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NOTES ON

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IN THE

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BY

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THE common form of fever that prevails in Natal and the coast districts generally north and south of Durban, is the *typhoid*, which is found in both military and civil populations, and in the upper as well as the lower classes of inhabitants, and in the towns as well as in the country.

MARITZBURG, the capital city, is very advantageously situated on a rising ridge, with valleys on each side; yet the fever prevails in the town, both at its lowest level east as well as in the garrison of Fort Napier on the top of the ridge, 200 feet higher on the west. It has existed in the new county of ALFRED to the south, whence a Resident Commissioner some time since was obliged to leave on account of his family all suffering from it, and further north in the posts and villages by the Tugela River. During the prosecution of the *Zulu war* typhoid fever was reported, in the lists of casualties occasionally issued by the Government, as occurring both at the base and seat of operations, and occasioning both sickness and deaths amongst officers and men; and the cases of the Prince Napoleon, Colonels Pemberton and Pearson, and others, are familiar to the news-reader.

It prevails also in the CAPE COLONY, but to a much less extent, owing to its climate being purer and drier, and its water supply less contaminated by the decomposition of animal and vegetable *débris*. An epidemic, however, of this fever broke out in 1867 in the Cape Colony, and affected nearly all the coast districts, and particularly Cape Town itself and Port Elizabeth, but spread inland to Stellenbosch, Uitenhage, Simon's Town, Graham's Town, Paarl, and other villages.

An excellent and full report on this epidemic will be found

in the *Army Medical Reports for* 1867, contributed by the senior medical officer there, Dr R. Thornton, who with his staff were personally engaged in treating this disease at Cape Town, and visiting the infected districts. The nature of the fever is reported to have varied in different towns and places at the same time, from common typhoid to typho-malarial, typhus, or even bilious remittent fevers, and to have affected coloured people as well as Europeans, but not so generally. Some medical men saw cases of *ague*, and some even of yellow fever with black vomit; in Stellenbosch there were cases of typhus with petechiæ, in Simon's Town a typhoid with diarrhœa, and in Cape Town a typhoid without purging.

Epidemics of this kind seem to have been known to the older people before 1832—that is, during the slave-holding *regime* of the Cape Colony, when under the rule of the Dutch Government—and are said to have broken out in their *slave estates* amongst the labourers, and in their convict establishments amongst the gangs, and in mission stations amongst the school natives.

The *rates of mortality* varied much, probably owing to an inferior class of patients prevailing more or less at different places; Dr Laing stating it was as much as 15 per cent. of sick in the Somerset Hospital—not per annum, but for the period of nine months. Dr Abercrombie states also 15 to 20 per cent.; but the reports from the *Civil Hospital* only state it 6 to 7 per cent. of fatal cases of all kinds. The rate of mortality, according to population, in Cape Town, is stated at 20 per 100 of total inhabitants per week, or over 100 per 1000 per annum, during the existence of the epidemic—a fearful amount. These figures were deduced from the numbers of funerals counted every day from June 1867 to March 1868, and observed from the top of the Signal Hill, proceeding to the various European and native cemeteries surrounding the view of the basin of Table Bay.

Dr J. B. Ebden, who was Chairman of the Board of Health for Cape Town, gives a lucid and rapid sketch of the epidemic in CAPE TOWN in the *Medical Times and Gazette* of June 6, 1866, and he states the rate of mortality to have been at 6 per cent. in the town cases, and 15 per cent. in the hospital cases.

The plans of *treatment* seemed as varied as the classes of the fever. Dr Roubidge recommended aperients, followed by quinine, at Port Elizabeth; podophyllin succeeded by quinine was tried at Cape Town. Diaphoretics, also, and ammonia were given for the concluding typhus.

Every one seemed to have used with success *blistering* on

the back of the neck for the delirium and insomnia, and for the coma at the later stages of all forms of the fevers. In the bilious and remittent forms morphine and camphor were given for the sleeplessness, and during their course *quinine*, carbonate of ammonia, tonics, and brandy. Emetics and purgatives were not used generally at Cape Town; but chlorine, ether, valerian, iron, acids, and generous feeding was universally had recourse to. It was ultimately considered that quinine was useless as a preventative medicine against the *infection*, but that cleanliness, good living, fresh air, exercise, and ablution were much better prophylactics, so that officials, doctors, visitors, and nurses were much less influenced than was expected.

This fever also appeared in the ships of the ROYAL NAVY on that station, as may be seen in the Annual Reports of the Naval Medical Department for 1868—thus showing its infectious character. In the *Daphne* six cases occurred on board after leaving Cape Town, and nine cases on the *Petrel* during the stay at Table Bay and Simon's Bay, when the epidemic was prevailing on shore. A very good account is given of these fevers coming under his notice there by Dr Mansfield, who calls them typhoid, typhus, and low continued, but unaccompanied by diarrhœa or maculæ.

This *Cape fever* seemed to be something like the Maltese fevers, and it began in July 1867 by ten cases in the winter, rose to 572 cases in the spring month of September 1867, and declined to seventy-five cases in the summer month of January 1868, owing to the people getting out of their hovels into the open air in fine weather, either for work or loitering about. The *causes* of this epidemic were said to be overcrowding, deficient drainage and sewerage, and imperfect water-supplies; for the improvement and extension of which a civic agitation has now been going on for several years without resulting in any useful sanitation.

The like causes for the production of typhoid fever have prevailed at MARITZBURG, the capital city of Natal—an impure quality of water, defective means of distribution, and inadequate sewerage and drainage,—and a lively contest has also been waged there for the amelioration of these faults, but hitherto without much success in altering the old state of things. It has lately been reported that the present Governor-General, Sir H. B. FRERE, has taken great interest in sanitary matters in the Cape Colony, and is intending to give his strong support to the introduction of a Health Act and sanitary legislation in the Houses of Parliament. If these cities cannot *raise funds* of their own for such purposes, their financial credit is

quite good enough to enable them to borrow them from capitalists at home, so as to fit them to carry out the necessary engineering works to reduce their sickness and mortality, and improve their health and the amenities of their respective localities and populations.

The waters of the rivers and *Streams in Natal* in the coast districts are generally impure, as the banks are muddy and the bottoms are oozy; and the *detritus* in the valleys is polluted by animal and vegetable organic refuse, washed down by the summer rains, and left there to rot under a blazing sun and in a humid atmosphere. The *air of these valleys* is likewise contaminated from the same causes, and fogs are commonly seen hanging in them in the mornings after the upper slopes and ridges in the neighbourhood have become perfectly clarified. Under these circumstances, in order to provide against fevers, the *sites of camps* and posts, and houses and villages, would be better selected on the upper lands; and the waters for cooking and drinking would be better for being purified by boiling and filtering, and their organic impregnations precipitated by chemical re-agents.

Notices of this typhoid fever prevailing in the garrisons *in Natal* will be found in the "Annual Reports of the Army Medical Department" for 1859, '60, '65, '67, '68, showing its endemic character and liability of spreading occasionally; but the mortality in the cases was not great. It seems also to have affected Port Elizabeth on the south coast, and Simon's Bay during 1867 and 1868; but the type of fever there was somewhat different, as it always is between the cases occurring on the coast and those inland.

It should be borne in mind, again, that there may exist in Natal and Zululia, besides the typhoid fever, a form of *remittent fever*, commonly called the African fever, met with and described by various travellers on the coasts and in the interior of South Africa. This form has been well investigated by Dr Livingstone in his "Missionary Travels and Experiences in South Africa" (1856), and also treated of fully in his "Zambesi and its Tributaries" (1866), its production, prevalence, and the proper treatment for the same being discussed. He speaks of its origin by chill, and particularly warns the traveller against wearing clothes wetted by heavy rains or by crossing rivers, and so drying them in the open sun on the body; says it is *malarious*, and prevails in March and April; that quinine is of little use as a prophylactic; but that regular exercise, mental employment, and good fresh nourishing food are far better.

In the *Medical Times and Gazette* for November 12, 1859,

will be found a valuable article contributed by Dr Livingstone himself on "African Fever in the Zambesi Valley," where a full account is given of it, with cases of the Portuguese army there stationed, and the treatment he used. Commonly, a purgative was given first, followed by a twenty to thirty grain dose of quinine, repeated afterwards in smaller doses if required; excessive vomiting was cured by blistering over the stomach; and enlarged spleens were reduced by sulphate of iron and quinine given as a medicine internally.

The *form of pills* recommended by him for these fevers was then well known for the use of travellers going up country, and consisted of calomel gr. iij., quinine gr. iij., with rhubarb gr. viij., and jalap gr. viij, made up into four pills, with tinct. cardamon. co. q.s. The four pills constituted a dose for a robust adult male, and one pill was that for a female. Their administration relieved the oppressive febrile symptoms in twenty-four hours, and the cure of the case was continued by giving quinine in large doses every two or three hours to produce cinchonism, when it was reduced in dose as convalescence manifested itself.

A valuable article in the *Medical Times and Gazette* of May 11, 1867, and July 6, 1867, "On the Fevers, Sunstrokes and *Plagues in Central Africa*," gives much information on their hygiene and treatment, based upon Livingstone's views. There are various other contributions on African fever to be seen in the *Medical Times and Gazette*, interesting to the traveller on the south-east coasts of Africa: one (June 28, 1861) by Dr Livingstone, on fevers, and their treatment, by his "Rouser Pills"; review, Livingstone's "Missionary Travels and Experience" (December 12, 1857); review, Livingstone's "Zambesi and its Tributaries" (January 6, 1866), concerning chiefly their medical aspects and hygienic relations, with notices of the African fevers and their treatment.

Further notices of the ravages and mortality occasioned by these fevers are to be found in the history of the *Church Missionary Societies* stationed on the Zambesi and Shirwa rivers, occasioning notoriety at the time by the deaths of Bishop Mackenzie and Mrs Livingstone, and others of the parties. The *Medical Times and Gazette* of July 5, 1862, and September 27, 1862, contains remarks on these events; and also that of August 1, 1863, on the fatality in the Mission of the Oxford and Cambridge Universities, where Livingstone's fever pills are highly spoken of, but mild attacks of fever were cured by one dose of ten grains of quinine.

Regarding the hygienic *condition of Natal* in early times before European settlement, Pinkerton says, in his "Travels

and Voyages" (1819). that Natal is unwholesome, but fertile; and Cape history relates the sad fate that befell the exploring expedition of Cowan and Donovan in 1808, who perished of fevers near *Delagoa Bay* on their journey to the Mozambique. In the *Journal of the Geographical Society* for 1833 will be found an excellent account of the district of Delagoa Bay by Mr Cooley, in which he states that the place is unhealthy only during the summer rains, but that the interior highlands forty miles from the coast are always salubrious.

Some years ago (1866–68) this remittent fever became epidemic, and spread over the Drackensbergen from the coast districts into the *Orange River* and Transvaal countries, and caused much anxiety by its ravages amongst the Europeans and inhabitants of the towns.

As to *sanitary measures* requiring to be suggested for the maintenance of the health of camps and posts from these fevers, it should at the present time be hardly necessary to allude to them, in view of the profuse literature existing on the subject, both military and civil. At all events, the carcases of dead oxen should be removed to the leeward or westerly side and to elevated spots for desiccation by the winds, and not be dragged into the rivers or water-courses for solution. Slaughter exuviæ should be thrown into pits ready prepared, trenches should be dug for the reception of the excreta of the troops, and burnt lime should be used abundantly for all required purposes in the precincts of camps.

The *water* for the personal use of the men should, if possible, be separately obtained from springs, sunk wells, or by boring tubes, and not from the rivers or sluits, which should be reserved specially for the large herds of cattle and horses that usually accompany military forces on the march there.

Very graphic and painful details of the diseases met with on the coasts of Zululia, Delagoa Bay, and Mozambique will be found in the "Narrative of the Voyages of Captain W. F. Owen," who surveyed the coasts in H.M.S. *Leven* and *Barracouta* from 1822 to 1826. Captain Hall also describes these coast fevers in his accounts of the "Voyage of H.M.S. *Nemesis*" in 1846, when he visited Delagoa Bay for the purpose of repairs to the first steamer that rounded the Cape bound from England to China.

The *mortality* of these fevers then was fearful: nearly the whole of the crews of Owen's ships were killed, and half of the officers. Extreme mental depression prevailed in those alive, and profound melancholy settled down on the men, who were

haunted with the presentiment of death. The fevers were of short duration, with deep algide cold stage followed by intense febrile action and rapid circulation, accompanied with *frenzy* and delirium of a distressing and agonising character, and wound up by speedy sinking of the vital powers, collapse, and death. The *treatment* of these cases on board demonstrated the inutility of mercury and venesection after the fever had reached its crisis, but the doctors do not seem to have been aware of the use of quinine as a febrifuge, in the form employed afterwards successfully by Dr Livingstone in his travels in the southern tropics of Africa.

An account is given of a *native method of treatment* for these fevers, which was used successfully by the people of Delagoa Bay, at the time of Captain Owen's narrative, amongst themselves. As soon as the patient feels the first symptoms he retires to his hut, where he is kept warm until some water, in an earthen vessel placed on the fire, is made ready by boiling. This is then placed between his legs, while he sits down on a stool and leans over the *steam* that arises from it, and inhales it and gets heated by it. In the meantime those around him envelop him in mats, in consequence of which he is soon covered with profuse perspiration, and nearly half suffocated by the heat and vapour. The whole covering is then suddenly cast off, and at the same moment he receives a shower of *cold water* all over his body, delivered by the attendants. He is then hurried to the side of a large fire kindled in the hut, and then placed in a recumbent posture, while blood is extracted from him in small quantities by means of slight incisions on his shoulders, breast, and the backs of his hands. After this the patient is left to take rest and sleep, and subsequently some liquid nourishment is given, and he is then supposed to be convalescent. No mention is made of this plan of treatment having been applied to the fevers on board the ships.

The *unhealthy season*, Owen states, prevails from the beginning of September till the end of April—*i.e.*, during the rainy season and during the summer months—and the temperatures noted were 82° Fahr. in the shade, 85° under the trees, and 88° on the deck.

The sad history of these ships is now permanently handed down to posterity in the marks on *these coasts* of points and bays being named after their deceased officers, as Vidal, Durnford, etc., who there perished of these fatal fevers.

Another melancholy record of mortality on board ship there, in mediæval times, will be found in "Herbert's Voyages and Travels to Africa and Asia" (1638), when visiting the ports in

the Mozambique Channel. "At which time many of your company died, imputing the cause of their Calentines (*Febris ardens*), Fluxes, Aches, Scurvies, Feavers, and the like, to the sulphurous heat there, stinking water, rotten meat, and worm eaten biskits. But rather, I believe, their over eating themselves at Mohelia (Comora Islands), where they farcinated their crude stomachs with unsalted flesh, and gulped down too much toddy, caused them. Here our Admiral threw overboard 35 dead men, the *Hopewell* eleven, the *Starre* five, and every ship lost some, too many, if God had pleased otherwise."

In contradistinction to these sad accounts there will be found in the "Annual Report of the *Naval Medical Department*" for 1861–62 a more reassuring view of the nature of, and the more intelligent grasp of, the treatment of these fevers. It bears the marks of the fresh ideas enunciated by Dr Livingstone, and of the practice founded thereon by his full experience in these regions for several years previously.

In 1861 there were reported sixty-five cases in the *Gorgon*, and sixty-seven in the *Orestes*, and the fevers were acquired in the *Mozambique Channel*, and in the mouths of the Zambesi and up its course inland during the time the Livingstone expeditions were going on.

This report by Dr Ramsay, and the supplementary one by Dr Mulvaney, are scientifically confident, and quite up to the occasion, and show that we have at length mastered the available view of their nature and the means for their treatment successfully.

This comprised *cathartics* first, followed by quinine in full doses, frequently repeated, so as to cause cinchonism to show itself in the patient. Effervescents were given for nausea, and vomiting was counteracted by sinapisms to the stomach, as used at the Cape also, and morphia was given for sleeplessness. *Prophylaxis* by administration of quinine was tried in the ships' crews, but it in general did not answer; as, for instance, two men in the *Pioneer* got seized by the fever who had been taking ten to twenty grains of it daily before.

In the "Annual Report for 1865," Dr Edwards, however, states that he had used it in the *Lyra* successfully when cruising in the Mozambique Channel, where his ship had seven cases, and the *Orestes* five cases, under treatment. The sequelæ of these fevers were found to be enlarged spleens, chronic ulcers of the legs, and œdema of the feet—localities in which were probably deposited the *defunct germs* of the infection that had previously run riot through the circulatory system.

From the imperfect sketch here given of the history of fevers in Southern Africa, it may be gathered that the CAPE COLONIES are liable to the invasions of febrile epidemics from without their confines, from Delagoa Bay, the Mozambique, and the Mauritius. That, also, the nature of these fevers becomes much *modified* by transportation from inter-tropical regions on the coasts to the more temperate climes of the Cape, and their mortality lessened by the influence of better hygienic conditions of air, soil, and living in the southern colonies.

The question may also be started, whether it might not become requisite to impose *quarantine regulations* at the ports of Cape Town, Elizabeth, and Durban, to check future visitations of these fevers from their hotbeds in the Mozambique, when they show any liability to become epidemic and to spread to adjoining countries.

The *climate* of the whole of these coasts is prejudicially affected by the existence of the lagoons and swamps of the St Lucia Bay and the Umhlatoosi River along the coast, which are filled with a tepid water and decaying vegetation. The unhealthy vapours from these are blown inland by the easterly and south-east winds, always prevalent, rendering the air of Natal and Zululia muggy and relaxing.

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