

Detailed report of the Medical Commission sent by the Maltese Civil Government on April the 5th. 1893, to Benghasi, in order to investigate and report upon the causes and nature of an epidemic disease, said to be raging in that place.

Contributors

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with Surgeon Captain Hughes' ~~Am~~
Tracts B. 144.
Compt. 5/6/93.
(1)

REPORT

of the

MEDICAL COMMISSION

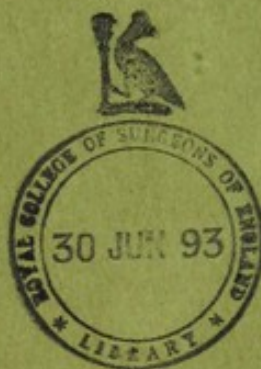
SENT TO BENGHASI

by the GOVERNMENT OF MALTA.

Laid on the Table of the Council of Government.

By order

G. STRICKLAND,
Chief Secretary to Government.



MALTA.
GOVERNMENT PRINTING OFFICE.

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60



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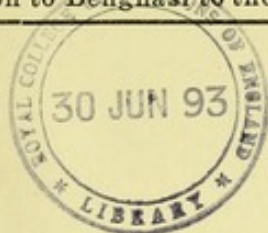
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From the Medical Commission to Benghasi to the Chief Secretary to Government.



Malta, May 2nd 1893.

Sir,

We have the honour to report our arrival in Malta and to enclose the detailed report of our visit to Benghasi and Derna. Our report is divided into four sections of which the last two deal more particularly with the causes and nature of the prevailing epidemic.

During our stay at Benghasi we were well received by the British Consul, French Consul, the Civil and Military Medical Officers, the Civil and Military Government Officials and the general populace.

Dr. Angelo Mizzi the travelling Ottoman Sanitary Commissioner from Tripoli with great kindness placed at our disposal his notes taken whilst travelling in the interior between Derna and Benghasi. To the Maltese community we distributed such medicines and stimulants as we deemed advisable and to the Maltese and others of the inhabitants we gave the benefit of our medical advice, all of which they were much in need of. On our departure we handed over to the Capuchins some of our medicines to replenish their store, which had become totally exhausted owing to gratuitous distribution to the Maltese during the recent epidemic, previous to our arrival.

In conclusion we would bring to your notice the extreme kindness with which we were received by the British Consul Mr. Alvarez and his wife, who placed their house and table at our service, no small boon in a place possessing no facilities for strangers, thereby adding to our personal health and comfort and saving the Commission much trouble, time and expense.

We have the honour to be,

Sir,

Your obedient servants

D. VELLA—M. LOUIS HUGHES, *Surg. Capt. A.M.S.*



Section I.

- (a) PRELIMINARY REPORT TO PROF. PISANI.
- (b) TELEGRAM TO CHIEF SECRETARY TO GOVERNMENT.
- (c) DIARY OF MOVEMENTS.



REPORT of Medical Commission sent by the Maltese Government to Benghasi.

In accordance with instructions received by us, on behalf of the Civil Government of Malta, we landed from the "S. S. Lady Downshire" at Benghasi on April 8th 1893, at 9 a.m. for the purpose of inquiring into the nature of the epidemic disease prevailing there and of assisting, if necessary, any Maltese, who might be in need of medical advice.

On the same day at 6 p.m. we were able to make a preliminary verbal report from a boat to Prof. Pisani, on the "Lady Downshire" (without communicating) which enabled him to at once depart for Malta.

(a) Preliminary Report to Prof. Pisani.

Our preliminary verbal report was to the effect that:—

I. "Plague" or "Bubonic Peste" was not at the time present in Benghasi, nor had it prevailed for some years, in that or neighbouring towns.

II. An epidemic apparently of contagious "typhus exanthematicus" had been prevailing in Benghasi from December 1892 until the middle of March 1893, with much mortality, but that it was now said to be over, as no fatal cases had occurred for 20 days and the cases immediately preceding that time had been reported to be of a sporadic and abortive character. The cases shown to us on April 8th were not characteristic of Typhus, while some appeared to be more characteristic of Typhoid or Enteric Fever.

III. The epidemic was said to have resulted from the arrival from the interior of a large number of Bedouins in December 1892, in a famine-stricken condition, combining this state with extreme misery, dirt and over-crowding.

IV. We were shown sanitary official records stating that Dr. A. Mizzi (the travelling Turkish Sanitary Commissioner) when he arrived from Tripoli at Benghasi on March 29th last, found only cases of Typhoid or Enteric Fever.

V. We had heard a rumour among Military Officials, that Typhus had also broken out at Derna, but this rumour had no official confirmation.

The above report was based on information received from the Sanitary Medical Officer, the British Consul (Mr. W. Alvarez) the Deputy-Governor, the Chief of the Municipality, the three Military Medical Officers; and on our own observations and interrogations of cases of fever, convalescents, and of relations, and friends of previously fatal cases.

We would now add to the above the following corrections : —

- (1) The epidemic had not ceased so completely as supposed, as we were enabled to observe typical cases of "Typhus Exanthematicus" during our stay at Benghazi.
- (2) The opinion of Dr. A. Mizzi as officially recorded in the Sanitary Office did not represent the whole state of affairs, but his official telegram to Constantinople dated March 29th will be found on page 28 of our report in which he distinctly states the disease to be "Typhus exanthematicus."

(b) Telegram to Chief Secretary to the Government of Malta.

Copy of telegram sent to the Chief Secretary to the Government of Malta, on arrival at Alexandria in "S. S. Antona":—

Alexandria, April 27th, 10 a.m.

" Chief Secretary
Malta.

" Doctors Vella, Hughes, arrived Alexandria—left Derna 24th—Typhus sporadic
" Derna Benghazi—Epidemic over—awaiting instructions—Kedivial Hotel."

(c) Diary of Movements.

Wednesday, April 5th—Left Malta in "S. S. Lady Downshire" in company with Professor Pisani C.G.M.O. at 6.30 p.m.

Friday, April 7th—Arrived at Benghazi, 4.30 p.m.

Saturday April 8th—Landed at Benghazi 9 a.m.—Made preliminary verbal report to Professor Pisani at 6 p.m. after which the "Lady Downshire" at once left for Malta.

Saturday, April 22nd—Left Benghazi at 6.30 p.m. in Bell's Asia Minor "S. S. Antona".

Sunday, April 23rd—Arrived at Derna 4.30 p.m.

Monday, April 24th—Left Derna at 6.30 p.m.

Thursday, April 27th—Arrived at Alexandria at day-break and telegraphed to Chief Secretary Malta.

Saturday April 29th—Left Alexandria at 5.30 p.m. in Papayanni "S. S. Roumelia".

Tuesday, May 2nd—Landed in Malta 10 p.m.

Section II.

(a) FURTHER REPORT ON BENGHASI (with map).

SITUATION.

DESCRIPTION.

POPULATION.

RELIGION.

CLIMATE.

SOCIAL AND COMMERCIAL CONDITION.

AGRICULTURE &c.

EXPORTS AND IMPORTS.

EXCHANGE.

SPONGE AND SALT INDUSTRIES.

TOBACCO MONOPOLY.

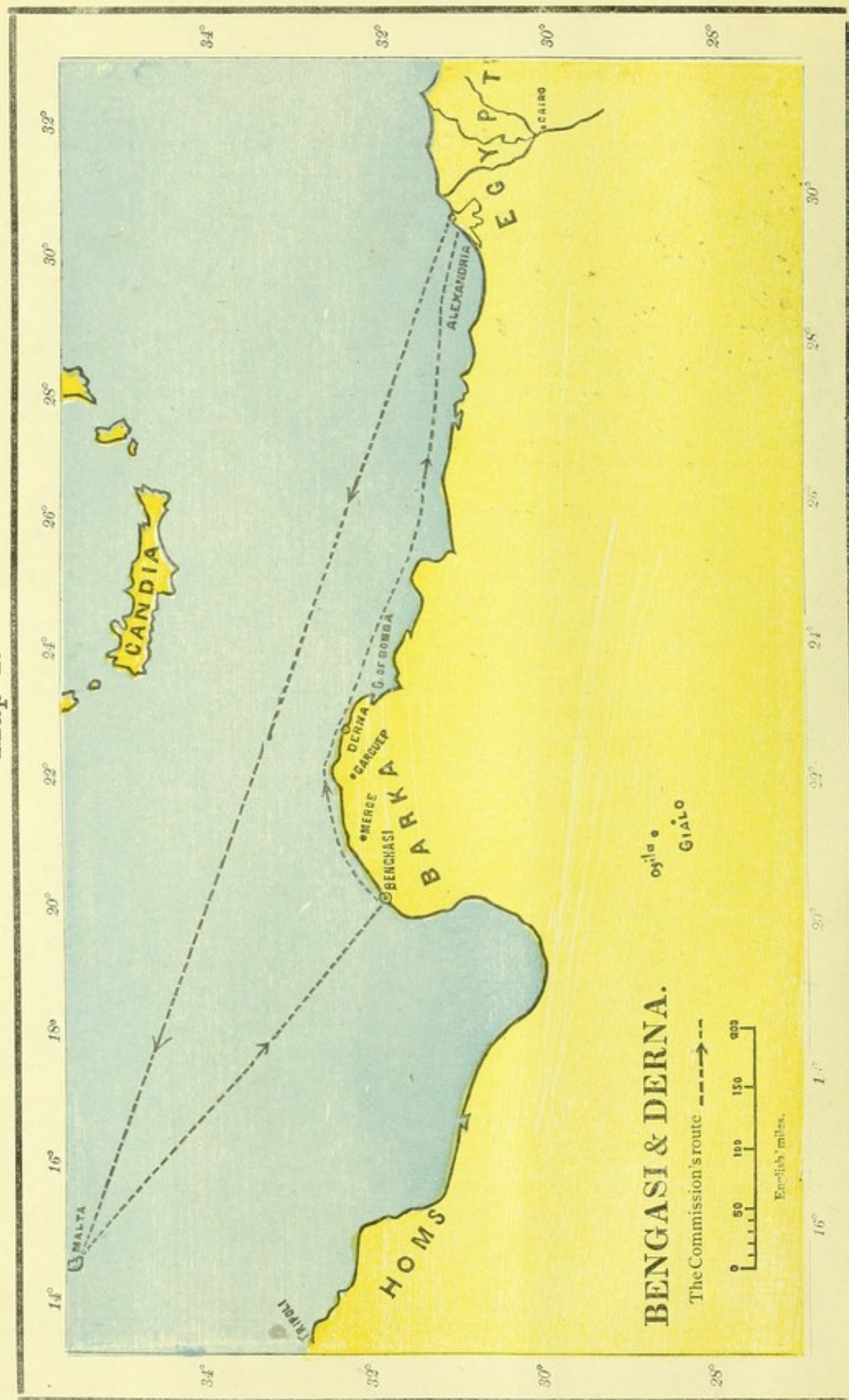
SHIPPING &c.

(b) DESCRIPTION OF DERNÄ.





Map I.



BENGASI & DERNÄ.

The Commission's route - - - - -



English miles.

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GIALO

(a) Further Report on Benghazi, Derna, &c.

Situation. The town of Benghazi, is situated on the western side of the promontory of Barka between Tripoli on the west and Alexandria on the east, on the Northern littoral of Africa and on the eastern shore of the Great Syrtis, (Lat. 20, 2', 40" E. and Lat. 32, 6', 51" N.) It is the capital of the Province of Benghazi, in Tripolitania and is governed by a Mutessarif under the Ottoman rule, but independent of the Valy or Governor-General of Tripoli.

Description. The approach by sea is not good, there being many shoals, rocks and shallows. The only harbour is fast filling up with sand and alluvium brought down by the heavy rains and is only suitable for very small sailing vessels and boats. A jetty is at present being constructed and dredging operations on the new harbour are in progress, but until these are completed it will be unsafe, for even small vessels to approach in rough weather. The appearance of the town on arrival is picturesque, especially at sunset, the white towers and domes being visible in sunlight from some distance. There is a revolving lighthouse on Cape Sedi Kreibeesh, N. E. of the town 72 feet high flashing every 30 seconds and visible 15 miles. On the left hand (on our arrival) were large groves of date-palms, separated from the town by the light-house, a wind-mill and a cemetery with its white marabouts. Beyond these extends the town, a central minaret marking the situation of the public square and municipality. In the centre in front, on a point of land joining the eastern horn of the bay, is a fairly dilapidated fort, with guns of obsolete construction on the battlements. Beyond to the right, is the small and shallow bay giving anchorage, to the small vessels and boats used in the sponge and salt industries, the deepest part being some 6 to 7 feet at the present time. On the shore of this bay is a railway running from the quarries 4 miles off and constructed in 1892 at a cost of about £ 8,600 to assist in building the break-water. Behind the railway are the pyramids of salt, awaiting removal, piled on a stretch of sand, also the Custom House and Pratique Offices. Further to the right extend salt marshes, sand, a small village and cemetery, the barracks (a conspicuous long white building) and sand hills, until the opposite horn of the bay is reached, where are more date-palms, and the Christian Cemetery. Behind the town extend salt marshes, the green and fertile country and a back-ground of hills some 14 miles inland.

The town itself, is on very low sandy ground, on a point of land almost surrounded by sea and salt-marshes. The houses with a few exceptions are one-storied being built of mud and stones and being in the case of a few of the more pretentious, covered with stucco.

Population. The population numbering from 16,000 to 23,000, consists of Arabs, Bedouins, Turks, Egyptians, Tunisians, Greeks, Candiotas and other Levantines, Jews, Negroes, Soudanese, Maltese and a few other Europeans.

There are British and French Consuls resident in the place, the representatives of Italy, Holland and Austria being absent. The Europeans, Greeks and a few well-to-do Arabs, live in fairly good and clean houses, but the remainder, and by far the larger number, live in a state of squalor and dirt, in more or less dilapidated and miserable houses. There are a few Capuchin Monks and Sisters of St. Joseph, who work among the poor, doing much material good to the Christian community most of whom are at present very poor.

The Christians (mostly Maltese) and British protected subjects at present number some 370 souls, and the Turkish garrison consists of some 1,500 soldiers, well fed, but badly clothed, slovenly and much in arrear of pay.

Religion. The religion is mostly Moslem, in the observances of which (except in the case of ablution) the Arabs are far more strict than the Turks. There are also Catholic, Greek and Jewish Communities, who follow the observances of their respective religions.

Climate. The climate in April is cool and very pleasant except when the hot and sandy ghibly wind is blowing. It is never of itself unhealthy except for sudden changes

in temperature most common in spring and autumn when a change from the hot dry, ghibly wind to a cold damp east wind, may make a difference of from 15-20° F. and in consequence of this, combined with sand and multitudes of flies, causing much asthma, rheumatism and ophthalmia. The rainy season is from the beginning of November to the end of February as a rule.

Social and Commercial condition. The inhabitants, are extremely poor and dirty, clothed in rags in most instances, and even at the present time ill-fed. There are no public works except the railway, harbour works and salt industry, and for political reasons even these have for some months been at a stand-still. There is no capital or enterprise to promote labour, while the absence of telegraphic communication and the recent panic and stringent quarantine regulations have not improved matters. The pastoral and agricultural interests of the interior employ the Bedouin population and have again drawn them out of Benghasi for the present, but the last three years successive failure in crops has so impoverished these nomadic tribes that they have scarcely money enough to take advantage of the recent rains, and their naturally improvident character combined with Turkish administration will make any famine (which may for this reason occur) next winter, a wide-spread and national calamity and possibly involve Benghasi, if its present insanitary condition is allowed to continue, in a worse epidemic than has lately occurred. There are few merchants at present and these are poor, trade is at a very low ebb, shops are few and the bazaars are dirty ill-cared for and doing little business.

Agriculture &c. The principal agricultural interests are in barley, grapes, dates, pomegranates, apples, apricots, peaches, figs, prickly-pears, almonds, &c. The grapes are very good but the figs and dates are inferior, many being imported from Mensurata, Tripoli and Tunis. Locusts frequently visit the interior doing much damage to the crops, but the Arabs are learning how to combat against them.

A large number of cattle, sheep and horses are also bred in the interior and exported by sea or land to Malta, Canea and Alexandria. An exceptionally large number were exported last year owing to lack of food for them and want of money, the result of famine.

Exports. The remaining principal exports are :—

EXPORTS	
Article of Exportation	Destination
Butter	Crete, Egypt, Smyrna, Malta
Canes	Alexandria
Charcoal	Canea, Malta, Tripoli
Hides	Malta, France, Tunisia
Ivory	England, via Malta
Madder	Alexandria
Ostrich Feathers	England and France
Salt	Syria and other Turkish provinces
Sponges	Crete, Greece and Malta
Wool, Horsehair, &c.	Tripoli and Malta

Imports. The chief imports to Benghasi are :—

IMPORTS	
Article imported	Country or Port of Origin
Barley and flour	Constantinople, Salonica, Smyrna
Barracans	Mensurata and Tripoli
Candles, Coffee, Dates	} Canea, Malta and Tripoli
Perfumes, Tobacco	
Wines and Spirits	
Caps and Fezzes	Constantinople, Tripoli and Tunis
Clothes, Earthenware	} Malta
Flour, Wheat, Soap	
Furniture, Sugar, &c.	
Coal, Tea, Timber	England, Malta, Alexandria
Cotton Goods	England, France, Alexandria, Tripoli
Hides	Alexandria and Tripoli
Iron and Copper	England, France, Malta, Tripoli
Leather	Egypt, Malta and Syria
Maize and Vegetables	Smyrna and Alexandria
Dried Fruit	Tripoli and Malta
Matting	Mensurata
Oil	Crete, Malta and Tripoli
Silks	Constantinople, Egypt and Canea
Woollen goods	Alexandria, England and Tripoli
Dates	Mensurata, Tripoli and Tunis
Soap	Mensurata

There is usually a considerable trade in ivory and ostrich feathers, in exchange for British goods (especially cotton and cloth) and incense, cloves, tea and sugar, with the interior of Africa, especially with Waday, by means of Caravans, but at present the disturbed state of the nomadic tribes makes this route and also those to Derna and Egypt unsafe.

Slave-trading is carried on to some extent but is as far as possible prevented by the British Representative, a number of slaves being emancipated each year.

Exchange. The average exchange is roughly

English Sovereign	...	...	...	...	=	140-3 piastre
Ottoman lira	...	...	...	...	=	130 "
French Napoleon	...	...	...	...	=	114 "
5 Franc piece	...	...	...	...	=	27½ "
Mejidie	...	...	...	...	=	24 "
Dollar (Maria Theresa)	...	...	...	...	=	22 "

Sponges. The sponge fishery by the sale of licences gives a source of revenue to the State amounting in 1892-93 season to 208,400 piastres, and also brings some trade to Benghazi.

Salt. The extraction of salt from the adjacent saline marshes, is a Government monopoly.

The salt crystallizes in July and is extracted and carried to the coast between September 16th and October 1st each year, and piled on the shore in pyramids to mature (this process taking from one to two years) after which it is exported, producing an average yield of 13,863,686 Kilos (13,640 Tons 17 cwt.) annually. Nearly six-sevenths of this amount is sold bringing in an annual revenue of 3,822,038½ piastres or nearly £ 34,746. It is also a means of livelihood to some 14 clans of workmen, but it has been in abeyance during 1892 as these clans refused to work owing to political reasons connected with taxation.

Tobacco. The tobacco monopoly produced in 1891-92 a consumption of 18,020 Kilos of Tobacco and snuff in Benghazi and 3,434 Kilos in Derna producing a value of 604,166 piastres.

Shipping. The steamers and sailing vessels entering and clearing from the Port of Benghazi were principally British, Greek, Ottoman, Austro-Hungarian &c.

In 1890 to the number of	728	=	47,534 tons.
1891	"	"	789 = 56,711 "
1892	"	"	925 = 74,123 "

The country is capable of large commercial, pastoral and agricultural prospects in the future, but under the present administration without a port or telegraphic communication, it must remain in its present state or even proceed further in its downward course. The town which is the central market of the province is of comparatively modern date being of insignificant size a hundred years ago. The British Representative came as Consular Agent in 1813, was promoted to a Vice-Consul in 1827 and to a Consul in 1874. At one time a telegraph did exist and there was in consequence a greater amount of trade and prosperity. At present Benghazi is an isolated, highly insanitary, dreary town, in a state of poverty and inaction.

(b) Description of Derna.

The town of Derna is situated on the eastern side of the province of Barka, six days journey by road from Benghazi; Lat. 32, 45', 11" N. and Long. 22, 4', 1" E. The approach by sea is good, there being from 7-9 fathoms of water a mile from the shore, and deep water closer to the shore, safe except during E. or N.E. winds. To the left are the barracks, a low isolated and conspicuous building in front a few small Custom and

Pratique offices and to the right a marabut and lighthouse on Ras Boahsah half a mile from the anchorage. The light is 92 feet above the level of the sea flashes once a minute and is visible 15 miles off. Behind the pratique offices and landing place is a thick grove of Date-Palms the first to be seen after leaving Benghasi. These trees conceal the town which is about $\frac{3}{4}$ of a mile inland in the midst of large and extensive gardens, all situated in the mouth of a large gorge or fiumara running down from a double line of hills in the background. This gorge is dry in summer but full of running water during the rainy season dividing the town into two parts. That on the western bank is the larger portion and contains a busy bazaar and meat market, with a public square, a small fort and a few streets, at this spot the houses are somewhat crowded together, but the remainder are more scattered, each being situated in a large garden, containing dates, bananas, pomegranates, vines, lemons and garden produce of various kinds. These gardens are extremely fertile owing to the abundance of water. The streets are level and well kept there being abundance of flint and stone and a lack of the sandy condition found in Benghasi. The population numbering from 3,500 to 4,000 consists of Arabs, Bedouins, Turks, Jews, Negroes, one Maltese family and a few of other nationalities. The people are well fed and appear to be in a much more prosperous and cleanly condition than in Benghasi. Ophtalmia is very rife especially among the Jewish families, leading in a very large number of neglected cases to loss of one or both eyes. There is excellent stone to be found for building purposes, easily worked and yet harder than that of Malta, being of a chalky limestone, with occasional admixture of flint. The habits, customs, religion and government do not differ from Benghasi, but abundance of fresh water has made the place more fruitful, prosperous and pleasant to live in than Benghasi.



Section III.

(a) HYGIENIC AND SANITARY CONDITION.

HOUSES	}	BENGHASI.
STREETS		
REMOVAL OF EXCRETA		
CEMETERIES		
FOOD AND WATER SUPPLY		
SURROUNDINGS		
SALT MARSHES		

(b) NOTES ON DERNA.

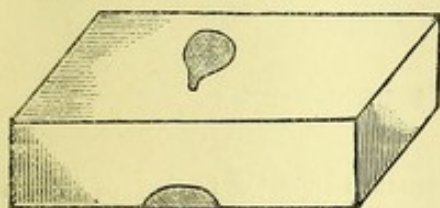


(a) Hygienic and Sanitary Condition of Benghazi.

Benghazi is a typical Arab town under Turkish Rule, where death and epidemics are received with fatalistic Moslem apathy as "God's Will," and sanitation and public health receive little attention. The majority of the houses are crowded together, separated only by narrow streets, or blind alleys, and mostly in a state of filth, dilapidation and insanitation. They consist as a rule of a courtyard, surrounded by a varying number of small rooms, in which, one or more families and a heterogeneous collection of blacks and domestic animals live. These rooms containing from 2 to 6 people at night, are unventilated, long and narrow in shape, and low, with an air-space ranging from 450 to 1,600 Cubic feet. They have rarely more than one small window from one to three feet square and a door, both as a rule kept shut (especially in fever cases) and both opening on to the court-yard. With the exception of a large wooden front door there is no opening to the street in the Arab houses. The court-yard with few exceptions is unpaved, absorbent, and littered with rubbish and dirt of every description and here moreover donkeys, camels, ponies, negroes, &c. live.

In the centre is a shallow well or pit receiving the refuse water of the kitchen and house and the surface drainage of the yard which soaking into the absorbent and sandy soil make the removal of the contents a luxury rarely indulged in. In close proximity to this is a deep well containing rain-water from the roof and brackish water which has infiltrated through the soil, this supply being used for washing and even cooking purposes. Occasionally there is an underground cistern also for drinking water obtained on payment from wells and springs 2 miles off inland, but this is more often stored in covered jars in the yard.

Next the kitchen, as a rule is the common latrine, usually in a filthy state which in the better class houses has a stone or concrete dais about 6 inches high provided with a central orifice for defecation purposes and a small hole in front on the ground for the escape of urine, which as a rule is discharged straight on to the more or less absorbent floor. The holes in this dais lead occasionally into the street but more often



into a pervious cesspit under the street and close to the front door. This cesspit is closed by a large slab of stone cemented with mud, but by no means hermetically sealed and moreover on account of the unevenness of the street it makes a capital seat for the numerous street loafers. The ventilation of the cesspits takes place by way of the house latrine and any aperture that may exist into the street. They are emptied whenever there is an overflow, which on account of the porous nature of the soil is scarcely more frequent than every eighteen months. The contents are thrown into an adjacent shallow salt marsh. House refuse is thrown straight on to the street, being occasionally removed by the municipality, but more often left to the chance scavenging of dogs, beggars, etc.

The streets and bazaars etc. with few exceptions are uneven, unpaved and narrow sloping to a central gully or line of puddles. They are foul and littered with the refuse and excrement of man and beast even to some distance beyond the town. Extending to within a few yards of the town on two sides and for some distance along the only two main roads are large saline marshes. The farther and cleaner ones are a lucrative source of revenue to the State (see back, Salt Monopoly). Those close to the town are very shallow, being scarcely more than a foot or two deep and in an extremely foul and stinking condition, a receptacle for the town refuse and dead horses and other animals, which refuse is gradually filling them up. The sea has access to the marsh through small holes in the railway bridge, but though in this manner it supplies water to make up for loss by evaporation, it has little or no cleaning effect owing to the small size of the holes. The banks of the marsh especially on the town side are lined for some yards with heaps of rubbish and foetid mud even up to the walls of the houses. The marsh is crossed by two bridges or rather embarkments pierced at intervals with holes, one being a railway and the other a main road.

The streets and bazaars with few exceptions are unpaved and uneven, but the roads leading from the town are better but full of ruts and very dirty. The ground for three

quarters of a mile round the town is much polluted and has no vegetation and there is no direction in which one can walk within a two-mile radius of the centre of the town without being met by the most unpleasant and unsavoury odours.

There are two large Moslem Cemeteries one in the eastern end of the town and one about half-a-mile away between the main road and a small suburban village. An open square in front of the French Consulate still contains the graves of those who died of plague in 1858-59.

The Christian Cemetery is well away from the town. The bodies in the Moslem Cemeteries are buried at present without coffins about a foot below the surface of the ground, and even now many of the fatal cases of typhus have been unearthed by the dogs. Only a few of the graves are concreted over.

The Barracks are at Barka, two miles from the town, on the edge of the green country and well situated. A large number of the troops are at present under canvas behind the barracks, on account of the epidemic, and as few as possible are kept in town.

The Blacks and Arabs live mostly on barley, bread, semolina, maize, dates, inferior rice and their preparations, eating beef and mutton (when obtainable) especially during certain feasts. The Turks consume more vegetables than meat and eat fish which the Arabs do not. For religious reasons the Jews eat only the best and purest meat.

The inhabitants of the town rely solely for their water supply, on such rain water from the roof and brackish water infiltrating into their house wells, while for drinking purposes water is carried on camels and donkeys from springs and wells some two miles off in the country. This latter is an excellent supply but expensive. Those inhabiting country houses obtain excellent water from deep wells from which it is drawn by horses. On the amount and continuance of the rainfall in winter depends the prosperity of the interior and, indirectly, the wealth and trade of the whole province.

(b) Notes on Derna.

The sanitary condition of the town of Derna is much superior to that of Benghazi for three reasons, firstly the soil is hard and stony, instead of being composed of absorbent sand, secondly the houses are better built and further apart, there being abundance of white stone for building purposes, and lastly there is abundance of fresh and sweet water all the year round. Consequently, the roads and streets are well laid, level, and clean. Each street has a stream of running water either in an open channel or running beneath the road-way. This channel has frequent side openings by which the water has access to the large and fertile private gardens. The houses are mostly built in these gardens and hence more scattered, except round the market, bazaar, and public square where there is much crowding and here the epidemic was most prevalent. The houses are better built than those at Benghazi and kept cleaner, but have the same insanitary system of cesspit and much smaller court-yards. The windows are, as a rule, smaller and the rooms consequently less ventilated.

The people seem well fed and the water supply from the springs above the town is excellent. There is not the same fouling of the surroundings present in Benghazi.



Section IV.

(a) DETAILED MEDICAL REPORT.

HISTORY OF TYPHUS IN THE MEDITERRANEAN.

MEDICAL HISTORY OF BENGHASI.

HISTORY OF THIS EPIDEMIC.

TELEGRAM OF DR. MIZZI 29/4/93.

CHARACTERISTICS OF THE EPIDEMIC

ORIGIN

EPIDEMIOLOGY

SYMPTOMATOLOGY

STATISTICS AND DISTRIBUTION (with map).

(b) FINAL REMARKS.



(a) Detailed Medical Report.

History of Typhus in the Mediterranean. Typhus though as a rule a disease of cold climates, has prevailed in Italy, Sicily, Constantinople, Cyprus, Egypt, Nubia, Tunis (1868), Algiers (1861-62 and 1868), Setif (1863), in the last three places following famine.

Cases are said by the older physicians to have occurred in Malta from time to time from imported infection, but the epidemic amongst the troops in 1865 of "continued fever" mentioned by Hirsch (Vol. I p. 563) consisted more probably of Mediterranean fever (including cases also of febricula and undiagnosed enteric fever). The epidemic in question occurred during the dry summer months (June to September), of a year when from the cyclical study of Mediterranean fever, an increased prevalence was to be expected; and in barracks noted previously and subsequently for the occurrence of this fever. Moreover the prevalence of "continued fever" that year was less than in 1860-1867-1872 and 1877, and the case mortality during the epidemic was only 0.69 per cent. Among the civil population in 1865 Cholera and Smallpox raged with much mortality, and but two cases, both fatal, were admitted (July 1st and 17th) to the Central Hospital (Male Division) whose disease was said to be Typhus. These facts would seem to be conclusively against the theory of an epidemic of Typhus having occurred in Malta in 1865.

Medical History of Benghasi. From information derived from the writings and reports of Drs. Armond, Dickson Vardata and from other sources we find that:—

True Oriental or bubonic plague existed in Benghasi town, as a terrible epidemic in 1858-59 and again at Merge, between Derna and Benghasi, in 1874.

Cholera has visited Benghasi more than once notably in 1850-1854 and less severely in 1835.

Smallpox occurs in regular epidemics, stated to recur, about every seven years, in very severe form.

Diphtheria is of frequent occurrence and we ourselves saw a fatal case. Sore Throat, Tonsillitis and Erysipelas are not uncommon and Typhoid Fever occurs sporadically every year especially in spring and autumn.

Typhus raged in Benghasi, in 1872, and to a less extent in 1874, following in each instance failure of crops and famine.

History of the recent epidemic. Towards the latter end of November 1892 and during the early part of December following, cases of the disease in question are reported by Dr. Planchit, the Government Port Medical Officer to have been present among the Bedouins of the interior and to have occurred sporadically during the second week of December among the Arabs in the town. Its appearance, at Benghasi in epidemic form (just before December 13th 1892) was shortly after the arrival of a large number of Bedouins from the interior (estimated to have reached between December 13th and February 29th 20,000). These Bedouins were in a famine-stricken condition, owing to failure of crops, the result of three successive years of drought combined with visitations of locusts. These Bedouins camped in open spaces close to and even among the houses of Benghasi combining hunger, extreme misery, and dirt with over-crowding and much fouling of the ground and atmosphere. Very many died of famine, cold and hunger and during the early stages of the epidemic sanitary measures, burial &c. were carried out in the most unsatisfactory manner. At this period, also, heavy rain fell and the weather became extremely cold. A virulent form of contagious fever with excessive mortality was observed towards the end of December among the Bedouins in tents, which early in January became very severe and spread to the town, reaching its height among the Arab population of the town, about the latter half of January. In January also it spread to the Christian Community reaching its maximum intensity between February the 12th and 25th 1893. During the first week of February the departure of many of the Bedouins caused, a temporary decrease, in the prevalence of the disease amongst the Arab population, but towards the third week more Bedouins arrived, and crowding round the town caused a fresh out-break.

The alarm caused by this increase in the prevalence of the disease, combined with the scarcity of money and trade caused many of the Christians to leave about March 1st.

The Bedouins left permanently, about the end of February. During March the disease began to rapidly decrease in prevalence—the cases becoming milder in type and were reported to be of a sporadic and abortive character.

Telegram of Dr. Mizzi. On March 29th 1893, Dr. Angelo Mizzi, the Turkish travelling Sanitary Commissioner, reported to Constantinople as follows:—

(Copy of official Telegram of March 29th 1893).

“ Administration Sanitaire
“ de l'Empire Ottomane
“ à Constantinople.

“ Maladie Benghasi “typhus exanthématique” avec éruptions rougeoliforme, “pétéchies vibices et macules echymotiques — Cephalalgia intense, tremblement, “delirium quelquefois coma, langue sèche, constipation Temperature 39° à 40°, “quelquefois 41° Cent. Emaciation rapide. Seul caractère exceptionnel, resolution “par lysis graduelle. Points des bubons, points des charbons, exceptionnellement pendant “convalescence, parotides ou eruption furonculaire.

“ En ville epidemie en declination.

“ Mortalité 3 à 8 par jour.

(Signed) A. Mizzi.

Dr. A. Mizzi then left by steamer for Derna, returning by land to Benghasi which place he reached on April 9th (see on). Since our arrival on April 9th we have been enabled to observe 6 typical acute cases of spotted typhus in Benghasi 3 of which proved fatal, while at Derna we visited 3 more such cases. These cases were said by the local medical men to be identical in character to those which occurred previously during the epidemic. We also visited a large number of other cases, more particularly among the poorer class of Maltese and were able to give them much help, stimulants, drugs and medical advice, all of which they were much in need of.

Dr. Mizzi informed us that the above cases were also identical in character to those previously observed by himself at Benghasi, Derna and in the interior.

Characteristics of the Epidemic. From information derived from the three Military Medical Officers, the Sanitary Medical Officer of the port, Dr. A. Mizzi, the British and French Consuls, and various Turkish civil and municipal authorities, and from evidence we ourselves obtained direct from numerous convalescents and friends of previous fatal cases, and from the few acute cases we ourselves observed we have arrived at the following conclusions:—

The disease in question was without doubt that highly contagious fever known as “spotted typhus” or “typhus exanthematicus”, and that it occurred during the cold and wet weather, prevailing in epidemic form at Benghasi between December 13th 1892 and March 31st 1893 in a community at that time suffering from extreme over-crowding, dirt, misery, and famine and living in a town whose hygiene and sanitation always rudimentary for so populous a place, was moreover at that time in an exceptionally, handicapped condition, owing to the sudden influx of Bedouins doubling the permanent population.

Origin. Opinions differ as to its origin, the popular belief being that the disease was imported by the nomadic Bedouins from the interior, but it is impossible to say whether this is the true origin or whether being endemic in the soil of the town it broke out on the advent of crowds of susceptible people under the suitable conditions present for an epidemic outburst.

Epidemiology. Its prevalence was in exact proportion to the amount of overcrowding present and also to the amount and continuance of the rainfall and cold, these latter factors producing indirectly a state of over-crowding by confining the people to closed up rooms and tents. The disease spread from house to house, in regular succession of streets and quarters as a rule affecting a number of the inmates of each house though this was not so markedly the case in the more hygienic Christian Community.

Its cessation was synchronous with the cessation of over-crowding the enforcement of primitive hygienic measures and the advent of dry warm weather.

Among the Jews it ceased at the Paschal Feast, at which time they are compelled to wash themselves, their clothes and utensils and to whitewash their houses. The disease attacked young and old, strong and weak, relapses were not noted and typical second attacks in the same individuals were uncommon.

The troops suffered less than the townsfolk owing to their being mostly in Barracks and tents outside the town, but here even 13 % caught the fever. The troops have a separate water supply to the town.

Post Mortem examinations are not allowed on account of religious prejudices.

Symptomatology. The duration of the disease (not including the first day or two of onset) was from 15-17 days reaching in exceptionally severe and complicated cases to nearly a month but not more. Recovery usually took place about the 14th or 18th day, the worst symptoms occurring between the 5th and 12th day, onset fairly rapid but not sudden, said to have extended as a rule over 4 days, marked by pains in the limbs and back and by head-ache which last symptom was usually a severe and early one.

Heaviness, listlessness with confusion of ideas, and tendency to cerebral symptoms with restlessness and delirium between the 5th and 10th days and even stupor and coma.

In severe cases tremors, subsultus tendinum and exceptionally aphasia, and even apparently paralysis of the lower extremities, lasting into the convalescent stage.

Urine much diminished in quantity and at times retention occurred.

Rapid emaciation, with marked and early change in facial expression. Great muscular prostration and a tendency to dorsal decubitus. Pulse frequent with great tendency to weakness. Cardiac and cerebral complications common, but no tendency to pulmonary complications.

Tongue furred becoming dry and brown at the back and centre during the second week and often tremulous. Constipation was the rule, combined with great thirst. The temperature soon rose to 102° F. and remained above this until the 14th day, even reaching 104° 105° F. about the 7th day.

Eruption about the 5th to 7th day lasting some 4 or 5 days, present in the 9 cases seen by ourselves, and in almost every case seen by Dr. Mizzi. It was present on the abdomen and lower part of the chest and less commonly on the legs and arms also, consisting of small dusky red morbilliform spots, in large numbers spread evenly over the surface, not raised and quite distinct from the rose rash of typhoid or enteric fever. In some cases, bluish black spots, petechiae and even echymoses of the back and loins were present.

Occasionally parotitis, even ending in suppuration, occurred as a complication and pimples, furuncles, and orchitis, during convalescence, but there was no tendency to the formation of inguinal or axillary buboes or carbuncles.

Resolution occurred occasionally by crisis after a prolonged sleep about the 14th day, but more often by steady lysis.

Convalescence when once fairly set in was progressive and constant. Death was from cardiac or cerebral complications, blood-poisoning, or exhaustion, and occurred in very bad cases about the 7th day, in others from the 10th to the 21st day.

Statistics. Owing to the peculiar nature of Turkish rule and the ignorance and rivalry of local physicians, it was difficult to obtain even rough statistics and impossible to obtain accurate ones. Moreover the Arabs as a rule neither register their deaths, nor call in a qualified physician. It has however been roughly estimated that in the height of the epidemic, there were from 14 to 15 deaths daily, and that between 20 and 30 % of the combined town and Bedouin population (about 40,000 men) caught the disease of which fever cases about 15 % died.

The only deaths registered at the Municipality, were those of men too poor to even provide themselves with a shroud and who applied for one from the public store.

These amounted to :

Between December 13th and February 12th 1893	...	...	400	} From all Causes
„ January 13th and February 12th 1893	...	...	700	
„ February 13th and March 12th 1893	...	...	350	

Besides these numbers of the better class men women and children died.

Among the soldiers 1,500 in number there were reported to have been 200 cases of typhus with 16 deaths.

In the Christian Community an accurate Death register is kept by the Capuchin Monks, showing 28 deaths from typhus : —

December 1892 occurred 1 death (on 29 Dec. 92).

January 1893 occurred 5 deaths.

February 1893 occurred 15 deaths.

March 1893 occurred 6 deaths.

April 1893 occurred 1 death (on 15 Apr. 93).

or a total Death rate of between 9 and 10 %.

Distribution. BENGHASI—principal seat of epidemic. Place where it was first noticed and where possibly it originated.

DERNA—suffered considerably from the disease, commencing in January when the epidemic at Benghasi was at its height. During the height of the epidemic there were about 10 deaths a day. We ourselves saw 3 typical acute cases and were given accounts of former cases by convalescents.

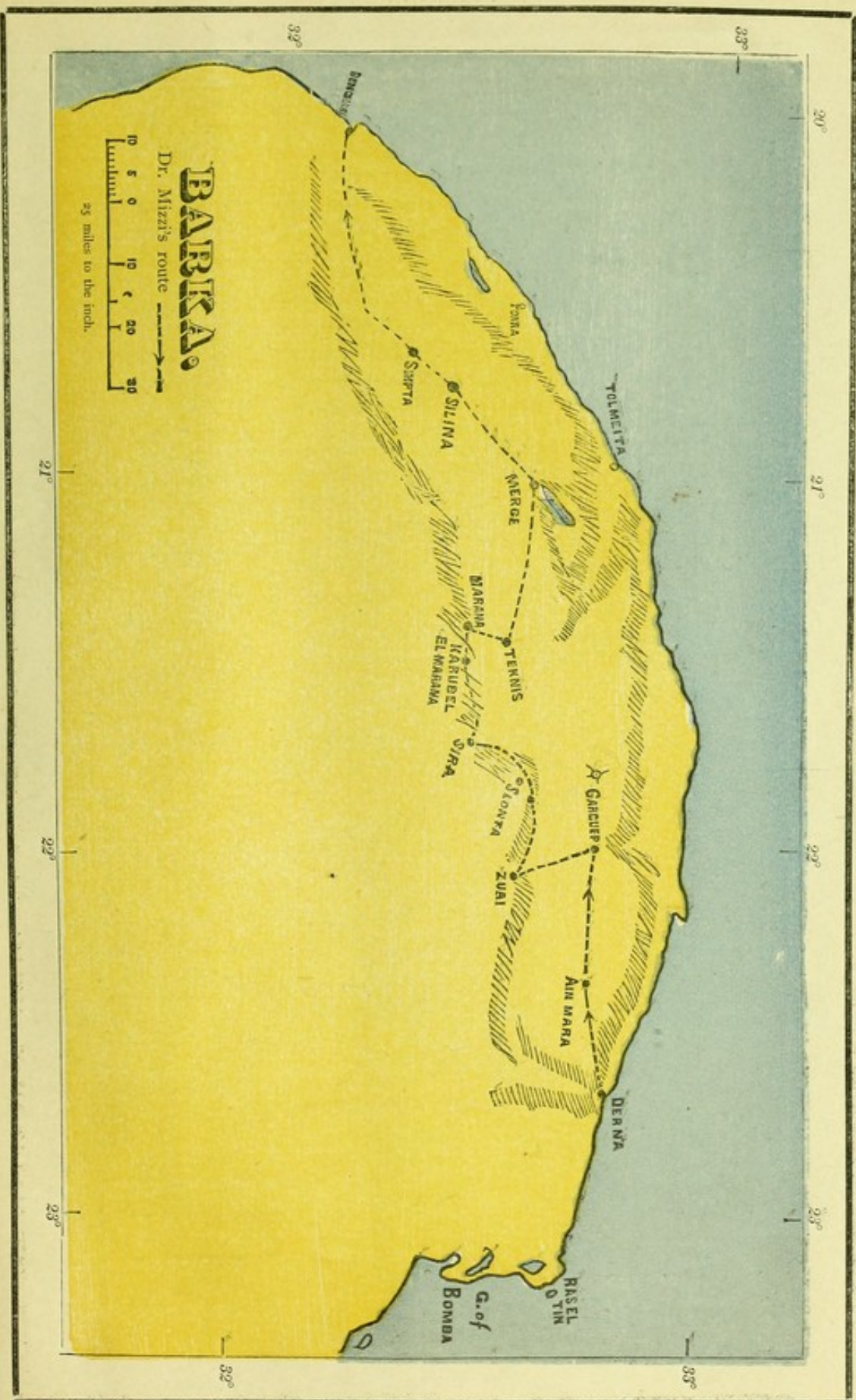
GARGUEP—a small fortified post with a Garrison of 100 soldiers, who are well housed. Here, five cases occurred with no deaths.

MERGE—a larger town surrounded by marshes and swamps, the seat and origin of the plague in 1874 and subject to severe malaria. Here 9 fatal cases occurred.

OGILA and GIALO—towns situated on a Desert Oasis in the interior. Dr. Stratti the Principal Medical Officer reports the occurrence of Typhus, but not in severe form in these towns.

Dr. Mizzi, also visited many of the towns and villages between Benghasi and Derna (see Map) where he saw many cases of sporadic typhus. He is of opinion that these and the cases in Derna were due to infection carried from Benghasi by commercial intercourse.

Map II.





(b) **Final Remarks.**

We are finally of opinion that :—

I. The disease was undoubtedly that known as "Spotted Typhus" or "Typhus Exanthematicus" there being no difficulty in arriving at a true diagnosis. Its cause was famine, misery, overcrowding, and insanitation.

II. The disease was of a very severe type and is said to have surpassed in its ravages the epidemics of 1872-1874.

III. The epidemic is now over and we are of opinion that even sporadic cases will cease, with the advent of warm weather and the disease disappear, for "a time", at any rate, about the first week of May 1893.

As to what may occur next winter, if the present state of insanitation and poverty continues to exist in Benghasi, it is impossible to predict, but there is every condition present to favour the occurrence of a similar or worse type of epidemic disease.

IV. The occasional occurrence of parotitis, boils and in one case of a simple acute axillary abscess, caused by the Moslem habit of epilation, together with the want of telegraphic or other communication and the severity of the epidemic probably led to the rumour that bubonic plague had broken out at Benghasi, an erroneous report which a slight amount of scientific knowledge might have easily set right, had a telegraph existed, and which was we believe set going by men of unscientific and unofficial character.

Signed at Malta this 2nd day of May 1892.

M. LOUIS HUGHES, *Surg. Capt. A.M.S.*—D. VELLA.

