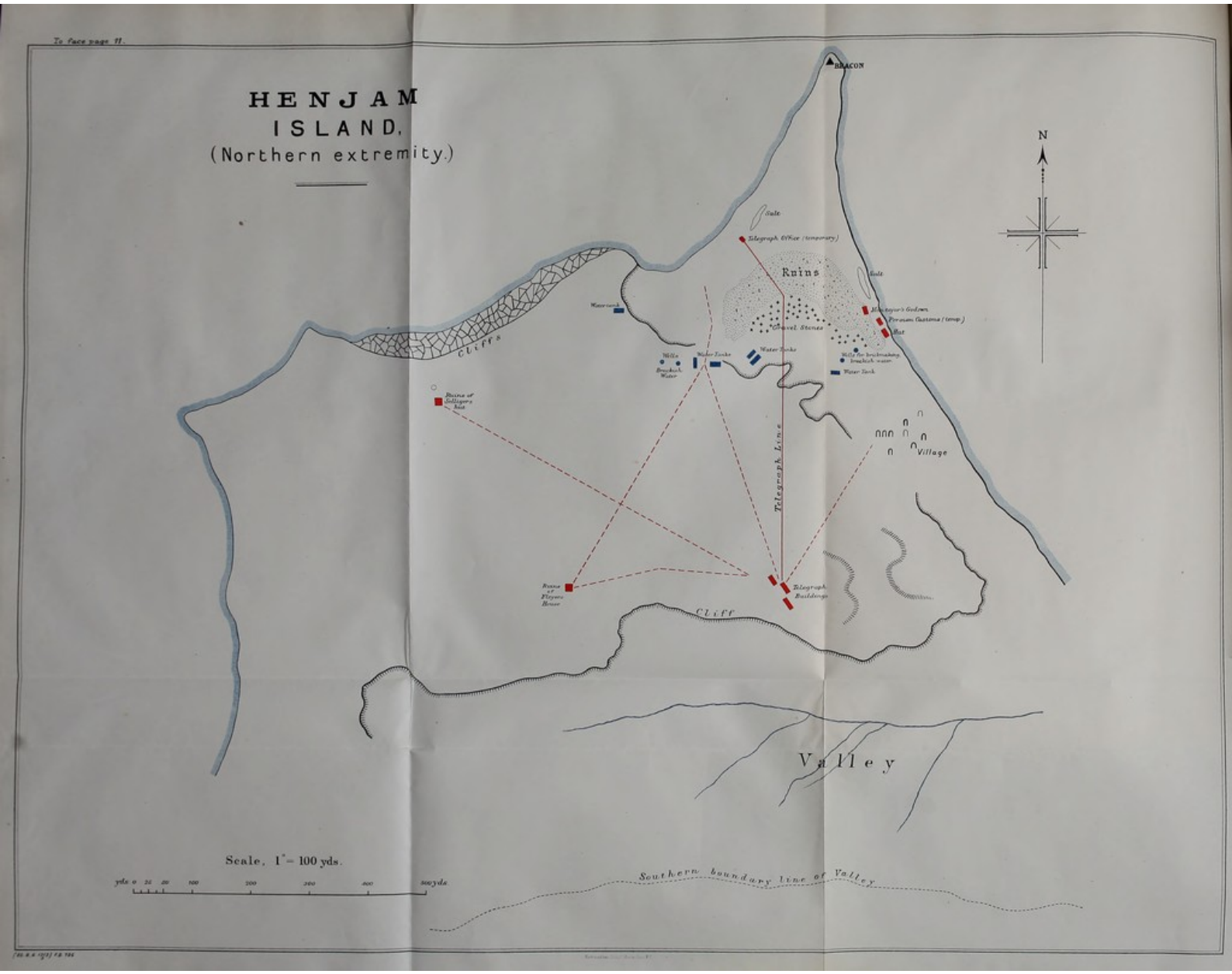
Herjaan Island: West half of the Northern End of the island, photographed from the West side of the North point of the island. An observation station, if constructed on Herjaan, would have to be placed on the rising ground behind the low cliff in the middle distance of the photograph.

Basides from the West. The stone landing pier is a little to the left of the centre of the photograph.

To face page 11.

HENJAM ISLAND.

(Northern extremity.)



British telegraph station constructed, and in process of further construction, there. A plan drawn to scale, is annexed, which shows the positions of the telegraph and other buildings, of the native village, and of existing wells and water-tanks. Owing to the position and distribution of these, an observation station, if erected here, would have to be placed on the western half of the site. Here, as elsewhere, the ground slopes up, in some parts rather sharply, to the cliffs abutting on the dividing valley to the south. This and the irregular nature of the ground would necessitate a good deal of levelling prior to construction of an observation station. Annexed is a photograph showing the appearance of the western half of the telegraph station site. The present water supply is derived in part from shallow wells, the water from which, however, is brackish, except for two or three weeks after rain; in part from five covered reservoirs, in which surface water from the surrounding ground is collected and stored. This water is turbid, and is liable to pollution of a dangerous sort, by reason of the habits of the native population. I saw human excreta close by the chief reservoir in such a position as to insure pollution of its water on the next fall of rain. This risk would attach to water collected in reservoirs constructed on the western part of the site in the event of an observation station coming to be erected there.

In consequence of the small extent of this northern part of Henjam and the number of quarantine employees and hangers-on who would be added to the present population, the area available for collection of surface water of a reasonably wholesome kind would be so restricted as not to be capable of yielding sufficient supply for the staff and occupants, likely to be not infrequently numerous, of the observation station. Near the village of Rghail there are several wells in a shallow ravine that yield clear water which, according to local testimony, is always abundant and never becomes brackish. This water appears to be free from risk of pollution save from manure on adjacent ground under cultivation. Rghail, however, is 2¾ miles from the telegraph station site. So also there are wells reputed to yield a sufficiency of good drinking water at the village of Henjam, but this village is at a still greater distance. Supplies are also lacking. The island of Henjam does not grow enough produce for its own inhabitants; rice and even dates have to be imported. In summer, indeed, many of the inhabitants go to the Oman coast and elsewhere in search of food; perhaps also to evade the summer heat. The climate of Henjam is of no better repute than that of Hormuz. Meteorological records are not available further back than May 1904, and even these are in many respects incomplete. They are reproduced in Appendix 3. They suffice to show, however, that high temperatures, accompanied frequently with much humidity of the atmosphere, are of usual occurrence during several months in the year; and the significance of these data is enhanced by the constant recurrence, on the part of their recorder, of such comments as "oppressive," "very oppressive," "stiflingly oppressive." These records also take note of the state of health, day by day, of the telegraph station staff, and show that illness is of common occurrence among them.

Kishm.

The island of Kishm, 69 miles in length and of an average breadth of about 8 miles, lies parallel to the Persian coast, from which it is separated by Clarence Strait. At its eastern extremity is the village of Kishm, the neighbourhood of which has been suggested as a site for an observation station at the entrance to the Persian Gulf. This end of the island is nearly 14 miles south of Bandar Abbas. Off the village of Kishm there is good anchorage ¾ mile to 1 mile from shore, well sheltered against north-westers and fairly safe as regards other winds. The village itself, with a population of some 4,000, is composed mainly of mat-huts, most of the stone-built houses having been ruined by a severe earthquake in 1896, in which, according to varying local estimates, 500 to 1,500 people perished. The water supply is partly from wells, partly from reservoirs in which surface water is collected and stored. There are three wells just beyond the north-west end of the village, which are said by the inhabitants to yield a sufficiency of good water at all times of the year. They are not entirely free from risk of dangerous pollution. There are ten surface-water reservoirs in the plain to the south of the village, two more in the village, and one on rising ground to its west. The village reservoirs are liable to grave pollution; the others afford a safer supply, although not free from risk of pollution by animal and human excreta. The reservoir water is turbid, as also, though in less degree, is the well water. The villages possess a considerable amount of stock—mainly goats—but not more than sufficient for their own needs. Vegetation in the neighbourhood is scanty; and but little cereals are grown. Many of the inhabitants migrate to Minab in the summer months. No meteorological records are available; but the climate would seem to be much like that of Bandar Abbas. A local shelly limestone affords sufficiently good building material, if coated externally with plaster.

Basidu, situated at the western extremity of Kishm Island, has also been suggested as suitable for an observation station near the mouth of the Gulf. This part of Kishm Island belongs to the British Government. It is flat, abutting on the sea in a cliff about 20 feet above high-water mark. There is good anchorage about a-third of a-mile off shore, fairly well sheltered; a troublesome swell, however, is occasionally caused by wind and tide. For landing purposes there is a low stone pier, about 80 yards in length, extending to low-water mark. This pier is in bad repair. There are the remains of buildings dating from the occupation of Basidu as a British station; most of these are in a ruinous condition. There is also a small native village known as New Basidu; Old Basidu, another small village, is 2 or 3 miles off. There are many wells, some of which are locally said to yield good drinking water and never to run dry. There are also seven reservoirs, of which three belong to the British Government and four to a private person. These furnish water all the year round; this is said to have been so even after a two years' drought. The

reservoirs are roofed over and are in good repair. Their dimensions, ascertained roughly, as regards their length and breadth, by pacing, are as follows:—

1.—70′ × 9′ × 11′	5.—65′ × 9′ × 11′
2.—30′ × 9′ × 11′	6.—65′ × 9′ × 11′
3.—54′ × 9′ × 11′	7.—60′ × 9′ × 11′
4.—34′ × 9′ × 11′	

The water in these reservoirs, and also that derived from wells, is turbid, and there are the usual possibilities of dangerous pollution by animal and human excreta. The local population prefer the well water to that in the reservoirs. There is little local cultivation; grain is imported; four or five score of goats and a few sheep and cows are kept by the villagers. Building stone of the same sort as that found at Kishm village, is available. There are no precise data as to the nature of the climate, which, however, does not seem to differ materially from that of the rest of the island. This end of Kishm Island is not known to have suffered from earthquakes.

Linga.

The town of Linga is on the Persian coast of the Gulf, about 100 miles W.S.W. of Bandar Abbas. There is good anchorage, well sheltered except against southerly winds, during which landing may not be practicable. It is a port of some importance, although its trade by sea has been markedly diminishing of late years, as has also its trade with the interior of Persia. The British India slow boats call here weekly, both on their way up and on their way down the Gulf. The town of Linga forms a narrow strip, about 1 mile in length along the shore, and has a population estimated at about 12,000. Many of its houses appear to be well built; the suburban portions consist largely of mat-huts. The general sanitary circumstances of the place resemble those of Maskat, except that there is no system of scavenging. The water supply is mainly derived from domed reservoirs, of which there are some forty or fifty, in which flood water of streams or surface water from the surrounding ground is collected and stored. These reservoirs are situated in the vicinity of the town, and the supply from them is exposed to the usual risks of dangerous pollution. Their water is turbid. They are said to have a storage capacity sufficient for two years' supply of the population they serve; the supply, however, has been known to fail after a dry year. I was locally informed that residents do not migrate from Linga in summer, but that they spend their nights at Kung, a large village some 3 miles away, by reason of its being cooler and having a better water supply. There are also shallow wells in Linga, the water of which is brackish and not used for drinking unless the reservoir supply fails. These wells are also liable to dangerous pollution.

There is a quarantine station at Linga, lying about a mile to the south-west of the town. It consists of one block for the healthy, with an outer and an inner courtyard, on to which the rooms open; and, some distance off, a two-roomed mud-hut and two mat-huts for the isolation of the sick. The accompanying plan, drawn to scale, shows the nature and extent of the quarantine and isolation accommodation; photographs are also appended, showing the exterior view of the quarantine station and a view of part of the inner courtyard. It will be observed from the plan that one room serves both first and second-class passengers; the position of proposed new first-class quarters is also shown on the plan. The isolation huts are not shown in their actual position, which is too far off to appear on the plan. The water supply of the station is from adjacent reservoirs, which are said to yield sufficient water at all times. The water is turbid, and not entirely free from risk of dangerous pollution. There is no disinfecting apparatus.

Bahrein.

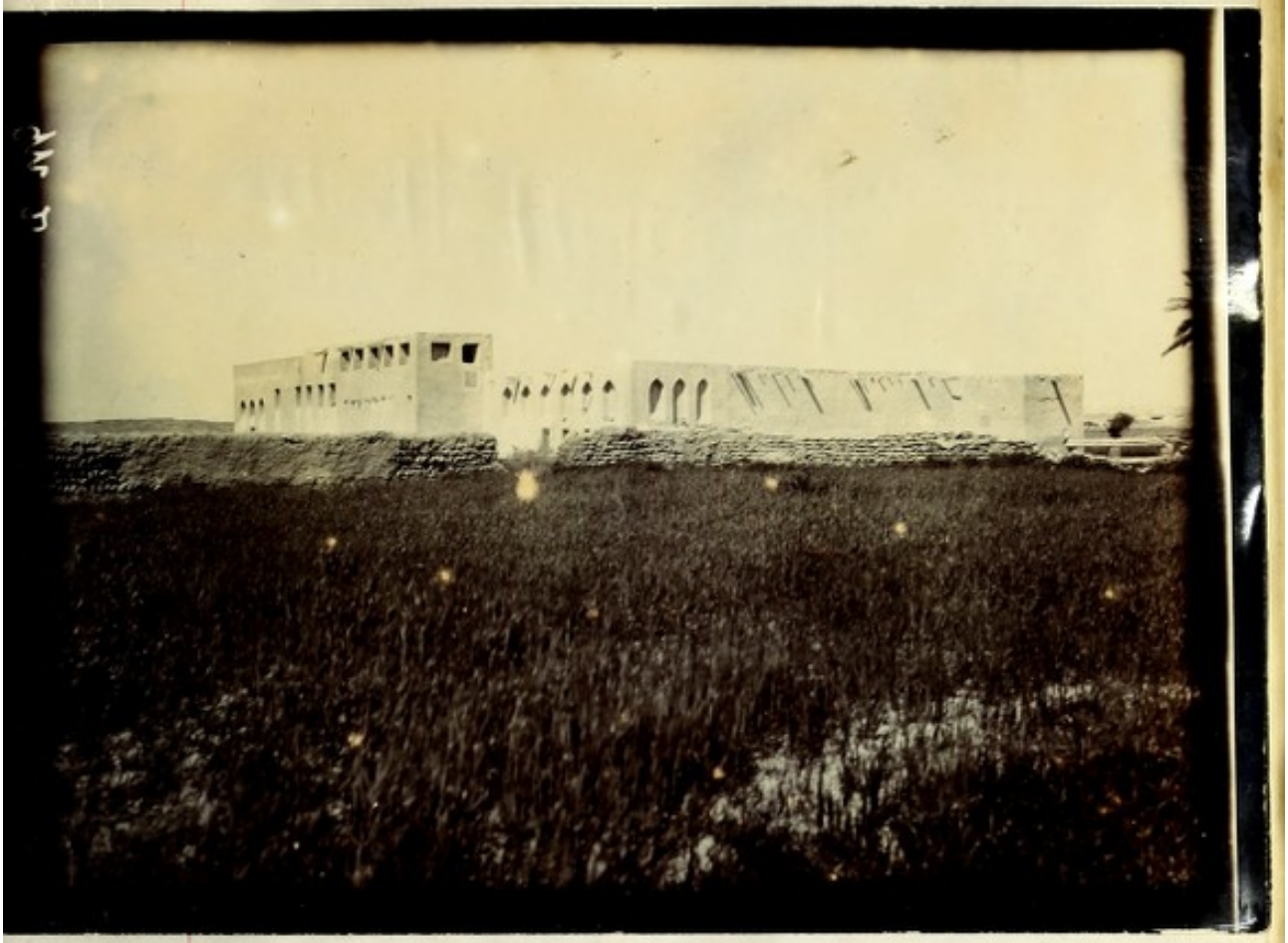
Bahrein is the largest of a group of islands situated about half-way up the Persian Gulf, on the Arabian side. It is about 30 miles in length and 10 in breadth. Its port and principal town is Manāma, at which the British India slow boats call weekly on their way up the Gulf, and fortnightly on their way down. Other large vessels also call less frequently; many native craft trade to and from Manāma. These native craft come from many parts of the Gulf to Bahrein for the pearl fishery; and Manāma is also a port of transport for the neighbouring parts of Arabia, which have no steam-port. There is good anchorage, well-sheltered, in Bahrein Harbour, but, owing to the shallowness of the water near the land, large vessels have to anchor 4 miles off Manāma, while vessels of moderate draught get little more than 2 miles nearer.

The town of Manāma has about 20,000 inhabitants, housed in stone and mud buildings or in mat-huts. The general sanitary circumstances are such as have been indicated elsewhere. The water supply of the town, however, deserves special mention. It is mainly derived from a spring about 3 miles away, which is one of a series that come to the surface over a considerable area of the Bahrein group, the water of which is considered to come under the sea from the Arabian mainland. It is a spring of large volume, furnishing water which is beautifully clear, although slightly brackish, and free from risk of pollution at its point of exit from the ground. On its way to Manāma, however, in an open channel, it is subject to gross pollution, and by the time it has reached the town has ceased to be safe for drinking. Some of the inhabitants of Manāma fetch their water supply from a well about 7 miles distant, the water of which is said to be quite sweet and free from risk of pollution. The climate of Bahrein is very hot and humid from June to September, and rather cold in January and February. At other times it is said to be pleasant.

Basidu : water-reservoir.

View of Luiga from a house. H.P.

To face p. 12.



General view of Linga Quarantine Station.

Linga Quarantine Station; inner courtyard, northern angle.

To face p. 12.

Bahrein; South half of the town of Manama, taken from the roof of the British Consulate.

Source of the Spring mainly supplying Manama.

To face p. 12.

The Manama public water-supply, on its way to the town. Native washing his donkey in it.

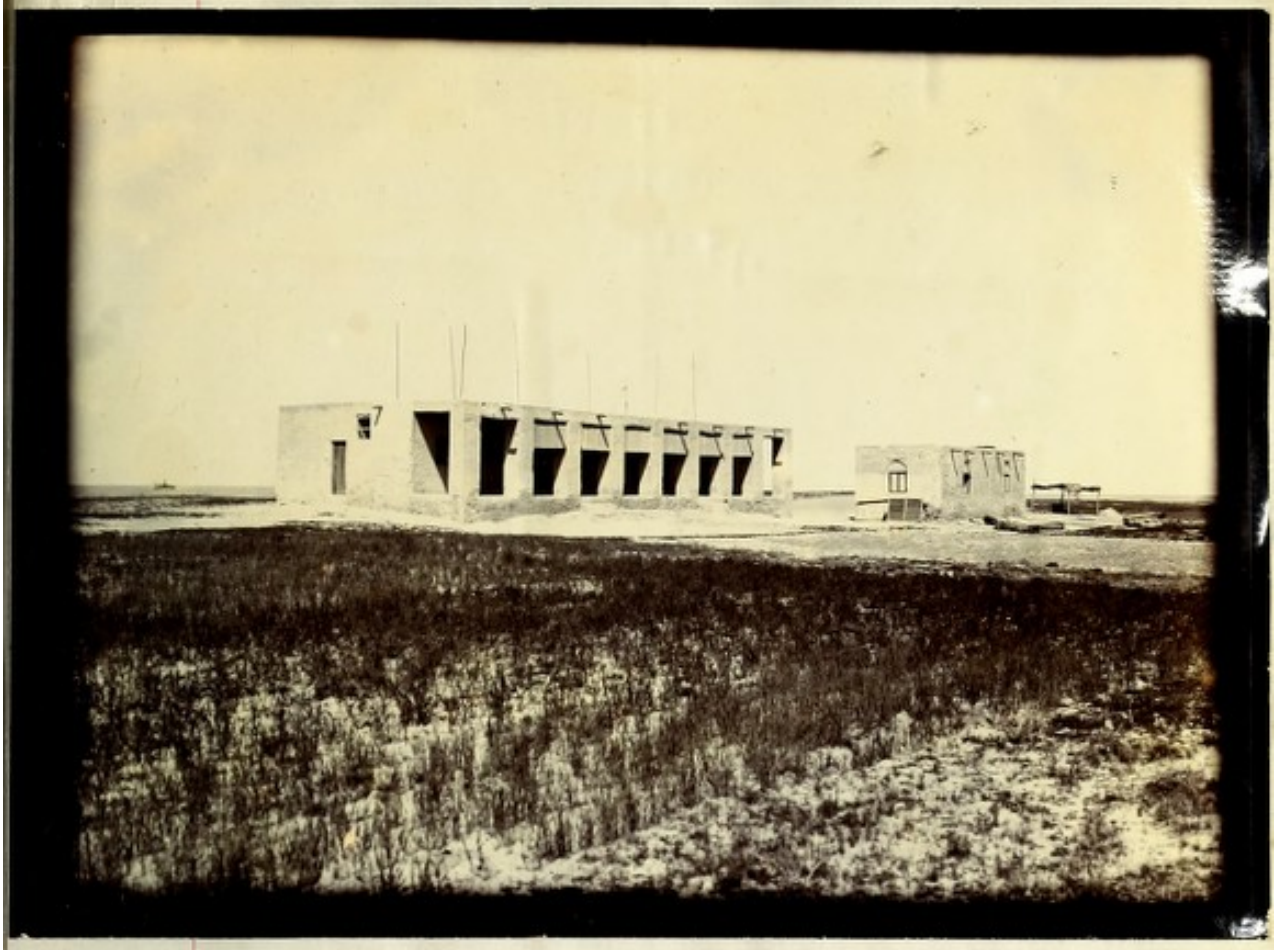
The Manama public water supply on its way to the town. Natives loading their camels with water from it.

to face p. 12.

View of Bushire from the roof of the British Consulate.

General view of Bushire Quarantine Station on Abassak Island. The second-class block is in the foreground on the left; the first-class block in the centre middle-distance; behind and on the right lie third-class huts & the disinfecting-Station.

To face p. 12.



Buchiri Quarantine Station; first-class block, with servants quarters & kitchen on the right.

Buchiri Quarantine Station; third-class huts in foreground, disinfecting Station behind.

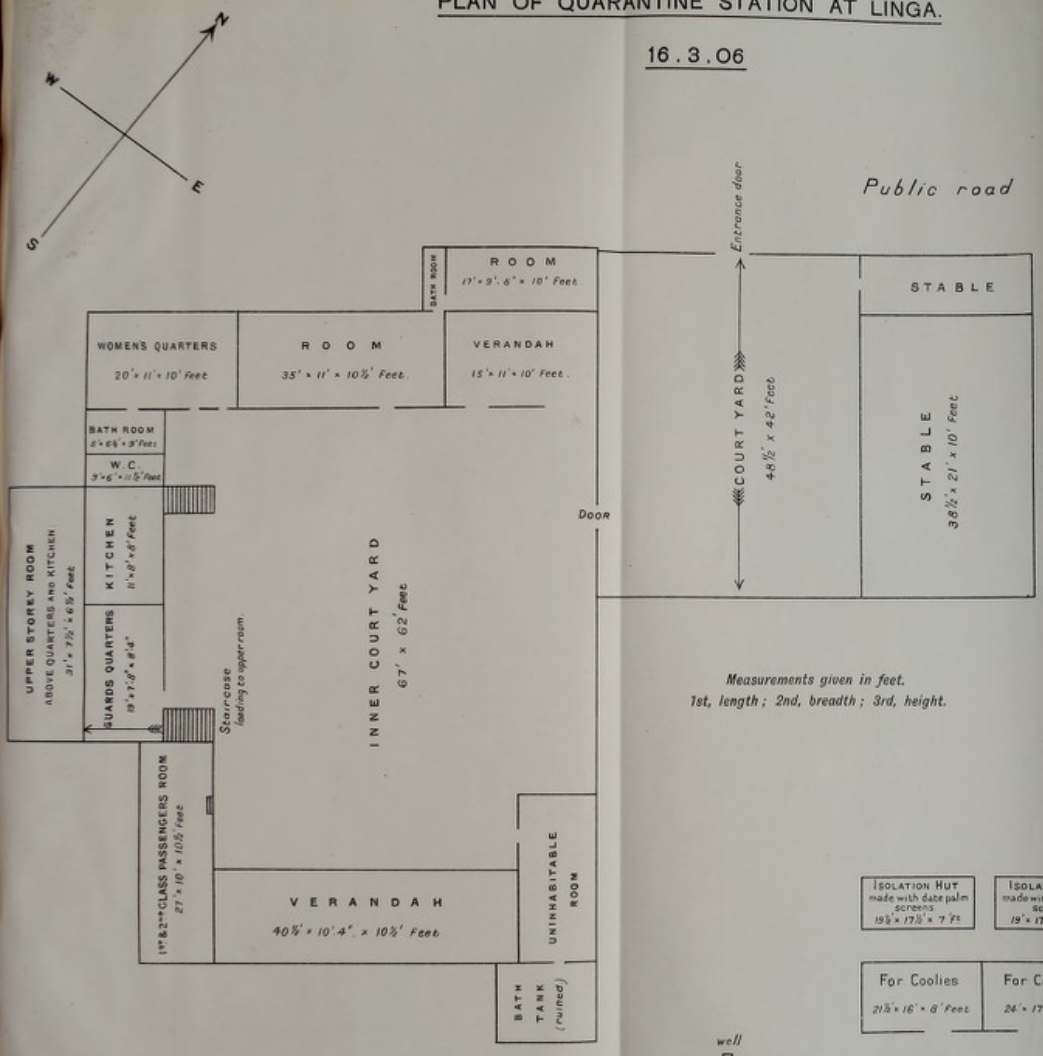
Koweit: water-market. Water-vendors bring water, loaded on donkeys, from wells outside the town, to the water-market for sale.

Street in Koweit.

To face page 12.

PLAN OF QUARANTINE STATION AT LINGA.

16.3.06



Measurements given in feet.
1st, length; 2nd, breadth; 3rd, height.

ISOLATION HUT
made with date palm screens
19½' × 17½' × 7' Ft

ISOLATION HUT
made with date palm screens
19' × 17' × 6'·8"

For Coolies
21½' × 16' × 8' Feet

For Coolies
24' × 17' × 8'·6"

Site of proposed 1st Class Quarters.

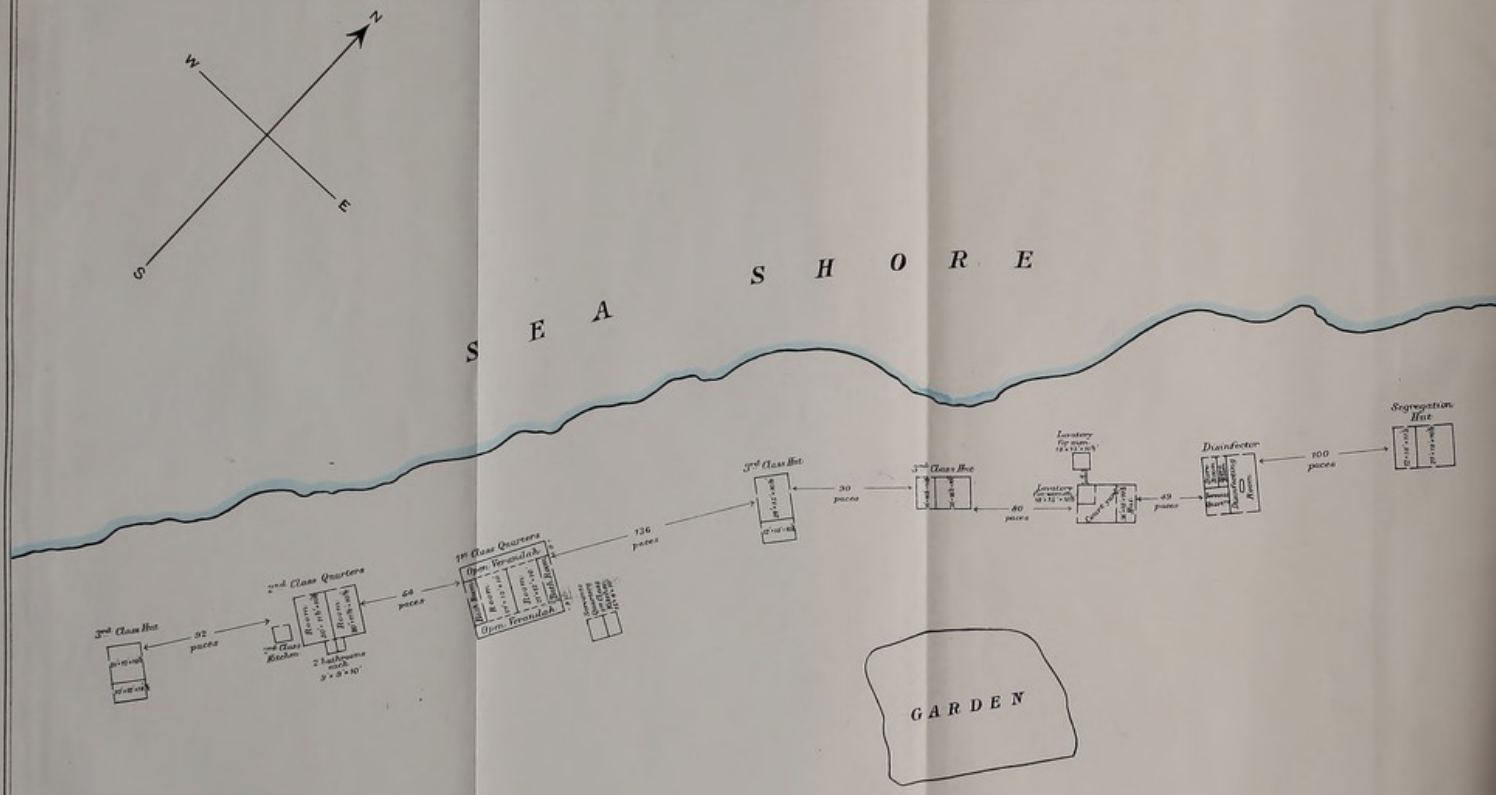
(If these quarters be erected, the public road will be diverted and this block will be connceted with the rest of the station by an enclosing wall.)

The Building with two rooms for Coolies is very old, and is built with mud walls and is without a pucka flooring, which would harbour rats.

(W. 3. 06. 3/7) F.O. 786

To face page 13.

PLAN OF THE QUARANTINE STATION AT BUSHIRE, PERSIAN GULF.



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The rainfall is small. Meteorological data for Bahrein are given in Appendix 3. There is no quarantine station at Bahrein, and no accommodation for the isolation of infectious sick; nor is there any disinfecting apparatus.

Bushire.

Bushire is the principal sea-port of Persia, and the most important trading base on the Gulf with the interior of that country. The British India boats, both fast and slow, call weekly on their way up the Gulf and also on their return journey. The outer anchorage, which is exposed to winds from the north-west and south-east, is about 5 miles from shore; the inner anchorage, which is good and well sheltered, lies nearly 3 miles from the town. The town, which has a population of about 15,000, is largely composed of two-storeyed stone houses, and much resembles other towns on the Gulf as regards general sanitary circumstances; its streets, however, being narrower and dirtier than in most. There are some wells in the town, but these yield brackish water and are said not to be resorted to for drinking purposes. There are also private reservoirs in which is collected and stored rain-water from roofs and the yard surface; this supply is not free from risk of dangerous pollution. Mostly, however, the inhabitants fetch their water from two groups of wells situated respectively about 2½ and 5 miles to the south of the town. Risk of dangerous pollution of this supply exists, but is not great; the water, however, induces serious intestinal disturbance in those unaccustomed to it. Some of the Europeans in Bushire get their water in barrels from Basra.

The climate of Bushire is very hot during the period June–September; the heat is combined with humidity which, although less than that noted at Bahrein, is considerable. The annual rainfall is usually about 12 inches. Statistical information on these points in given in Appendix 3.

There is a quarantine station at Bushire, situated on the low, flat, sandy Island of Abassak, about 2 miles north-east of the town. The island is some 5 miles long by ¾ of a-mile broad, and is uninhabited save at its north end, where there is a small village. The quarantine station is at its south-western extremity. Approach to it is rendered somewhat inconvenient by the extreme shallowness of the water for a considerable distance from the shore. The station buildings are not inclosed by any wall or fence, but, as already indicated, there are no human habitations within 5 miles. The buildings afford accommodation for first-class, second-class, and third-class passengers.

The first and second-class buildings are of stone, covered externally with a coating of cement, and have flat roofs, which may be used for sleeping purposes in hot weather. They have concrete floors, external kitchens, and, in the first-class block, bath-rooms. Bath-rooms are about to be constructed for the second-class block. Both blocks are comfortably furnished. The third-class accommodation consists of four mat-huts. There is also a hut for segregation of infectious or suspicious cases at the northern extremity of the station. There is a stone building in which there is a high-pressure steam-disinfecting chamber, 7 ft. 6 in. long by 3 ft. 6 in. in diameter; the interior of the building, however, is not divided into two compartments, one for infected, the other for disinfected, articles. The wells on the island yield brackish water; water and provisions are brought from Bushire. A plan, drawn approximately to scale, showing the position and dimensions of the several buildings, is appended, as also are three photographs showing the station as a whole, as well as the appearance of the first, second, and third-class accommodation and the disinfecting house.

Koweit.

Koweit is situated on the southern shore of a bay, about 20 miles long by 10 miles in breadth, in the north-western corner of the Persian Gulf. British India boats call fortnightly on their way up and down the Gulf; there is little other steam communication with the port. But native craft trade to and from Koweit in considerable numbers, chiefly between it and the Turkish coast of the Gulf, Bahrein, Mohammerah, and Basra. About 400 boats, with an average crew of twenty men, go annually from Koweit to Bahrein during the pearl-fishing season (May to September). Large vessels anchor about 1¼ miles off the town.

The town, which has a population estimated at from 30,000 to 35,000, is mainly composed of one-storey houses of sun-dried bricks coated externally with cement, although there are many mat-huts in its suburban parts. Its sanitary circumstances are much like those of other Gulf towns, but its streets are rather wider and decidedly cleaner than in most. The system of excrement disposal includes the utilization of excavated patches within the town for deposit of refuse; to these patches many of the inhabitants resort to ease themselves. In considerable degree this saves streets from being used for like purposes. In part, water is obtained from wells in house yards or from tanks taking the yard surface water; such water is liable to dangerous pollution. But large numbers of the inhabitants fetch their supply from surface wells sunk in the desert about ½ a-mile from the town. This water seems little liable to dangerous pollution, but is brackish. Better water is said to be available from wells 3 miles distant, and still better water, it is stated, may be had from other wells some 7 miles away. In times of drought water becomes scarce and dear. No meteorological data as regards Koweit are available, but the climate is said to be very hot in summer, and sometimes very cold in winter.

There is no quarantine station or isolation accommodation for cases of infectious disease, nor any disinfecting apparatus, at Koweit. Koweit is about 100 miles by land from Basra, with

which there is regular daily communication, although such communication is not of large amount. In ordinary circumstances, a person travelling by horse or camel takes three days to make the journey. There are four small villages on the route.

Fao.

Fao is a small village on the right bank of the Shatt-al-Arab, about 4 miles from its mouth. From Fao by river to Mohammerah is 42 miles, to Basra 64 miles. The village consists of about thirty mud huts, the Turkish Governor's residence, the buildings of the Indo-European telegraph station here, and a quarantine hut. A Turkish Customs official and a Turkish Quarantine officer reside at Fao. A photograph of Fao, taken from the river, is annexed.

Fao has on several occasions been suggested as suitable for a quarantine station for shipping proceeding to Basra and Mohammerah, and many absolutely contradictory statements regarding matters of fact have been made in relation with this proposal.

There is a good depth of water in the river at Fao, as much as 17 feet even when the river is low, and more than that a little above the village. But the anchorage is not good, owing to the bottom consisting of soft and shifting mud, allowing the anchor to drag. The bottom is not, as has been asserted, as good as that at Basra, where it is good firm mud, in which the anchor does not drag. Along the right bank of the river stretches a belt of date-grove, which at Fao is about ½ a-mile wide, and abuts on the desert to the west. The land is low-lying, and under irrigation. It is inundated every year during high tides, when all the ground around the telegraph station is under water. On rare occasions the telegraph station itself, which stands on the highest ground hereabouts, has been known to have ½ a-foot of water in its rooms on the ground-floor. Fresh water can be obtained from the river at Fao, except when the river is low, which it is during July, August, and September. During these months, in order to obtain fresh water from the river, it is necessary to go up it as far as 10 or even 15 miles; at these times the telegraph officials fall back on water stored in tanks, of which there are seven, each with a capacity of 400 gallons, at the station. Well-water is brackish. Practically no provisions save dates are to be had locally, only a few sheep and cattle are kept, and a small amount of lucerne is grown. A quarantine station at Fao would have to be provisioned from Bushire, Mohammerah, r Basra. There is no stone or other suitable material wherewith to construct quarantine station buildings; the village huts are of mud, with mat or date-leaf roofs, and the Governor's residence and the telegraph station buildings are of wood (imported). The heat, as may be seen from the temperature records given in Appendix 3, is excessive from June to September, the mean of the dry-bulb readings being almost always more than 100° Fah. during all those months, and the maximal temperatures rising as high as 117° and 118° Fah. Except in winter, mosquitoes swarm at Fao. The villagers suffer severely from malaria, as also do the telegraph station officials. Last year (1905) the whole telegraph staff (four Europeans) and the Superintendent's wife were attacked by malaria. All the attacks were severe, and, in three instances, the illness was of long duration.

It is evident from the foregoing facts that Fao is entirely unsuited as a site for a quarantine station. It may be noted also that it would fail in the object it would pretend to secure since, without agreement on the subject between the Turkish and Persian Governments, vessels bound for Persian territory could not be compelled to bring-to at this Turkish station. Furthermore, many native craft bound for Mohammerah, would, as they now do, in order to evade exactions by Customs and Quarantine officials, use the Bahmishir instead of the Shatt-al-Arab. (The Bahmishir River runs roughly parallel with the Shatt-al-Arab from the head of the Gulf to the Karun River, on which Mohammerah is situated). Nor is it to be forgotten that Basra commerce would suffer severely from detention of ships bound for Basra in quarantine at Fao. The advantage to trade resulting from the present practice of allowing vessels in quarantine at Basra to discharge cargo during their quarantine would thereby be sacrificed.

Mohammerah.

The town of Mohammerah is situated on the right bank of the Karun River, about a mile above the point at which it flows into the Shatt-al-Arab. There is a fair amount of steam-ship communication with Mohammerah; and the British India fast boats call weekly, both on their journey up and their journey down the Gulf, while their slow boats call fortnightly. Steam-ships, however, do not go up the Karun to Mohammerah, but lie in the Shatt-al-Arab off the mouth of the Karun. But native craft, which trade to and from Mohammerah in considerable numbers, proceed to the town and lie alongside the bank of the river there. There is a good deal of communication between Mohammerah and the interior of Persia. There is a fortnightly service of steamers between Mohammerah and Ahwaz, and, beyond Ahwaz, a service of steamers to Shushtar. Mohammerah is 22 miles from Basra, and there is constant communication between the two places by river and by road.

The population of the town of Mohammerah is probably about 5,000 or 6,000, residing mostly in houses of sun-dried bricks or in mat-huts, although there are also some good stone buildings. As usual in these regions, sewerage, drainage, street-paving, and scavenging arrangements are lacking; the particular characteristic of Mohammerah is its excessive filthiness. In this respect it is the worst of the places visited by me in the Persian Gulf and its vicinity. The water supply is mainly derived from the Karun, and is usually taken at points where the

Fao from the Shatt-al-Arab. The tall buildings towards the right of the photograph are the Turkish Governor's residence and the Indo-European Telegraph Station.

Creek in Mohammerah.

To face p. 14.

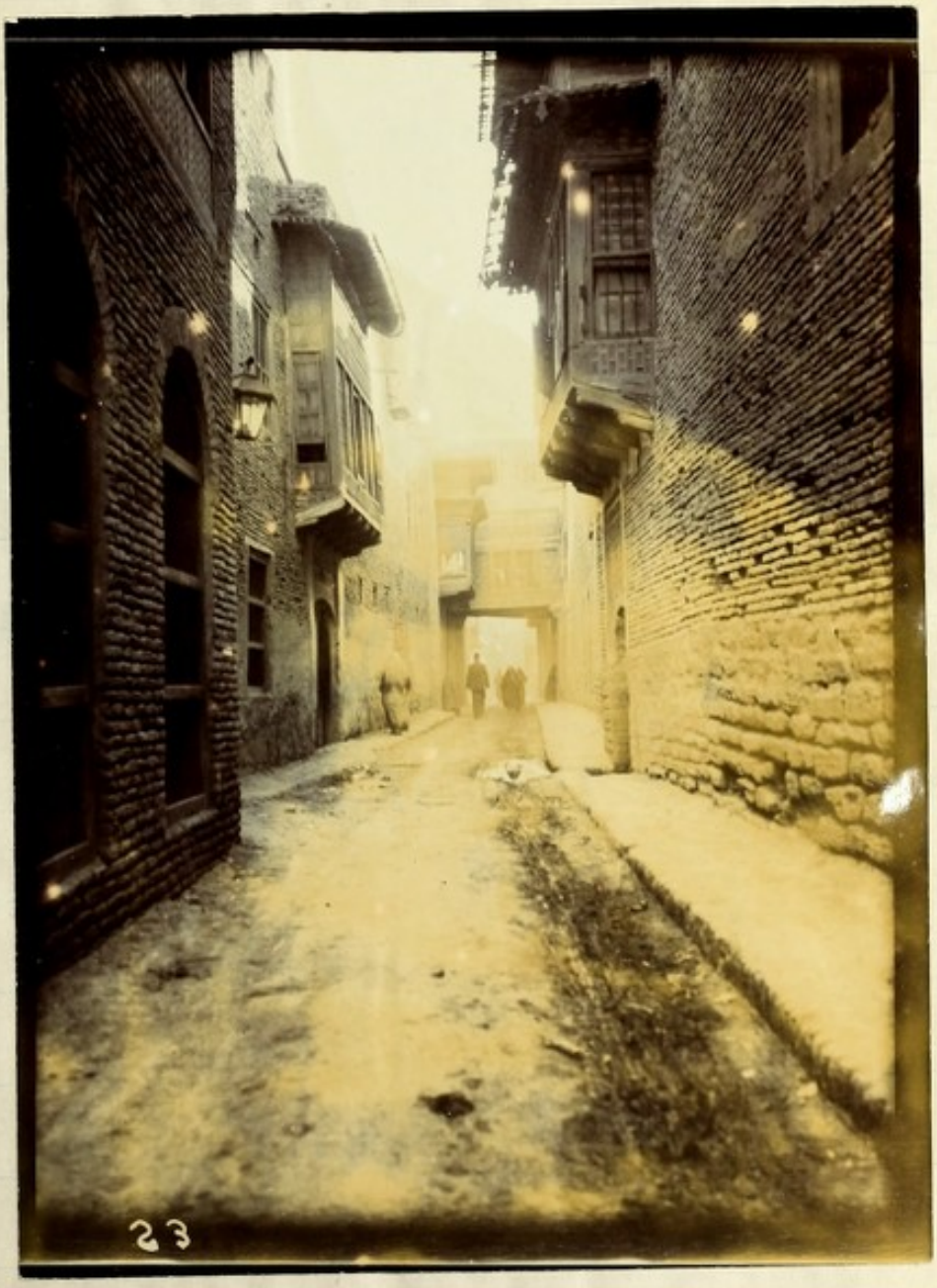
Street in Mohammerah.

eet in Mohammerah. This photograph shows well the central channel which, Mohammerah streets, is the receptacle for liquid & solid sewage & refuse of all sorts.

To face p. 14.

Front view of the Mohammerah Quarantine Station. The low mud wall that encloses the site is seen running forward from the building.

Creek in Basra.



Street in Basra.

To face p. 14.

View of Basra Quarantine Station from the bank of the river. First-class quarters in the centre of new brick building on right; second & third class quarters on left.

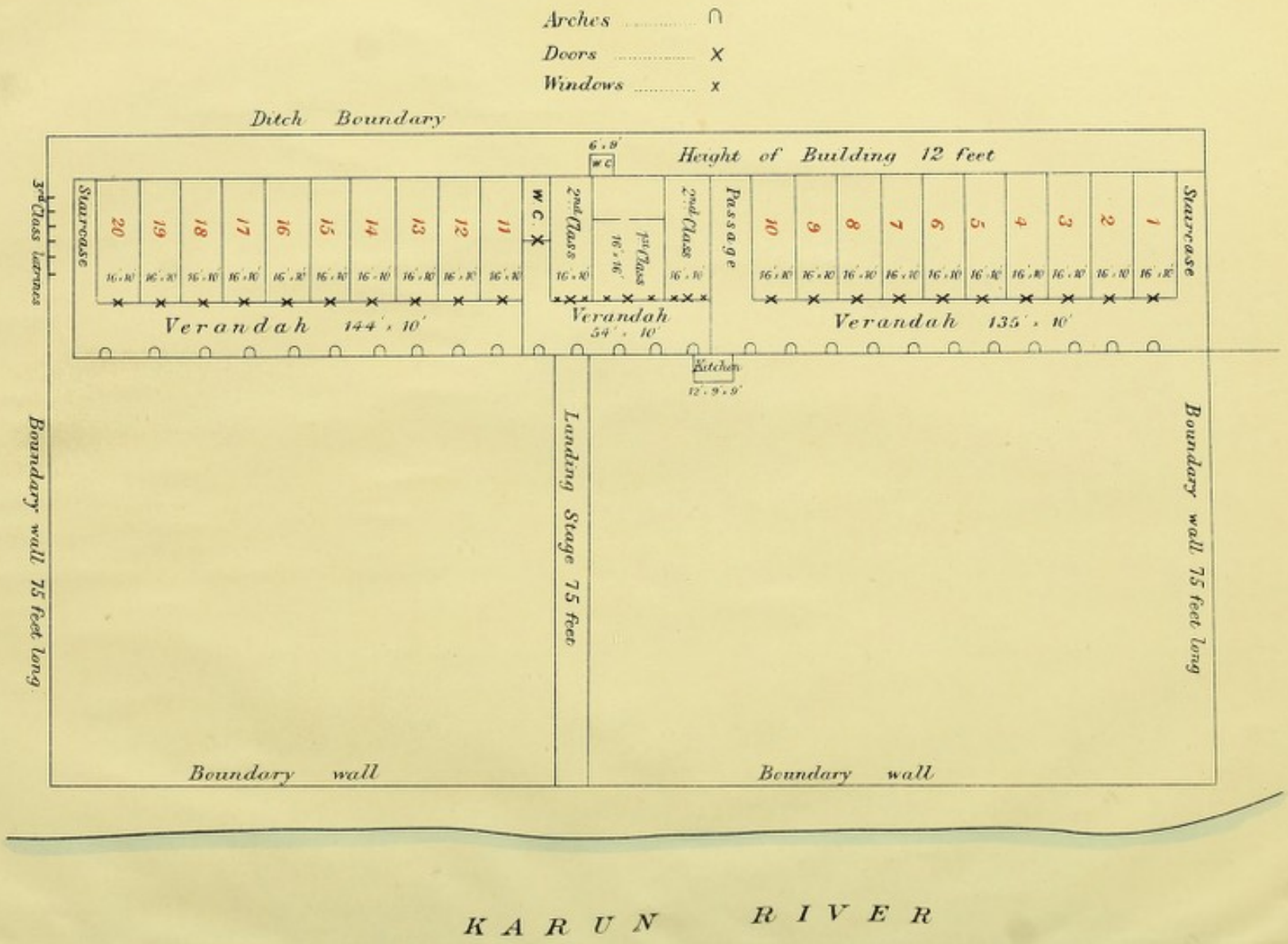
Basra Quarantine Station: first class block.

To face p. 14.

Basra Quarantine Station: 2nd class block.

Basra Quarantine Station; some of the 3rd class huts. (The brick building on the right behind is the 2nd class block.).

SKETCH OF QUARANTINE BUILDINGS, MOHAMMERAH.



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river is fouled by the liquid and solid refuse of the town. Drinking-water is also sometimes taken from grossly polluted small creeks that intersect the town. As will be seen from the data given in Appendix 3, the climate of Mohammerah is characterized by great heat in summer, while in winter it is cold, the thermometer sometimes falling to freezing-point.

There is a quarantine station at Mohammerah, situated on the left bank of the Karun, close to its entrance into the Shatt-al-Arab. It consists of a long one-storeyed building of sun-dried bricks coated externally with cement. It contains twenty rooms, three of which are for first-class and second-class passengers, while the remainder are for third-class. The roof, which is flat, is utilized for sleeping accommodation in hot weather, shelter being afforded by matting stretched on poles. A verandah runs along the whole length of its front. There is kitchen, bathing, and privy accommodation for first and second-class, and washing and latrine accommodation for third-class. The site is inclosed on three sides by a low mud wall; the fourth side is formed by the building itself, which has no opening to the back except small holes for light and ventilation. There is no special provision for isolation of infectious cases other than a mat-hut about 200 yards from the quarantine station site; this hut is close to the quarters of the Medical Officer in charge of the station and the house of a Customs official. A plan is annexed which shows the area of the site, and the arrangement and dimensions of the quarantine buildings; a photograph of these is also annexed. The water supply is taken from the Karun River. There is no disinfecting apparatus.

Basra.

Basra is situated on the right bank of the Shatt-al-Arab about 70 miles from the sea. It is a port of importance in respect of traffic by steam-ships as well as native craft. The British India fast boats call here weekly, and their slow boats fortnightly. There is a British and also a Turkish service of steam-boats between Basra and Bagdad.

It is only what may be termed the European quarter of Basra that is strictly on the Shatt-al-Arab; this consists mainly of business premises and good residences. The town proper is nearly 2 miles from the river, with which it is connected by a creek. The estimates of the population of Basra and its suburbs differ widely; probably that which puts it at about 60,000 is the most correct. In the town proper dwellings are mostly of brick, in the suburbs are many mud and mat-huts. The general sanitary circumstances are much like those of other places described in this Report, but there is some public scavenging, and the streets are consequently cleaner than in most towns in the neighbourhood of the Persian Gulf. The water supply, however, is largely derived from grossly-polluted creeks which intersect the town. The climate is very hot in summer and cold in winter. Meteorological data are given in Appendix 3.

There is a quarantine station* at Basra, situated on the left bank of the river about 1½ miles below the European Settlement. Its site, which is bounded by the river on one side, by a creek on another side, and by land under cultivation on the other two sides, is about 200 yards long and about 80 yards broad at its widest part. It is not inclosed by any wall or fence. It has first-class, second-class, and third-class accommodation, some provision for staff, and a disinfecting house and shed. The first-class accommodation consists of a one-storeyed flat-roofed structure of sun-dried bricks. It contains four rooms, each about 24 feet by 12 feet and 14 feet in height, two on each side of a central passage, 12 feet in width, which runs the whole depth of the building. It has kitchen and privy accommodation outside. On one side of it is a new brick building of larger size; I could not clearly ascertain whether it is intended to serve as additional first-class accommodation. On its other side, some 20 yards off, is the second-class accommodation, which is also of sun-dried brick and flat roofed. It is about 30 by 35 yards, with two interior courtyards, off which its rooms open; it is divided into two by a central wall running its whole length from front to back. In the half that I examined there are five rooms; presumably the other half is similar. Latrine accommodation is provided. As regards the remainder of the accommodation, I could not always be sure what was for the quarantined and what for staff. Besides a shop, and a mat-hut intended for soldiers (guard), I counted ten huts, three of them subdivided into compartments, huddled together in a confused medley. Their approximate measurements are as follows:—

(*a.*) 70 feet by 12 feet. (*b.*) 50 „ by 12 „ (*c.*) 30 „ by 12 „ (*d.*) 30 „ by 12 „ (*e.*) 34 „ by 9 „	Height to the eaves, about 6 feet.	(*f.*) 21 feet by 9 feet. (*g.*) 75 „ by 9 „ (*h.*) 160 „ by 9 „ (*i.*) 30 „ by 9 „ (*j.*) 30 „ by 11 „	Height to the eaves, about 6 feet.

The walls of these huts are, in some instances, of sun-dried bricks, in others, of date sticks; they are roofed with matting. There is no accommodation suitable for the isolation of infectious or suspicious cases. The disinfection house is divided into two compartments: one for infected, the other for disinfected articles; the disinfecting apparatus is a steam chamber. The water supply is taken from the river.

Photographs of the station buildings are annexed.

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* My information as to the circumstances of this station comes mainly from personal observation during a short period of quarantine which I underwent there; it is incomplete, and the measurements given by me are only approximate.

APPENDIX 2.

AN ACCOUNT, WITH COMMENTS, OF THE ADMINISTRATIVE PROCEDURE IN FORCE AT THE PORTS OF MASKAT, JASHK, BANDAR ABBAS, LINGA, BUSHIRE, MOHAMMERAH, BASRA, KOWEIT, AND BAHREIN, IN RESPECT OF CHOLERA AND PLAGUE.

MASKAT.

The administration of health measures at the port of Maskat is controlled by Captain Lethbridge, I.M.S., whose services have for this purpose been placed at the disposal of the Sultan of Oman by the Indian Government. The following notice gives the Quarantine Regulations now in force at this port:—

"MUSCAT.

"*Notice.*

"THE following Rules and Regulations made by His Majesty's Consul are published for general information.

(Signed) "P. Z. COX, *Major*,
His Majesty's Consul.

"*Muscat, July* 6, 1903.

"RULES AND REGULATIONS UNDER ARTICLE 1 OF THE MUSCAT ORDER IN COUNCIL, 1867.

"No. 2 of 1903.

"*Quarantine.*

"In pursuance and by virtue of the powers vested in His Britannic Majesty's Consul by Article 1 of the Muscat Order in Council of 1867, British subjects and British protected persons are hereby reminded that the Regulations at present enforced by the Government of His Highness against arrivals at Muscat by sea, for the prevention of plague and other epidemic diseases in his territories are as follows:—

"*Muscat Quarantine Regulations.*

"1. All vessels arriving from ports affected with plague or other infectious disease are placed in quarantine until ten days have elapsed since the date of their leaving the last infected port.

"2. First-class passengers are inspected prior to disembarkation, but are not placed in quarantine on shore unless there appear to the Health Officer to be special grounds for that course.

"3. Second-class passengers are likewise medically inspected prior to disembarkation, but are required in addition to present themselves daily at the hospital for medical inspection for the period of one week.

"4. Third-class or deck passengers are inspected on board, and from thence conveyed direct to the quarantine station by boat, and are required to remain there for a period of one week.

"5. Ships of war on arriving from infected ports are required to quarantine their crews on board until a period of ten days has elapsed since the date of departure from the last infected port.

"6. No person is allowed to board any vessel which is in quarantine without special permission from the Health Officer.

"7. Persons violating these Regulations are liable to punishment with fine or imprisonment, or both.

"The Rules of His Highness above quoted will be strictly inforced against British subjects and British protected persons, and individuals charged with the breach thereof will be subject on conviction to fine up to 500 dollars or imprisonment for three months, in accordance with the provisions of Article 3 of the said Order in Council.

(Signed) "P. Z. COX, *Major*,
His Britannic Majesty's Consul, Muscat.

"*Muscat, July* 6, 1903."

In the event of there being on board a person sick of plague or cholera, who is bound for Maskat, this person is landed and sent to the quarantine station; if, however, Maskat is not his destination, he is not taken ashore, but goes on in the vessel to the next port. There are no special rules regarding "suspected" ships. No measures of disinfection or rat destruction are taken as regards any ship; there is no adequate material available for these purposes. When Maskat is itself infected with plague or cholera, persons leaving it for other ports are not inspected prior to departure. Pilgrims leaving Maskat for the Hejaz, of whom there are usually some 200 yearly, are not inspected before departure; on their return they are subjected to inspection, and if there be infectious disease among them, they are detained at the quarantine station.

The procedure described as obtaining at Maskat is, in several respects, not in accord with the principles embodied in existing International Sanitary Conventions concerning cholera and plague. In some respects, such as following the classification of ships and periods of detention under observation based thereon, as laid down in these Conventions, there is no apparent reason for this want of agreement. For certain shortcomings in the Maskat procedure, deficiencies in the sanitary equipment of the port, as instanced notably by the absence of efficient means of disinfection, are responsible. Nor are the arrangements at the quarantine station satisfactory; neither, in the absence of any surrounding wall or fence, as regards its close proximity to a native village, nor in the character of its accommodation for the sick. Its lack of accommodation for first- and second-class passengers governs, or is governed by, the substitution of surveillance for observation as regards these persons, a general question that I propose to consider in dealing with Persian ports.

The Persian Ports of Jashk, Bandar Abbas, Linga, Bushire, and Mohammerah.

At Jashk, Bandar Abbas, Linga, Bushire, and Mohammerah, the sanitary administration of the port devolves upon assistant surgeons of the Indian Subordinate Medical Service, one of whom is stationed at each place; while Captain Condon, I.M.S., who is stationed at Bushire, exercises general supervision and control of all. The services of these officers have, for this purpose, been placed at the disposal of the Persian Government by the Government of India. Subject to certain exceptions, which are noted below, the principles of International Sanitary Conventions in force, prior to that of 1903, as regards cholera and plague, are observed in these ports. One of these exceptions consists in the substitution of surveillance for observation in the case of first-class passengers on vessels from infected ports; whereas International Conventions prescribe, in the case of Gulf ports, observation without any option of surveillance.

At Jashk, only third-class passengers undergo observation in the quarantine station; first-class and second-class passengers reside under surveillance, if Persians of importance, at the fort; if Europeans, at the telegraph station. At Linga, only second and third-class undergo observation at the quarantine station; first-class passengers get off with surveillance. Occasionally, the like has occurred at Bushire, in the case of unprotected females or persons ill of a disease not open to suspicion of being infectious. I take no exception, on general grounds, to these departures from the principles laid down in International Conventions in respect of procedure in the Persian Gulf; indeed, I fail to understand why the option of surveillance should have been absolutely excluded in these regions. I have not hitherto seen any place where surveillance could be so easily and certainly secured as regards Europeans and natives of some note, who are in the way of travelling first or second class, as in the places I visited in the Gulf of Persia and its neighbourhood. But, since international obligations call for observation only, surveillance should not, so long as this is so, be granted in place of observation. In some degree, probably, surveillance has been resorted to by reason of inadequate accommodation at the quarantine station. At Jashk there is no such provision for first- and second-class passengers, and, indeed, what accommodation there is is unfit even for third-class passengers. At Linga there is only one room available for first-class and second-class passengers, whereas there should be accommodation sufficient to permit separation of classes and sexes. At Bushire this class of accommodation is good, and apparently sufficient.

At the end of this Appendix Tables are given which show, month by month, for a period of one year, the numbers of persons quarantined at each of the ports now under consideration, and also the numbers of persons who, during that period, either landed suffering from cholera or plague, or developed one or other of those diseases after landing and while still in quarantine. These data afford some guide as to the amount of quarantine accommodation likely to be needed at each place.

In addition to what I have already stated in relation with this subject, I have to point out that the station at Bandar Abbas is deficient in so far as that, notwithstanding its proximity to a native village, it is not inclosed by any wall or fence, and that the first- and second-class accommodation is not sufficient to provide for separation of the sexes. The provision for isolation of the infectious sick is not satisfactory at any of the quarantine stations at the ports I am now considering. A date-stick hut is not suitable for this purpose at all seasons of the year in the Gulf, more particularly if the occupant should happen to be an European, who is not likely to be accustomed to accommodation of this kind. Neither can these huts always be trusted not to get blown down in high winds. A stone or brick building, properly constructed, and suitably situated, for the isolation of suspicious or infectious cases, is necessary to satisfactorily complement these stations.

Disinfecting operations generally consist of fumigation with sulphur and the use of solutions

of such disinfectants as perchloride of mercury and carbolic acid. There are many circumstances in which disinfection by these means is inefficient. Bushire alone possesses a steam disinfecting-chamber. The building in which this apparatus stands should be divided into two compartments, one for infected, the other for disinfected articles.

In the event of any of these ports becoming infected with plague or cholera, persons sailing from that port are medically inspected before going on board ship. Pilgrims sailing from these ports are not medically inspected prior to departure unless the port is infected. Returning pilgrims are medically inspected.

Rat destruction in relation with plague on ship-board is not resorted to at any of these ports.

Bahrein and Koweit.

An assistant surgeon of the Indian Subordinate Medical Service is stationed at both Bahrein and Koweit, under the general control and supervision of Captain Condon, I.M.S. At neither place are any measures adopted with a view to preventing the importation of cholera or plague, or the exportation of these diseases in the event of their occurrence locally. The duties of the assistant surgeons are to watch the general health of the places at which they are respectively stationed, and to report to Captain Condon local occurrences of infectious sickness and other matters of interest in relation with the public health.

Basra.

Port sanitary measures at Basra are in charge of two medical officers in the service of the Constantinople Board of Health. The measures applied to incoming shipping, based upon Regulations that have been made by that Board from time to time, are in several respects unduly stringent. As regards ships from India, the nature of these measures in relation with plague is most conveniently shown by a statement of what happens to the fast mail-boat and the slow mail-boat from that country on arrival at Basra. The fast mail, which takes five days from Karachi to Basra, is put in quarantine for five days. This boat discharges her cargo in quarantine, and leaves Basra before the expiry of the five days. Passengers by this boat undergo five days' quarantine, part of which they usually do on board, the remainder in the Basra quarantine station. The slow mail, which is timed to reach Basra ten days after leaving Karachi, is put in quarantine for two days. This boat is usually a day or so late, in which event, however, she still has to do her two days' quarantine. Vessels from India are liable to measures of disinfection and rat destruction. If they carry more than one pilgrim per 100 tons net register, however, they do ten days' quarantine at Basra, while no ships may carry pilgrims in a proportion greater than 5 per cent. of her tonnage. It is to be borne in mind that the measures I have briefly summarized are a good deal more lenient than they used to be, inasmuch as two years ago the quarantine period against ordinary ships from India was reduced by five days, and, prior to March 1901, the admission of Shiah pilgrims from that country was absolutely prohibited. The quarantine reduction, however, is only provisional, and seems to have been made in consequence of the inadequacy and unsatisfactory condition of the quarantine accommodation. The measures applied to Indian vessels, although more lenient now than formerly, are nevertheless more rigorous than those prescribed by the Vienna Convention of 1897, and much more so than those of the Paris Convention of 1903.

By a circular of the 14th January, 1904, vessels from Persian ports are subject to medical visit, disinfection, and, if necessary, measures of rat destruction; these operations not to exceed twenty-four hours. By a later circular (the 20th June, 1904), arrivals from Bushire (a Persian port) undergo twenty-four hours' observation, medical inspection, and strict disinfection. I myself, having arrived at Basra from Bushire, was detained at the quarantine station for eighteen hours, and was seen by the medical officer in charge; my baggage was not disinfected. It was not clear to me whether I was undergoing quarantine or whether I was being treated in accordance with the circular of the 14th January, 1904, which allows twenty-four hours for the measures it prescribes. In any case, the measures applied to arrivals from Persian Gulf ports, all of which have long been free from cholera and plague, are entirely without justification. Still more reprehensible is the Basra practice as regards arrivals from Maskat and Bahrein, neither of which are "infected" places. Vessels from these places, or that have called at either of them, undergo two days' quarantine at Basra, and are liable to disinfection. When I was at Basra a large steam-ship, that had come direct from England, and had called at no infected port on the way out, had, I found, been subjected to two days' quarantine on her arrival at Basra because of her having touched at Maskat. Procedure such as this is seriously detrimental to trade, and is in no way called for in the interests of the public health. It is greatly to be desired that the Constantinople Superior Board of Health should bring its port health administration at Basra more into line with modern practice. The quarantine measures now in force at Basra not only seriously hamper trade, but are also prejudicial to the public health of the community there, inasmuch as their unreasonable stringency constantly leads to efforts to evade them; efforts which it is matter of local notoriety are largely successful. The port sanitary administration of Basra is also unsatisfactory by reason of the inadequacy and defective

character of the accommodation provided at the quarantine station. The following figures show month by month, the numbers of persons who underwent observation at this station in 1905:—

January ...	1,709
February	1,204
March ...	1,526
April ...	1,134
May ...	1,013
June ...	340
July ...	244
August ...	328
September	1,255
October ...	871
November	610
December	1,301
Total ...	11,535

The site on which the present station is is not large enough to provide space sufficient for an adequate number of buildings sufficiently apart from one another. The actually-existing structures for second- and third-class passengers are so crowded together as to render prevention of communication between different groups of persons occupying them impossible. There has, however, for some time been question of constructing a new quarantine station on another site, a proposal which, it is to be hoped, may before long be carried into effect. There has, in the past, been a good deal of discussion as to where the site of the new quarantine station should be, and many places have been suggested as suitable. Most of the places suggested are too far from Basra. The station should not, if possible, be farther from it than is the present one. I inspected both sides of the Shatt-al-Arab for about 10 miles below Basra, and came to the conclusion that the site proposed on Kut-al-Jou is the best available. It is close to the present site, from which it is separated only by the Salahie Canal. The Salahie Canal and a creek running into it form its southern boundary. The three remaining sides are bounded respectively by the Shatt-al-Arab, the Kut-al-Jou Canal, and land under cultivation (date grove). Save for a few huts the site is uninhabited, and there is no material aggregation of population in its neighbourhood. The land is flat. It is also low-lying, but this is true of all the land on both sides of the Shatt-al-Arab in the neighbourhood of and for many miles below Basra. The Kut-al-Jou site presents the advantages of affording sufficient land on which to construct an adequate quarantine station, of not being inconveniently far from Basra, and of having a considerable frontage on the river, while it has no disadvantages that are not shared by other possible sites.

TABLE (A).—Number of Persons Quarantined at Jashk during the year 1905.

Class.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
1st Class	...	...	...	...	...	...	...	1	...	1	...	...	2
2nd ,, ...	...	...	...	...	1	...	...	...	2	1	...	...	4
3rd ,, ...	16	10	5	4	9	3	14	6	8	7	12	19	113
Total of passengers ...	16	10	5	4	10	3	14	7	10	9	12	19	119
Number of persons landed in quarantine suffering from plague or cholera — 1st	...	...	...	...	...	...	...	...	...	...	...	...	...
2nd	...	...	...	...	...	...	...	...	...	...	...	...	...
3rd	...	...	...	...	...	...	...	...	...	...	...	...	...
Total of sick landed* ...	1	2	...	...	1	...	1	1	3	...	1	5	15
Number of persons who developed plague or cholera after landing in quarantine — 1st	...	...	...	...	...	...	...	...	...	...	...	...	...
2nd	...	...	...	...	...	...	...	...	...	...	...	...	...
3rd	...	...	...	...	...	...	...	...	...	...	...	...	...
Total sickness developed in quarantine* ...	3	4	1	...	1	...	2	1	4	2	3	6	27

* Not plague or cholera.

TABLE (B).—Number of Persons Quarantined at Bandar Abbas during the year 1905.

Class.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
1st Class	...	...	...	3	3	...	...	1	1	...	1	...	9
2nd ,, ...	...	2	3	6	2	...	...	1	3	3	4	...	24
3rd ,, ...	37	70	96	37	89	112	17	25	79	29	19	47	657
Total passengers ...	37	72	99	46	94	112	17	27	83	32	24	47	690
Number of passengers landed in quarantine suffering from plague or cholera	...	...	...	...	...	...	...	...	...	...	...	...	...
Total of sick landed ...	...	...	...	...	...	...	...	...	...	...	...	...	...
Number of persons who developed plague or cholera after landing in quarantine ...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total sickness developed in quarantine ...	...	...	...	...	...	...	...	...	...	...	...	...	...

TABLE (C).—Number of Persons Quarantined at Linga during the year 1905.

Class.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
1st Class	...	...	...	5	...	...	4	...	1	...	1	...	11
2nd ,, ...	...	...	...	7	1	1	...	1	...	1	1	...	12
Deck or 3rd Class ...	44	61	56	90	102	111	70	22	26	25	45	62	714
Total of passengers ...	44	61	56	102	103	112	74	23	27	26	47	62	737
Number of persons landed in quarantine suffering from plague or cholera — 1st	...	...	...	...	...	...	...	...	...	...	...	...	...
Number of persons landed in quarantine suffering from plague or cholera — 2nd	...	...	...	...	...	...	...	...	...	...	...	...	...
Number of persons landed in quarantine suffering from plague or cholera — 3rd	...	...	...	...	...	...	...	...	...	...	...	...	...
Total of sick landed ...	...	...	...	...	...	...	...	...	...	...	...	...	...
Number of persons who developed plague or cholera after landing in quarantine ...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total sickness developed in quarantine ...	...	...	...	...	...	...	...	...	...	...	...	...	...

TABLE (D).—Statement showing the number of 1st, 2nd, and 3rd Class Passengers Quarantined at Bushire during twelve months from April 1, 1905, to March 15, 1906 (irrespective of Coolies who were Quarantined for twenty-four hours after working on ships).

Class.	1905.									1906.			Total.
	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	
1st Class	4	5	1	...	4	2	6	12	12	7	2	5	60
2nd ,, ...	2	7	1	...	4	...	2	3	7	4	...	...	30
3rd ,, ...	80	503	54	58	34	63	11	80	398	187	68	116	1,652
Total of passengers ...	86	515*	56	58	42	65	19	95	417†	198	70	121	1,742
Number of persons landed in quarantine suffering from plague or cholera 1st	...	...	...	...	...	...	...	...	...	...	...	...	...
2nd	...	...	...	...	...	...	...	...	...	...	...	...	...
3rd	1‡	...	...	...	...	...	...	...	...	...	...	...	1
Total of sick landed ...	1	...	...	...	...	...	...	...	...	...	...	...	1
Number of persons who developed plague or cholera after landing in quarantine ...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total sickness developed in quarantine ...	...	...	...	...	...	...	...	...	...	...	...	...	...

* Due to prevalence of plague at Bahrein.

† Due to pilgrims returning from Kerbela.

‡ Plague case.

TABLE (E).—Number of Persons Quarantined at Mohammerah during the year 1905.

Class.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
1st Class	2	2	1	...	2	...	...	...	...	5	...	...	12
2nd ,, ...	1	...	1	1	1	2	...	...	1	1	...	...	8
3rd ,, ...	235	289	6	11	37	57	20	13	46	34	20	81	849
Total of passenger ...	238	291	8	12	40	59	20	13	47	40	20	81	869
Number of persons landed in quarantine suffering from plague or cholera 1st	...	...	...	...	...	...	...	...	...	...	...	...	...
2nd	...	...	...	...	...	...	...	...	...	...	...	...	...
3rd	...	...	...	...	...	...	...	...	...	...	...	...	...
Total of sick landed ...	...	...	...	...	...	...	...	...	...	...	...	...	...
Number of persons who developed plague or cholera after landing in quarantine 1st	...	...	...	...	...	...	...	...	...	...	...	...	...
2nd	...	...	...	...	...	...	...	...	...	...	...	...	...
3rd	...	...	...	...	...	...	...	...	...	...	...	...	...
Total sickness developed in quarantine ...	...	...	...	...	...	...	...	...	...	...	...	...	...

METEOROLOGICAL Data recorded at Maskat, Jashk, Bushire, Basra, Bahrein, Bandar Abbas, Fao, Henjam, and Mohammerah.

TABLE I.—Showing the Average Normal, Maximum, and Minimum Temperatures month by month and yearly; the Highest and Lowest Yearly Temperatures; and the Average Normal Relative Humidity and Rainfall month by month and yearly at Maskat, Jashk, Bushire, Basra, and Bahrein during periods shown in Table II.

Station.	Element.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year.	Highest or lowest Temperature of Year.
Maskat	Maximum temperature in degrees ...	72·2	72·8	76·6	85·8	91·5	93·8	91·4	87·9	87·2	85·8	80·0	75·4	83·4	106·8
	Minimum ,, ,, ...	67·2	67·8	72·0	80·5	85·9	88·1	87·5	84·3	83·4	81·1	75·3	70·7	78·7	57·5
	8 A.M. relative humidity, per cent. ...	68·3	70·6	68·3	58·0	61·7	66·9	76·4	81·6	77·0	65·9	68·4	68·0	69·3	...
	Rainfall	1·28	0·78	1·05	0·03	...	0·36	0·04	...	...	0·02	0·61	0·26	4·43	...
Jashk	Maximum temperature in degrees ...	73·8	74·9	78·7	87·2	92·4	95·8	95·8	94·5	93·5	90·7	83·2	78·0	86·5	110·2
	Minimum ,, ,, ...	60·3	61·8	66·1	73·3	78·3	83·1	84·8	84·0	80·9	75·5	68·7	63·8	73·4	41·8
	8 A.M. relative humidity, per cent. ...	72·8	76·4	73·9	65·6	68·2	66·9	72·4	75·1	73·4	65·4	67·0	70·0	70·6	...
	Rainfall	0·87	0·97	1·15	0·03	...	0·11	0·02	...	...	0·04	0·49	0·78	4·46	..
Bushire	Maximum temperature in degrees ...	64·1	65·7	72·3	81·6	89·1	91·9	95·3	97·0	94·3	87·8	78·1	69·2	82·2	115·0
	Minimum ,, ,, ...	51·7	52·8	58·8	66·7	75·3	80·5	84·3	84·0	79·1	71·2	62·3	55·4	68·5	32·0
	8 A.M. relative humidity, per cent. ...	77·9	75·8	69·5	61·5	59·9	62·1	63·9	66·7	63·3	62·0	66·9	74·1	67·0	...
	Rainfall	3·12	2·35	1·00	0·53	...	...	...	...	...	0·08	1·79	3·24	12·11	...
Basra	Maximum temperature in degrees ...	59·1	65·5	74·1	85·9	95·6	102·0	104·3	105·4	99·5	88·1	75·2	62·6	84·8	114·4
	Minimum ,, ,, ...	44·0	49·6	58·2	66·6	74·9	82·3	83·2	82·6	76·9	66·4	57·6	50·3	66·1	29·9
	8 A.M. relative humidity, per cent. ...	Data not available.													
	Rainfall	0·93	1·17	0·57	0·43	0·53	0·01	...	...	0·44	0·06	0·66	0·72	5·52	...
Bahrein	Maximum temperature in degrees ...	68·2	68·1	74·7	82·1	90·5	95·0	97·6	99·6	95·1	88·8	80·7	71·6	84·3	107·5
	Minimum ,, ,, ...	56·0	57·2	63·0	69·9	77·4	83·3	85·4	86·0	83·0	75·3	66·7	58·2	71·8	42·4
	8 A.M. relative humidity, per cent. ...	82·3	82·8	82·8	77·5	74·8	70·0	74·0	80·3	76·7	79·6	81·0	84·0	78·8	...
	Rainfall	0·11	0·51	0·40	0·18	0·06	...	...	...	...	0·03	0·03	0·30	1·62	...

TABLE II.—Showing the Periods on which the Data in Table I are based.

Station.	Maximum Temperature in Degrees.		Minimum Temperature in Degrees.		8 A.M. relative Humidity.		Rainfall in inches.		Remarks.
	Normal Average based on—		Normal Average based on—		Normal Average based on—		Normal Average based on—		
	Years.	No. of Years.	Years.	No. of Years.	Years.	No. of Years.	Years.	No. of Years.	
Maskat... ...	1893 (Feb.) to 1899 (Dec.)	6–7	1893 (Feb.) to 1899 (Dec.)	6–7	1893 (Feb.) to 1899 (Dec.)	6–7	1893 (Feb.) to 1899 (Dec.)	6–7	Data taken from Feb., 1893.
Jashk	1892 (Dec.) to 1899 (Dec.)	7–8	1892 (Dec.) to 1899 (Dec.)	7–8	1892 (Dec.) to 1899 (Dec.)	7–8	1892 (Dec.) to 1899 (Dec.)	7–8	,, ,, Dec., 1892.
Bushire... ...	1878 (Jan.) to 1899 (Dec.)	21–22	1878 (Jan.) to 1899 (Dec.)	21–22	1878 (Jan.) to 1899 (Dec.)	21–22	1878 (Jan.) to 1899 (Dec.)	21–22	,, ,, Jan., 1878 (Jan. to May 1889 wanting.)
Basra	1900 (Jan.) to 1905 (Dec.) (Excluding June, Sept., and Dec., 1904, and Sept. to Nov., 1905)	4–6	1900 (Mar.) to 1905 (Dec.) (Excluding June and Sept., 1904, and Jan. to Mar. and Sept. to Nov., 1905)	4–6	... ...	4–6	1900 (Jan.) to 1905 (Dec.) (Excluding June and Sept., 1904, and Sept. to Nov., 1905)	4–6	
Bahrein ...	1901 (Oct.) to 1905 (Dec.)	3–5	1901 (Oct.) to 1905 (Dec.)	3–5	1901 (Oct.) to 1905 (Dec.)	3–5	1901 (Oct.) to 1905 (Dec.)	3–5	Nov., 1901, and Sept., 1902 wanting.

TABLE III.—Showing, for the Year 1905 alone, data similar to those given in Table I.

Station.	Element.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year.	Highest or lowest Temperature of Year.
Jashk	Maximum temperature in degrees ...	71·5	71·6	75·4	83·6	91·8	95·3	96·5	95·3	94·0	89·7	83·7	76·2	85·4	104·2
	Minimum ,, ,, ...	59·4	59·5	64·2	71·1	78·8	82·7	85·9	85·3	80·9	75·2	69·1	64·2	73·0	44·3
	8 A.M. relative humidity, per cent. ...	83·0	71·0	72·0	73·0	66·0	71·0	79·0	80·0	71·0	64·0	74·0	75·0	73·0	...
	Rainfall in inches	0·39	1·29	1·53	...	...	...	...	...	...	...	0·88	3·37	7·46	...
Bushire	Maximum temperature in degrees ...	63·3	62·3	68·6	80·3	87·8	91·4	94·2	97·0	93·7	87·9	79·4	66·3	81·0	104·5
	Minimum ,, ,, ...	48·9	50·2	57·0	68·0	74·8	81·0	84·4	82·7	79·1	72·0	63·5	53·3	67·9	34·4
	8 A.M. relative humidity, per cent. ...	80·0	80·0	76·0	67·0	78·0	70·0	76·0	75·0	71·0	72·0	76·0	76·0	75·0	...
	Rainfall in inches	0·32	1·09	1·52	...	0·24	...	...	...	...	...	0·10	1·35	4·62	...
Maskat	Maximum temperature in degrees ...	71·8	70·9	73·6	82·9	99·1	100·1	100·4	92·4	93·5	93·9	87·5	80·9	87·2	107·7
	Minimum ,, ,, ...	67·1	66·9	69·4	78·1	87·6	88·7	89·6	82·6	82·9	79·8	74·9	70·1	78·1	57·1
	8 A.M. relative humidity, per cent. ...	62·0	64·0	70·0	60·0	41·0	60·0	67·0	77·0	63·0	62·0	65·0	70·0	63·0	...
	Rainfall in inches	1·24	1·83	2·21	...	...	...	...	...	...	0·01	0·21	0·09	5·59	...
Basra	Maximum temperature in degrees ...	59·1	61·5	71·0	86·5	91·2	99·4	100·6	102·7	?	?	?	56·1	?	107·9
	Minimum ,, ,, ...	?	?	?	66·1	72·7	82·2	83·0	81·3	?	?	?	43·3	?	29·9?
	8 A.M. relative humidity, per cent. ...	Data not available.													
	Rainfall in inches	0·10	1·26	...	0·29	0·66	...	...	...	?	?	?	0·33	?	...
Bahrein	Maximum temperature in degrees ...	65·9	66·4	72·4	83·1	89·8	94·5	97·2	98·9	94·8	90·3	80·2	71·0	83·7	105·4
	Minimum ,, ,, ...	54·7	56·4	61·5	70·1	77·9	83·5	86·5	87·3	84·1	79·0	70·1	59·0	72·5	42·4
	8 A.M. relative humidity, per cent. ...	74·0	77·0	81·0	78·0	71·0	73·0	70·0	86·0	80·0	83·0	81·0	78·0	78·0	...
	Rainfall in inches	0·10	0·45	0·38	...	...	...	...	...	...	...	...	0·75	1·68	...

TABLE IV.—Giving Meteorological Data recorded at the British Consulate, Bandar Abbas.

(Thermometer readings in degrees Fahrenheit from a Mason's hygrometer.)

Day.	July 1905.				August 1905.				September 1905.				October 1905.				November 1905.				December 1905.				January 1906.				February 1906.			
	9 A.M.		3 P.M.		9 A.M.		3 P.M.		9 A.M.		3 P.M.		9 A.M.		3 P.M.		9 A.M.		3 P.M.		9 A.M.		3 P.M.		9 A.M.		3 P.M.		9 A.M.		3 P.M.	
	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.	Dry.	Wet.
1st	92	84	95	88	97	91	95	92	95	87	96	89	94	90	95	93	82	78	86	78	73	65	75	69	68	58	72	66	61	55	67	57
2nd	92	84	96	87	97	92	94	92	99	90	94	87	93	91	95	93	87	79	88	78	77	66	79	69	66	58	70	65	67	60	69	64
3rd	91	85	93	87	93	90	94	90	95	88	96	90	91	89	92	89	89	81	85	79	79	73	83	77	70	64	74	68	68	61	69	63
4th	92	86	95	85					96	90	96	94	90	89	91	90	87	81	87	82	78	60	82	71	69	64	75	67	64	60	63	60
5th	93	84	95	87					94	89	93	91	90	89	89	87	88	77	89	78	75	60	80	70	70	63	77	67	65	63	67	64
6th	92	85	97	85					94	90	93	90	92	90	88	88	86	72	85	70	76	58	81	70	69	60	75	66	68	65	71	67
7th	93	85	97	88					93	91	92	90	90	88	91	90	82	68	83	73	74	63	80	68	70	57	76	62	66	61	72	64
8th	92	84	98	86					92	89	95	88	90	89	92	91	84	75	85	74	75	66	76	69	72	59	75	60	71	61	73	66
9th	92	85	103	83					94	89	96	91	90	89	92	91	84	75	85	74	72	65	75	69	71	65	75	68	70	64	71	61
10th	94	85	98	85					103	88	100	93	93	89	93	92	84	74	87	71	73	66	74	67	63	57	70	59	67	73	72	63
11th	92	85	97	86					99	88	100	93	92	92	94	93	85	74	86	75	68	63	73	65	64	53	69	62	68	63	71	65
12th	91	84	93	87					99	92	97	90	93	91	95	94	84	75	86	74	68	62	72	64	67	63	72	64	65	60	64	61
13th	92	85	96	87	Consulate closed.				97	92	97	91	90	88	94	91	83	74	85	75	64	60	68	64	69	64	73	65	66	63	72	67
14th	93	86	99	85	Staff in camp at Ginao				99	91	95	91	91	88	91	90	85	74	85	73	64	62	74	67	69	61	72	62	67	59	71	64
15th	91	86	96	86	and Siahu.				96	89	97	90	90	88	93	92	80	75	83	72	65	62	65	62	68	60	72	63	68	64	69	60
16th	90	84	95	85					95	90	96	92	91	90	92	91	82	76	84	75	66	65	74	72	70	63	73	69	62	64	65	56
17th	91	87	95	86					91	86	94	92	90	89	93	92	83	74	84	75	68	66	68	67	72	66	75	68	68	62	71	64
18th	91	88	94	88					93	91	95	92	91	89	91	89	83	73	85	73	64	61	71	64	74	65	72	65	72	67	74	68
19th	93	87	102	82					92	90	97	94	90	88	91	89	82	76	84	75	65	60	68	63	72	61	72	63	72	66	75	69
20th	94	87	95	91					95	93	98	96	88	85	88	86	80	75	85	75	68	62	68	63	71	62	73	64	65	63	68	65
21st	94	89	98	89					96	93	96	95	89	87	88	86	83	77	86	73	69	64	73	67	67	59	73	59	66	57	68	61
22nd	94	85	99	86					96	92	97	93	88	86	89	86	77	71	82	72	66	64	69	65	72	63	75	65	62	56	69	63
23rd	95	88	97	90					87	85	89	88	87	84	88	85	78	72	80	73	62	60	66	64	72	63	74	64	65	55	69	58
24th	102	84	104	94					90	87	91	87	87	82	88	79	69	64	80	73	64	62	68	65	68	55	71	61	68	60	70	59
25th	103	90	103	95	95	87	98	84	91	89	91	89	88	74	89	78	72	67	81	68	66	63	68	66	65	54	71	57	70	58	70	59
26th	98	85	97	91	94	87	97	89	92	91	93	92	89	74	95	69	73	66	75	65	65	60	70	68	68	57	72	59	68	60	70	63
27th	95	85	99	90	92	86	94	87	92	91	94	92	91	66	94	69	77	68	78	70	65	62	70	64	67	60	71	62	68	58	71	60
28th	95	87	98	94	93	87	93	87	92	90	94	93	88	73	89	72	78	72	80	70	64	59	68	63	68	58	72	63	71	64	75	67
29th	97	91	98	92	95	86	97	87	98	93	100	93	87	80	89	74	89	65	82	69	65	60	72	64	64	59	70	64	...	...	...	...
30th	94	91	103	93	94	88	95	88	96	91	96	94	88	71	89	73	78	64	82	69	65	57	70	60	61	59	63	61	...	...	...	...
31st	95	89	97	94	94	87	96	92	...	...	...	...	89	72	88	74	...	...	...	...	61	57	71	64	63	54	65	56	...	...	...	...

TABLE V.—Giving Meteorological Data recorded at Fao Telegraph Station.

Years for which Readings taken.	Month for which Readings taken.	Mean of Dry and Wet Bulb.		Mean of Maximum and Minimum Readings.		Highest and Lowest Temperature for each Month.						Rainfall.
						Dry.		Wet.		Maximum and Minimum.		
		Dry.	Wet.	Maximum.	Minimum.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	
		Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	
1903	January	59	51	...	...	65	35	57	41	...	...	Slight.*
	February	63	54	...	...	78	35	63	31	...	...	60 cents.
	March	72	60	...	...	83	57	66	52	...	...	57 ,,
	April	80	71	...	...	95	70	77	64	...	...	17 ,,
	May	83	79	...	...	110	78	82	64	...	...	Nil.
	June	160	77	...	...	112	95	89	72	...	...	,,
	July	105	79	...	...	116	97	90	72	...	...	,,
	August	108	84	...	...	117	102	90	75	...	...	,,
	September	99	76	...	...	112	95	84	70	...	...	,,
	October	93	72	...	...	104	80	75	68	...	...	,,
	November	76	63	...	...	81	63	76	50	...	...	,,
	December	65	60	...	...	70	57	65	54	...	...	30 cents.
1904	January	63	55	...	...	75	58	64	48	...	...	44 ,,
	February	67	58	...	...	76	60	67	52	...	...	10 ,,
	March	74	64	...	...	81	66	71	58	...	...	2 inches 47 cents.
	April	80	68	...	...	91	71	72	62	...	...	25 cents.
	May	94	77	...	...	115	82	87	70	...	...	21 ,,
	June	105	81	...	...	118	94	86	72	...	...	Nil.
	July	106	79	...	...	117	98	86	74	...	...	,,
	August	107	80	...	...	112	101	89	76	...	...	,,
	September	100	79	...	...	104	94	85	74	...	...	,,
	October	90	75	...	...	98	82	85	60	...	...	,,
	November	...	...	80	53	...	...	...	...	91	42	Slight.
	December	...	...	71	40	...	...	...	...	84	31	1 inch 90 cents.
1905	January	...	...	68	36	...	...	...	...	78	24	5 cents.
	February	...	...	70	61	...	...	...	...	80	30	1 inch 20 cents.
	March	...	...	69	61	...	...	...	...	75	54	5 cents.
	April	83	69	...	...	100	70	83	54	...	...	5 ,,
	May	91	75	...	...	106	76	86	62	...	...	40 ,,
	June	101	81	...	...	116	97	90	74	...	...	Nil.
	July	107	80	...	...	115	102	90	73	...	...	,,
	August	105	85	...	...	112	98	95	80	...	...	,,
	September	103	82	...	...	112	93	95	66	...	...	Slight.
	October	93	79	...	...	105	84	98	70	...	...	Nil.
	November	79	68	...	...	95	78	82	60	...	...	,,
	December	65	55	...	...	84	47	75	24	...	...	16 cents.
1906	January	...	...	62	45	...	...	...	...	72	40	29 ,,
	February	...	...	66	50	...	...	...	...	74	43	90 ,,
	March	...	...	77	54	...	...	...	...	88	43	slight.

* *I.e.*, below 1 cent.

TABLE VI.—Giving Meteorological Data recorded at Henjam Telegraph Station from May 1, 1904, to February 1, 1905.

Dry and Wet Bulb Thermometers only in use.

Month.	Mean Dry Bulb.	Mean Wet Bulb.	Highest Actual Dry Bulb.	Lowest Actual Wet Bulb.	Rainfall.
1904.	Degrees.	Degrees.	Degrees.	Degrees.	
May	91·41	80·48	98	73	Not recorded. No suitable safe place for rain gauge.
June	95·33	80·00	102	80	
July	98·12	90·96	101	85	
August	101·67	89·77	102	84	
September	95·03	86·23	100	82	
October	91·67	82·51	96	72	
November	83·30	76·53	88	66	
December	75·06	68·09	80	61	
1905.					
January	73·32	64·00	79	50	

TABLE VII.—Giving Meteorological Data recorded at Henjam Telegraph Station from February 1905 to April 17, 1906.

Month.	Mean Maximum Temperature.	Mean Minimum Temperature.	Highest Actual Maximum Temperature Recorded.	Lowest Actual Minimum Recorded.	Rainfall.
1905.	Degrees.	Degrees.	Degrees.	Degrees.	
February	71·17	59·07	79	52	Rainfall not recorded, as roof of house not ready for rain gauge during rains.
March	71·35	63·74	83	58	
April	87·66	71·90	99	66	
May	92·32	78·53	101	73	
June	94·26	84·33	101	79	
July	99·22	86·77	104	86	
August	97·96	87·80	106	85	
September	94·36	85·03	99	82	
October	90·00	77·93	95	77	
November	84·00	72·33	90	60	
December	80·32	65·35	92	56	
1906.					
January	75·12	62·83	82	56	
February	69·07	61·85	71	56	
March	74·29	66·67	83	63	
April (1st to 17th)	77·11	71·35	84	68	

TABLE VIII.—Giving Temperature Records in detail, and other particulars noted at Henjam Telegraph Station.

Date.	Temperature.				Sick.	Particulars and Rainfall.
	Dry.	Wet.	Max.	Min.		
1904.	Degrees.	Degrees.				
April 28 ...	88	76	...	...	...	Cloudy.
„ 29 ...	88	75	...	...	...	
„ 30 ...	92	80	...	...	...	
May 1 ...	92	80	...	...	...	
„ 2 ...	87	80	...	...	...	
„ 3 ...	91	84	...	...	...	
„ 4 ...	90	83	...	...	...	
„ 5 ...	90	84	...	...	...	
„ 6 ...	89	81	...	...	...	
„ 7 ...	90	82	...	...	...	
„ 8 ...	89	81	...	...	...	
„ 9 ...	89	81	...	...	...	
„ 10 ...	93	80	...	...	...	
„ 11 ...	99	79	...	...	...	
„ 12 ...	96	80	...	...	...	
„ 13 ...	97	79	...	...	...	
„ 14 ...	97	78	...	...	...	
„ 15 ...	97	79	...	...	...	
„ 16 ...	90	85	...	...	...	
„ 17 ...	89	83	..	...	...	

Date.	Temperature.				Sick.	Particulars and Rainfall.
	Dry.	Wet.	Max.	Min.		
1904.	Degrees.	Degrees.				
May 18 ...	91	85	...	...	...	
„ 19 ...	90	80	...	...	...	
„ 20 ...	89	81	...	...	...	
„ 21 ...	87	74	...	...	...	
„ 22 ...	85	78	...	...	...	
„ 23 ...	86	77	...	...	...	
„ 24 ...	90	82	...	...	...	
„ 25 ...	92	85	...	...	...	
„ 26 ...	90	80	...	...	...	
„ 27 ...	96	73	...	...	...	
„ 28 ...	98	78	...	...	...	Morning foggy.
„ 29 ...	94	79	...	...	...	
„ 30 ...	92	81	...	...	...	
„ 31 ...	93	84	...	...	...	
June 1 ...	89	81	...	...	...	
„ 2 ...	95	86	...	...	...	
„ 3 ...	95	85	...	...	...	
„ 4 ...	91	85	...	...	...	
„ 5 ...	96	84	...	...	...	
„ 6 ...	90	83	...	...	...	
„ 7 ...	90	81	...	...	...	
„ 8 ...	90	82	...	..	...	
„ 9 ...	90	84	...	...	...	
„ 10 ...	94	83	...	...	...	
„ 11 ...	95	84	...	...	...	
„ 12 ...	95	84	...	...	...	
„ 13 ...	92	85	...	...	...	
„ 14 ...	93	82	...	...	...	
„ 15 ...	94	85	...	...	...	
„ 16 ...	92	85	...	...	...	
„ 17 ...	97	87	...	...	...	Very damp.
„ 18 ...	97	87	...	...	...	
„ 19 ...	102	87	...	...	...	
„ 20 ...	102	86	...	...	2	
„ 21 ...	101	85	...	...	3	
„ 22 ...	100	90	...	...	...	Damp night.
„ 23 ...	100	90	...	...	...	„
„ 24 ...	97	87	...	...	...	„
„ 25 ...	98	87	...	...	...	
„ 26 ...	96	87	...	...	...	
„ 27 ...	96	85	...	...	...	
„ 28 ...	96	87	...	...	...	Morning damp.
„ 29 ...	95	90	...	...	...	
„ 30 ...	95	90	...	...	...	
July 1 ...	95	89	...	...	...	Damp.
„ 2 ...	96	86	...	...	...	Moderate, hazy.
„ 3 ...	96	85	...	...	...	
„ 4 ...	95	87	...	...	...	
„ 5 ...	97	89	...	...	...	
„ 6 ...	102	87	...	...	...	
„ 7 ...	98	90	...	...	...	
„ 8 ...	98	90	...	...	...	
„ 9 ...	98	89	...	...	...	
„ 10 ...	96	91	...	...	...	
„ 11 ...	96	90	...	...	...	
„ 12 ...	95	93	...	...	...	
„ 13 ...	96	90	...	...	...	Hazy.
„ 14 ...	98	90	...	...	...	Damp, hazy.
„ 15 ...	99	95	...	...	...	
„ 16 ...	98	94	...	...	...	
„ 17 ...	97	91	...	...	...	
„ 18 ...	98	92	...	...	...	
„ 19 ...	100	91	...	...	...	
„ 20 ...	101	92	...	...	...	Slight shock earthquake.
„ 21 ...	101	92	...	...	...	
„ 22 ...	97	91	...	...	...	
„ 23 ...	100	91	...	...	...	Cloudy.
„ 24 ...	100	94	...	...	...	
„ 25 ...	100	93	...	...	...	
„ 26 ...	100	94	...	...	...	
„ 27 ...	100	92	...	...	...	
„ 28 ...	99	94	...	...	...	
„ 29 ...	100	93	...	...	...	
„ 30 ...	98	94	...	...	...	
„ 31 ...	98	92	...	...	...	
August 1 ...	101	92	...	...	...	
„ 2 ...	102	92	...	...	...	
„ 3 ...	101	92	...	...	...	
„ 4 ...	101	92	...	...	...	
„ 5 ...	99	90	...	...	...	Cloudy, hazy.
„ 6 ...	99	93	...	...	...	Hazy, damp.
„ 7 ...	100	93	...	...	...	Damp, hazy.
„ 8 ...	101	94	...	...	...	
„ 9 ...	100	93	...	...	...	

Date.	Temperature.				Sick.	Particulars and Rainfall.
	Dry.	Wet.	Max.	Min.		
1904.	Degrees.	Degrees.				
August 10 ...	100	93	...	...	...	
,, 11 ...	100	94	...	...	...	
,, 12 ...	99	85	...	...	...	
,, 13 ...	99	90	...	...	...	
,, 14 ...	100	90	...	...	...	
,, 15 ...	102	84	...	...	...	
,, 16 ...	101	86	...	...	...	
,, 17 ...	103	85	...	...	...	
,, 18 ...	98	90	...	...	...	
,, 19 ...	99	91	...	...	1	
,, 20 ...	99	92	...	...	...	
,, 21 ...	98	85	...	...	...	
,, 22 ...	97	86	...	...	...	
,, 23 ...	97	90	...	...	...	
,, 24 ...	96	87	...	...	...	
,, 25 ...	96	89	...	...	...	
,, 26 ...	95	89	...	...	...	
,, 27 ...	95	89	...	...	...	
,, 28 ...	93	88	...	...	...	
,, 29 ...	96	88	...	...	...	
,, 30 ...	96	90	...	...	...	
,, 31 ...	98	90	...	...	...	
September 1 ...	98	87	...	...	...	
,, 2 ...	98	85	...	...	...	Cloudy.
,, 3 ...	98	90	...	...	...	Muggy, hazy.
,, 4 ...	99	86	...	...	...	,, ,,
,, 5 ...	94	88	...	...	...	Cloudy, lightning in evening.
,, 6 ...	94	85	...	...	...	
,, 7 ...	93	87	...	...	...	
,, 8 ...	92	86	...	...	...	Hazy.
,, 9 ...	95	86	...	...	...	,,
,, 10 ...	95	88	...	...	...	,,
,, 11 ...	97	89	...	...	...	
,, 12 ...	96	84	...	...	...	
,, 13 ...	101	85	...	...	...	
,, 14 ...	100	92	...	...	...	
,, 15 ...	96	84	...	...	...	
,, 16 ...	96	91	...	...	...	
,, 17 ...	95	84	...	...	...	
,, 18 ...	94	83	...	...	...	
,, 19 ...	94	82	...	...	...	
,, 20 ...	95	87	...	...	...	
,, 21 ...	95	87	...	...	...	
,, 22 ...	94	88	...	...	...	
,, 23 ...	94	87	...	...	...	
,, 24 ...	95	86	...	...	...	
,, 25 ...	94	85	...	...	...	
,, 26 ...	94	84	...	...	...	
,, 27 ...	94	84	...	...	...	
,, 28 ...	93	85	...	...	...	Strong, hazy, cloudy.
,, 29 ...	94	86	...	...	...	Strong, dusty, cloudy.
,, 30 ...	94	85	...	...	...	Strong, dusty, cloudy, lightning.
October 1 ...	94	85	...	...	1	Moderate, cloudy.
,, 2 ...	95	87	...	...	1	Light, cloudy, lightning.
,, 3 ...	95	86	...	...	1	Strong, dusty, cloudy, lightning.
,, 4 ...	94	85	...	...	1	,, ,, ,,
,, 5 ...	95	87	...	...	1	Light, sultry, cloudy, lightning.
,, 6 ...	95	86	...	...	1	
,, 7 ...	96	85	...	...	1	
,, 8 ...	95	84	...	...	...	
,, 9 ...	94	84	...	...	...	
,, 10 ...	93	84	...	...	...	Cloudy, lightning.
,, 11 ...	93	83	...	...	...	Strong, cloudy, lightning.
,, 12 ...	92	80	...	...	...	Light rain, lightning.
,, 13 ...	90	82	...	...	...	Overcast, lightning, dusty.
,, 14 ...	90	81	...	...	...	
,, 15 ...	89	80	...	...	...	Hazy.
,, 16 ...	89	81	...	...	...	,,
,, 17 ...	89	81	...	...	...	,,
,, 18 ...	91	81	...	...	...	Cloudy.
,, 19 ...	90	79	...	...	...	,,
,, 20 ...	90	72	...	...	...	
,, 21 ...	88	76	...	...	...	
,, 22 ...	92	79	...	...	...	
,, 23 ...	93	81	...	...	...	
,, 24 ...	93	80	...	...	...	
,, 25 ...	92	80	...	...	...	
,, 26 ...	90	82	...	...	...	
,, 27 ...	90	85	...	...	...	
,, 28 ...	90	86	...	...	...	Morning damp.
,, 29 ...	89	86	...	...	...	
,, 30 ...	89	86	...	...	...	
,, 31 ...	89	85	...	...	...	Thunder, cloudy.
November 1 ...	88	83	...	...	...	

Date.	Temperature.				Sick.	Particulars and Rainfall.
	Dry.	Wet.	Max.	Min.		
1904.	Degrees.	Degrees.				
November 2 ...	88	82	...	...	...	
,, 3 ...	87	84	...	...	...	Foggy morning, lightning.
,, 4 ...	87	83	...	...	...	Light, foggy.
,, 5 ...	86	83	...	...	...	Damp.
,, 6 ...	86	80	...	...	...	Overcast, foggy.
,, 7 ...	85	81	...	...	...	
,, 8 ...	86	79	...	...	...	
,, 9 ...	85	81	...	...	...	
,, 10 ...	86	79	...	...	...	Morning foggy.
,, 11 ...	85	77	...	...	1	Hazy, cloudy.
,, 12 ...	85	77	...	...	...	,, ,,
,, 13 ...	86	76	...	...	...	Hazy.
,, 14 ...	85	80	...	...	...	Hazy, cloudy.
,, 15 ...	86	78	...	...	...	
,, 16 ...	85	77	...	...	...	
,, 17 ...	84	76	...	...	...	
,, 18 ...	86	76	...	...	...	Light, cloudy.
,, 19 ...	86	75	...	...	...	,, ,,
,, 20 ...	86	75	...	...	...	Fine.
,, 21 ...	87	74	...	...	...	Light, cloudy.
,, 22 ...	84	71	...	...	...	,, ,,
,, 23 ...	84	77	...	...	...	Fine.
,, 24 ...	83	77	...	...	...	Strong, dusty, cloudy.
,, 25 ...	75	70	...	...	...	Severe storm; thunder, lightning; heavy rain, tanks full.
,, 26 ...	70	66	...	...	...	Heavy rain night and morning.
,, 27 ...	74	68	...	...	...	Light, cloudy.
,, 28 ...	75	71	...	...	...	,, ,,
,, 29 ...	75	70	...	...	...	Fine.
,, 30 ...	76	72	...	...	...	Cloudy, lightning, thunder, slight rain.
December 1 ...	74	70	...	...	...	Strong, rain, overcast.
,, 2 ...	78	73	...	...	...	Strong, stormy, overcast, lightning.
,, 3 ...	79	75	...	...	...	Strong, stormy, overcast, lightning.
,, 4 ...	80	75	...	...	...	Moderate, overcast, lightning.
,, 5 ...	79	74	...	...	...	,, cloudy.
,, 6 ...	78	73	...	...	...	Light, cloudy.
,, 7 ...	77	72	...	...	...	
,, 8 ...	77	74	...	...	...	
,, 9 ...	76	72	...	...	...	
,, 10 ...	78	73	...	...	...	Strong, cloudy.
,, 11 ...	76	68	...	...	...	,, ,,
,, 12 ...	74	64	...	...	...	
,, 13 ...	74	63	...	...	1	
,, 14 ...	72	61	...	...	1	Strong, dusty, cloudy.
,, 15 ...	73	61	...	...	1	,, ,, ,,
,, 16 ...	74	62	...	...	1	
,, 17 ...	74	63	...	...	...	
,, 18 ...	73	63	...	...	...	Light, cloudy.
,, 19 ...	75	70	...	...	...	
,, 20 ...	74	69	...	...	...	
,, 21 ...	76	67	...	...	...	
,, 22 ...	74	69	...	...	...	Light, overcast.
,, 23 ...	76	69	...	...	...	,, ,,
,, 24 ...	75	68	...	...	...	Slight rain, dusty, cloudy.
,, 25 ...	72	66	...	...	...	
,, 26 ...	70	64	...	...	...	
,, 27 ...	70	63	...	...	...	
,, 28 ...	73	64	...	...	1	
,, 29 ...	73	64	...	...	...	
,, 30 ...	76	70	...	...	...	
,, 31 ...	78	73	...	...	...	Light, overcast.
1905.						
January 1 ...	76	71	...	...	...	Moderate, overcast.
,, 2 ...	79	71	...	...	...	
,, 3 ...	78	71	...	...	...	Moderate, overcast.
,, 4 ...	73	66	...	...	...	,, ,,
,, 5 ...	78	72	...	...	...	
,, 6 ...	79	71	...	...	...	
,, 7 ...	78	71	...	...	...	
,, 8 ...	76	71	...	...	...	Light, cloudy.
,, 9 ...	75	68	...	...	...	Dusty, cloudy.
,, 10 ...	75	69	...	...	...	
,, 11 ...	75	69	...	...	...	
,, 12 ...	77	71	...	...	...	
,, 13 ...	76	70	...	...	...	Cloudy, drizzle.
,, 14 ...	78	71	...	...	...	
,, 15 ...	78	71	...	...	...	
,, 16 ...	70	65	...	...	...	Dust storm, cloudy.
,, 17 ...	75	70	...	...	...	Light, cloudy.
,, 18 ...	75	70	...	...	...	,, ,,
,, 19 ...	74	70	...	...	...	Drizzle.

Date.	Temperature.				Sick.	Particulars and Rainfall.
	Dry.	Wet.	Max.	Min.		
1905.	Degrees.	Degrees.	Degrees.	Degrees.		
January 20	72	64	...	...	...	
" 21	72	64	...	...	...	
" 22	64	55	...	...	...	
" 23	57	52	...	...	...	Drizzle all day, overcast.
" 24	57	52	...	...	...	
" 25	57	53	...	...	...	Moderate, cloudy.
" 26	55	50	...	...	...	Cloudy.
" 27	55	50	...	...	...	
" 28	58	52	...	...	...	
" 29	59	51	...	...	...	
" 30	60	54	...	...	...	
" 31	62	56	...	...	...	
February 1	69	53	69	56	...	Light, overcast, rain at night.
" 2	...	...	60	57	...	Cloudy, heavy rain.
" 3	...	...	75	60	...	
" 4	...	..	72	68	...	
" 5	...	...	71	58	...	
" 6	...	...	75	56	...	
" 7	...	...	74	56	...	
" 8	...	...	70	60	...	Strong, stormy, rain.
" 9	...	...	69	61	...	Strong, stormy, overcast.
" 10	...	...	63	58	...	Strong, stormy, rain all day.
" 11	...	...	66	64	...	Strong, stormy, rain.
" 12	...	...	66	58	...	Drizzle.
" 13	...	...	70	60	...	
" 14	...	...	75	58	...	
" 15	...	...	74	57	...	
" 16	...	...	76	61	...	
" 17	...	...	79	61	...	
" 18	...	...	76	62	...	Drizzle at night.
" 19	...	...	75	66	...	Overcast.
" 20	...	...	75	66	...	Overcast, drizzle.
" 21	...	...	76	68	...	Storm, dusty, rain at night.
" 22	...	...	70	60	...	Overcast.
" 23	...	...	72	58	...	Cloudy.
" 24	...	...	72	69	...	"
" 25	...	...	67	56	...	
" 26	...	...	66	52	...	
" 27	...	...	66	52	...	
" 28	...	...	74	55	...	
March 1	...	...	77	58	...	Overcast.
" 2	...	...	73	62	...	Lightning.
" 3	...	...	71	61	...	Overcast, slight rain, lightning.
" 4	...	...	66	60	...	Strong, thunder, rain all day.
" 5	...	...	75	61	...	Cloudy.
" 6	...	...	74	62	...	Cloudy, rain at night.
" 7	...	...	79	66	...	Cloudy, slight rain.
" 8	...	...	78	67	...	Cloudy.
" 9	...	...	85	67	...	Overcast.
" 10	...	..	85	68	...	"
" 11	...	...	85	68	1	"
" 12	...	...	81	69	1	Overcast, thunder, lightning, slight rain.
" 13	...	...	76	65	...	Overcast, slight rain.
" 14	...	...	76	62	1	
" 15	...	...	80	66	...	
" 16	...	...	80	64	...	
" 17	...	...	76	65	...	Overcast, slight rain.
" 18	...	...	83	65	...	
" 19	...	...	83	67	1	
" 20	...	...	77	65	1	
" 21	...	...	81	66	...	
" 22	...	...	76	69	...	Overcast, slight rain in morning.
" 23	...	...	75	63	...	Overcast, rain.
" 24	...	...	78	67	...	
" 25	...	...	75	64	...	
" 26	...	...	79	64	...	
" 27	...	...	74	57	...	Stormy, cloudy, thunder, rain.
" 28	...	...	71	57	...	Overcast.
" 29	...	...	73	57	1	
" 30	...	...	75	61	...	
" 31	...	...	81	63	...	
April 1	...	...	79	66	...	Overcast.
" 2	...	...	85	70	...	"
" 3	...	...	81	67	...	
" 4	...	...	85	70	...	Overcast.
" 5	...	...	90	68	...	Damp.
" 6	...	...	84	68	...	"
" 7	...	...	80	68	...	"
" 8	...	...	85	68	...	Overcast.
" 9	...	...	86	70	...	
" 10	...	...	85	70	...	
" 11	...	...	88	77	...	

Date.		Temperature.				Sick.	Particulars and Rainfall.
		Dry.	Wet.	Max.	Min.		
	1905.			Degrees.	Degrees.		
April	12	...	...	88	76	...	Fog in morning.
,,	13	...	...	87	72	1	Damp.
,,	14	...	...	90	72	1	,,
,,	15	...	...	86	73	1	Overcast.
,,	16	...	...	99	78	...	
,,	17	...	...	92	74	...	Cloudy.
,,	18	...	...	91	76	...	,,
,,	19	...	...	94	74	...	
,,	20	...	...	86	72	...	
,,	21	...	...	85	71	...	
,,	22	...	...	83	73	...	Damp.
,,	23	...	...	85	70	...	,,
,,	24	...	...	87	70	...	,,
,,	25	...	...	87	71	...	Hazy, two shocks of earthquake.
,,	26	...	...	88	72	...	Cloudy.
,,	27	...	...	92	75	...	,,
,,	28	...	...	92	76	...	Overcast, lightning, thunder, slight rain at night.
,,	29	...	...	96	73	...	
,,	30	...	...	99	77	...	
May	1	...	...	89	78	...	
,,	2	...	...	91	76	1	Damp.
,,	3	...	...	98	77	...	
,,	4	...	...	97	76	...	
,,	5	...	...	95	84	1	
,,	6	...	...	94	78	...	Overcast.
,,	7	...	...	92	76	...	
,,	8	...	...	89	73	...	
,,	9	...	...	92	78	...	
,,	10	...	...	92	80	...	
,,	11	...	...	92	80	...	
,,	12	...	...	90	78	...	
,,	13	...	...	87	76	...	
,,	14	...	...	90	75	...	Hazy.
,,	15	...	...	97	75	...	
,,	16	...	...	95	75	10 labourers, guinea worm	
,,	17	...	...	94	78	...	
,,	18	...	...	93	78	...	
,,	19	...	...	94	79	...	
,,	20	...	...	100	80	...	
,,	21	...	...	93	83	...	
,,	22	...	...	101	82	...	
,,	23	...	...	95	80	...	
,,	24	...	...	95	82	...	Damp.
,,	25	...	...	97	81	...	
,,	26	...	...	90	80	...	Damp.
,,	27	...	...	92	80	1	,,
,,	28	...	...	92	80	...	,,
,,	29	...	...	90	81	...	,,
,,	30	...	...	90	80	...	,,
,,	31	...	...	89	79	...	Oppressive, damp.
June	1	...	...	90	80	...	Foggy.
,,	2	...	...	90	81	...	,,
,,	3	...	...	95	83	...	,,
,,	4	...	...	98	82	...	,,
,,	5	...	...	100	79	...	Stench from beach.
,,	6	...	...	100	85	...	
,,	7	...	...	100	84	...	
,,	8	...	...	99	85	...	Hazy.
,,	9	...	...	97	85	...	Damp night.
,,	10	...	...	94	85	...	Earthquake.
,,	11	...	...	101	85	...	
,,	12	...	...	100	86	...	
,,	13	...	...	96	87	...	
,,	14	...	...	98	87	...	Night damp, foggy.
,,	15	...	...	98	87	...	,, ,,
,,	16	...	...	94	83	...	
,,	17	...	...	90	83	...	
,,	18	...	...	92	85	...	
,,	19	...	...	94	85	...	
,,	20	...	...	97	86	...	
,,	21	...	...	89	84	...	Foggy.
,,	22	...	...	90	85	...	
,,	23	...	...	90	84	...	
,,	24	...	...	90	84	...	
,,	25	...	...	92	86	1	
,,	26	...	...	92	85	1	
,,	27	...	...	92	85	1	
,,	28	...	...	91	84	...	
,,	29	...	...	92	84	...	
,,	30	...	...	95	86	1	Very oppressive.
July	1	...	...	96	86	1	Hazy.
,,	2	...	...	98	87	1	Oppressive.

Date.	Temperature.				Sick.	Particulars and Rainfall.
	Dry.	Wet.	Max.	Min.		
1905.			Degrees.	Degrees.		
July 3	...	...	99	86	...	Damp, oppressive.
,, 4	...	...	99	87	1	Hazy.
,, 5	...	...	96	86	...	Oppressive.
,, 6	...	...	100	86	...	Very damp.
,, 7	...	...	101	87	...	
,, 8	...	...	97	86	...	
,, 9	...	...	95	85	...	
,, 10	...	...	101	85	...	
,, 11	...	...	95	86	...	
,, 12	...	...	95	85	...	Damp.
,, 13	...	...	100	85	1	Morning foggy.
,, 14	...	...	100	86	1	Hazy.
,, 15	...	...	100	85	1	,,
,, 16	...	...	97	85	1	,,
,, 17	...	...	98	85	1	,,
,, 18	...	...	96	86	...	,,
,, 19	...	...	101	86	...	,,
,, 20	...	...	98	85	1	,,
,, 21	...	...	100	87	1	,,
,, 22	...	...	102	88	...	,,
,, 23	...	...	98	88	...	,,
,, 24	...	...	104	90	...	,,
,, 25	...	...	104	88	...	,,
,, 26	...	...	101	89	...	,,
,, 27	...	...	104	89	...	,,
,, 28	...	...	100	87	...	
,, 29	...	...	97	89	...	
,, 30	...	...	104	90	...	Stiflingly oppressive.
,, 31	...	...	100	90	...	,, ,,
August 1	...	...	101	88	...	
,, 2	...	...	100	89	...	Cloudy.
,, 3	...	...	99	88	...	Cloudy, lightning.
,, 4	...	...	98	88	...	Oppressive.
,, 5	...	...	102	89	1	Cloudy, lightning.
,, 6	...	...	104	89	...	Oppressive.
,, 7	...	...	106	89	...	Cloudy.
,, 8	...	...	104	90	...	Cloudy, lightning, oppressive.
,, 9	...	...	99	90	...	Cloudy.
,, 10	...	...	97	98	...	
,, 11	...	...	97	89	...	Overcast.
,, 12	...	...	99	87	...	Cloudy.
,, 13	...	...	98	88	...	Night very damp.
,, 14	...	...	97	88	...	
,, 15	...	...	95	87	...	
,, 16	...	...	97	87	...	
,, 17	...	...	95	88	...	
,, 18	...	...	95	88	...	Cloudy.
,, 19	...	...	94	87	...	,,
,, 20	...	...	92	85	...	
,, 21	...	...	95	86	...	Stifling.
,, 22	...	...	95	88	...	,,
,, 23	...	...	98	87	...	Damp, oppressive.
,, 24	...	...	99	88	...	,, ,,
,, 25	...	...	99	88	...	Night damp.
,, 26	...	...	95	87	...	
,, 27	...	...	101	87	...	
,, 28	...	...	97	88	...	Morning overcast.
,, 29	...	...	96	87	...	Cloudy.
,, 30	...	...	97	88	...	Oppressive.
,, 31	...	...	97	86	...	Cloudy.
September 1	...	...	96	87	1, scorpion sting	Hazy.
,, 2	...	...	99	86	...	,,
,, 3	...	...	98	88	...	Hazy morning, muggy.
,, 4	...	...	98	87	...	,, ,, ,,
,, 5	...	...	95	86	...	Oppressive.
,, 6	...	...	92	86	...	Cloudy, oppressive.
,, 7	...	...	93	87	...	,, ,,
,, 8	...	...	94	88	...	Hazy.
,, 9	...	...	95	88	...	Hazy night, oppressive.
,, 10	...	...	97	87	...	,, ,, ,,
,, 11	...	...	97	85	...	
,, 12	...	...	95	85	...	
,, 13	...	...	94	85	...	
,, 14	...	...	93	83	...	
,, 15	...	...	91	83	...	
,, 16	...	...	91	84	...	
,, 17	...	...	92	84	...	Night damp.
,, 18	...	...	97	85	...	
,, 19	...	...	94	85	...	
,, 20	...	...	92	86	...	
,, 21	...	...	93	85	...	Lightning, night damp.
,, 22	...	...	94	86	...	Lightning, cloudy, oppressive.
,, 23	...	...	92	83	...	Lightning.

Date.	Temperature.				Sick.	Particulars and Rainfall.
	Dry.	Wet.	Max.	Min.		
1905.			Degrees.	Degrees.		
September 24	...	...	90	83	...	Cloudy, lightning.
,, 25	...	...	88	82	...	Cloudy, thunder, night damp.
,, 26	...	...	94	84	...	Thunder, night still.
,, 27	...	...	94	84	...	
,, 28	...	...	98	85	...	
,, 29	...	...	95	82	...	
,, 30	...	...	90	82	...	
October 1	...	...	91	82	...	
,, 2	...	...	94	81	...	Night damp.
,, 3	...	...	94	81	...	,, ,,
,, 4	...	...	91	82	...	Overcast, lightning.
,, 5	...	...	87	83	...	,, ,,
,, 6	...	...	91	82	...	Cloudy.
,, 7	...	...	91	83	...	
,, 8	...	...	92	83	...	
,, 9	...	...	91	83	1	Cloudy, lightning.
,, 10	...	...	91	83	1	Night very damp.
,, 11	...	...	91	82	1	,, ,,
,, 12	...	...	89	80	1	
,, 13	...	...	88	80	1	
,, 14	...	...	89	78	1	
,, 15	...	...	89	78	1	
,, 16	...	...	91	79	1	
,, 17	...	...	92	80	1	
,, 18	...	...	91	82	1	
,, 19	...	...	88	81	1	Night very damp.
,, 20	...	...	88	79	1	Hazy, thunder, lightning evening.
,, 21	...	...	85	77	1	
,, 22	...	...	91	79	2	Night damp.
,, 23	...	...	88	81	1	Heavy dew.
,, 24	...	...	88	79	1	Hazy.
,, 25	...	...	88	77	1	,,
,, 26	...	...	91	77	1	,,
,, 27	...	...	91	77	1	
,, 28	...	...	90	80	1	Cloudy.
,, 29	...	...	88	79	1	,,
,, 30	...	...	86	79	1	,,
,, 31	...	...	95	79	1	Cloudy, lightning.
November 1	...	...	95	77	1	
,, 2	...	...	96	78	1	Cloudy.
,, 3	...	...	96	78	...	,,
,, 4	...	...	89	78	...	Cloudy, lightning, thunder.
,, 5	...	...	87	75	...	
,, 6	...	...	82	72	...	Overcast.
,, 7	...	...	84	72	1	Cloudy.
,, 8	...	...	84	74	1	
,, 9	...	...	85	75	...	
,, 10	...	...	84	74	...	
,, 11	...	...	82	73	...	
,, 12	...	...	82	72	...	
,, 13	...	...	80	72	...	
,, 14	...	...	81	74	...	Overcast.
,, 15	...	...	82	74	...	,,
,, 16	...	...	82	74	...	
,, 17	...	...	84	74	...	
,, 18	...	...	83	71	...	
,, 19	...	...	82	71	1	
,, 20	...	...	81	72	1	
,, 21	...	...	81	73	...	
,, 22	...	...	80	72	...	
,, 23	...	...	79	60	...	Heavy rain, severe storm at night.
,, 24	...	...	79	65	...	Cloudy.
,, 25	...	...	75	65	...	
,, 26	...	...	80	68	...	
,, 27	...	...	86	74	...	
,, 28	...	...	89	69	...	Cloudy.
,, 29	...	...	80	69	...	,,
,, 30	...	...	90	72	...	Drizzle at night.
December 1	...	...	89	70	...	Overcast.
,, 2	...	...	84	69	...	Cloudy.
,, 3	...	...	92	70	1	
,, 4	...	...	90	71	1	
,, 5	...	...	89	67	1	
,, 6	...	...	92	67	...	
,, 7	...	...	84	68	...	Cloudy.
,, 8	...	...	83	71	...	Stormy, cloudy, lightning.
,, 9	...	...	83	68	...	Overcast.
,, 10	...	...	81	68	...	,,
,, 11	...	...	77	66	...	,,
,, 12	...	...	77	61	1	Cloudy, rain.
,, 13	...	...	77	62	1	Cloudy.

Date.	Temperature.				Sick.	Particulars and Rainfall.
	Dry.	Wet.	Max.	Min.		
1905.			Degrees.	Degrees.		
December 14	...	...	82	65	1	Overcast, thunder, rain, cyclonic weather.
,, 15	...	...	76	62	1	Rain.
,, 16	...	...	76	66	...	,,
,, 17	...	...	76	62	...	
,, 18	...	...	76	61	...	Cloudy.
,, 19	...	...	71	60	...	,,
,, 20	...	...	72	62	...	Rain at intervals.
,, 21	...	...	77	62	...	Showers of rain day and night.
,, 22	...	...	67	59	...	Overcast, rain.
,, 23	...	...	62	60	1	
,, 24	...	...	73	58	1	
,, 25	...	...	71	62	1	Drizzle.
,, 26	...	...	72	62	1	Cloudy.
,, 27	...	...	70	59	1	
,, 28	...	...	75	59	...	Hazy.
,, 29	...	...	75	56	...	
,, 30	...	...	75	56	...	
,, 31	...	...	75	57	...	
1906.						
January 1	...	...	80	62	...	
,, 2	...	...	76	56	...	
,, 3	...	...	80	63	...	Cloudy.
,, 4	...	...	83	63	...	
,, 5	...	...	81	65	...	
,, 6	...	...	75	66	...	
,, 7	...	...	70	64	1	Hazy.
,, 8	...	...	81	60	4	
,, 9	...	...	78	65	3	
,, 10	...	...	76	63	4	Overcast, drizzle.
,, 11	...	...	82	62	2	
,, 12	...	...	81	62	2	Cloudy, rain.
,, 13	...	...	76	68	2	Cloudy.
,, 14	...	...	76	68	2	,,
,, 15	...	...	78	69	...	Cloudy, drizzle.
,, 16	...	...	72	61	1	Cloudy.
,, 17	...	...	72	60	...	
,, 18	...	...	77	65	...	
,, 19	...	...	73	64	...	
,, 20	...	...	75	65	...	Cloudy.
,, 21	...	...	75	65	...	Overcast.
,, 22	...	...	76	65	...	Dusty.
,, 23	...	...	74	63	...	Cloudy.
,, 24	...	...	70	62	...	,,
,, 25	...	...	70	62	...	,,
,, 26	...	...	70	62	...	
,, 27	...	...	70	62	...	Cloudy, lightning.
,, 28	...	...	71	61	...	Cloudy.
,, 29	...	...	70	63	...	Overcast, rain.
,, 30	...	...	71	56	...	Rain all day.
,, 31	...	...	70	56	...	
February 1	...	...	70	57	...	Cloudy.
,, 2	...	...	70	57	...	Overcast.
,, 3	...	...	69	56	...	Stormy, overcast.
,, 4	...	...	68	62	...	Steady rain all day.
,, 5	...	...	67	63	...	Cloudy, rain.
,, 6	...	...	69	63	...	Cloudy.
,, 7	...	...	70	62	...	,,
,, 8	...	...	74	61	...	
,, 9	...	...	70	62	...	Cloudy.
,, 10	...	...	68	63	...	Overcast.
,, 11	...	...	68	60	...	Drizzle.
,, 12	...	...	66	62	...	Rain all day.
,, 13	...	...	70	62	...	Cloudy, rain.
,, 14	...	...	70	62	...	
,, 15	...	...	68	62	...	Overcast.
,, 16	...	...	68	62	...	Cloudy, rain.
,, 17	...	...	69	63	...	Hazy.
,, 18	...	...	69	65	...	,,
,, 19	...	...	68	64	...	Cloudy, rain.
,, 20	...	...	69	62	...	,, ,,
,, 21	...	...	68	62	...	
,, 22	...	...	70	61	...	
,, 23	...	...	67	62	...	
,, 24	...	...	68	62	...	
,, 25	...	...	70	62	...	
,, 26	...	...	70	64	...	
,, 27	...	...	70	64	...	Cloudy.
,, 28	...	...	71	65	...	,,

TABLE IX.—Giving Meteorological Data recorded at the British Consulate, Mohammerah, from March 1904 to February 1905.

	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	January.	February.
	Deg.	Deg.	Deg.	Deg.	Deg.	Deg.	Deg.	Deg.	Deg.	Deg.	Deg.	Deg.
Highest actual maximum ...	76·0	84·0	105·0	109·0	110·0	107·0	106·0	94·0	87·0	71·0	67·0	66·0
Lowest actual minimum ...	54·0	60·0	68·0	76·0	84·0	81·0	73·0	63·0	52·0	41·0	32·0	40·0
Mean monthly maximum ...	70·5	78·4	91·4	102·7	103·0	102·3	96·5	84·9	76·8	59·9	57·2	58·8
,, ,, minimum ...	59·0	65·4	75·0	82·9	87·0	84·5	78·7	69·5	63·8	48·9	45·5	47·8

From March 1905 to February 1906.

Highest actual maximum ...	72·0	88·0	98·0	110·0	110·0	110·0	102·0	95·0	82·0	78·0	64·0	65·0
Lowest actual minimum ...	48·0	57·0	65·0	80·0	82·0	81·0	75·0	68·0	55·0	33·0	42·0	47·0
Mean monthly maximum ...	66·1	81·4	89·1	100·7	103·1	101·4	95·4	87·8	74·0	59·2	56·6	61·6
,, ,, minimum ...	55·8	67·8	75·4	83·0	86·6	85·0	79·6	73·7	60·4	48·2	46·0	51·6

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