

Draft of Remarks on the African Fever on the Lower Zambezi, [July 1859]

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ORIGINAL COMMUNICATIONS.
REMARKS ON THE AFRICAN FEVER
ON THE RIVER ZAMBEZI.(

This interesting paper has been forwarded to us with the following by Sir James Clark: -

SIR, - I receive the accompanying paper from Drs. Livingstone and , through the Foreign Office, a few days ago. If you agree with me it is of sufficient importance to be communicated to the Profession, I feel obliged by its insertion in the *Medical Times and Gazette*

22 B, Brook-st., Grosvenor sq., NOV. 5, 1859. I am, &c. J. Clark.

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By DAVID LIVINGSTONE AND JOHN KIRK, M.D.

While employed in trying to open up Africa to the influences civilisation and commerce, the first thing that naturally our attention as Medical men was the fever, which has proved one of the great barriers to the advances Christian nations into the interior of the continent.

We have enjoyed considerable facilities for observing the during the last twelve months, not only among those the expedition, but likewise among the Portuguese and ; and our experience having been very different from of others, we deem it desirable to lay the results before Medical brethren.

Our observations are far from being so full as might be , but when travelling in this country, where the grass over head and almost hides the narrow path, it is of utmost importance to possess correct views at the begin-. Our remarks may thus prove serviceable in preventing from making a wrong commencement.

About a month was spent by the Expedition in endeavour-to find an opening through the Delta, from the sea to the river.

This part may be described as abounding in mangrove and damp plains covered with gigantic grasses. mangrove swamps emitted a most offensive smell, and us the impression that they were most fitly named, "the -beds of fever."

Above the the Delta the river is remarkable for the quantity of sand which it carries in its waters, and deposits every-in banks which during about half the year are exposed the sun; there is comparatively little mud, and in this as well as in the greater height of its banks which also of sand, it differs greatly from the rivers of the west .

The mountains of Meramhalla, 4000 feet high appears to east of Senna, and a range of hills on the north bank the river stretches from that village up to Lupata, which the country is hilly, and the banks of the river .

Warned by the fate of the "Great Niger Expedition," it resolved that no unnecessary delay should take place in the Delta and that the prophylactic use of quinine should be .

The season chosen for entering the river was the winter (from May to August), the most healthy time for Europeans, not the most favourable for navigation, and during stay of the Expedition among the mangroves not a case of fever occurred among the members, or among officers and men of the *Pearl*, and H.M.S. *Hermes*, who it.

Quinine was taken regularly by all the Europeans, with a exception, to the amount of two grains in sherry wine ; and we were quite disposed to attribute our immunity the prophylactic so much praised for its efficacy on the Niger; although the former experience of one of us suggested total inefficiency to ward off an attack.

Three of our number became affected with incipient cin-; in their case the dose was lessened. We seemed to be on the verge of cinchonism, as an additional dose produce deafness and ringing in the ears to an intense in the course of a few hours.

The following is the number of those who escaped without single case of sickness, although exposed to hard work in sun, and frequently sleeping in the boats in the lower of the the Delta: - 16 officers, 37 seamen, 12 Krumen, and 2 boys from Sierra Leone.

Three of our number were left in charge of goods on an about twenty miles above the mangrove swamps, but not beyond their influence. The soil was of sand, with an alluvial layer on the surface, covered grasses. The neighbouring country presented the same as the island, and was similarly constituted. Previous this there had been hard work and constant excitement. left on the island, although less exposed, had a com-inactive life. They had not been many days alone two of their number became sick.

Mr. B – was seized with slight rigors, severe headache, , with contracted pupils. These symptoms were , and followed a imprudent course of exposure to the . Although removed in a few hours, they speedily after renewed exposure; but this time more severe, full bounding pulse, dry tongue, and hot skin showing the of the fever.. Vomiting, which now commenced, the most troublesome symptom, and became an obstacle all treatment, as remedies were not retained beyond a few . Although the other symptoms abated after twelve , vomiting continued, and soon the disease returned in a severe form, running on to muttering delirium, with picking of the bedclothes.

When on the verge of coma remedies began to be retained, the action of a large dose of calomel with jalap resin the cerebral disorder, and, by reducing the irri-of the stomach, allowed quinine to be given. Con-was very rapid; in a few days all trace of the had gone.

A fortnight afterwards Mr.B – was again seized with same symptoms, vomiting again being the great obstacle, , from its continuance after the others had been subdued, the convalescence slow. Loss of memory and weakness continued for some time after this attack. Mr.B – was sick, Mr C.L – had fever also, but a very different form, and we did not then recognise the as being the same disease. In him the symptoms were of a cold, such as we see in Europe, – at first frontal , pain in the back and limbs, lassitude and in-to what went on around; this state was followed one in which he lay without speaking, headache had gone, pulse was small and thready; the skin at one time hot, at others coated with a clammy perspiration. In case slight diarrhœa had continued from the beginning. was tolerated; but although the constitutional action evident, yet the fever, did not abate until a mercurial had been given.

These were the first cases of fever among us, nor did we more for some time afterwards.

In the month of August all the goods had been conveyed far as Shupanga. Two officers were left there in charge, the steam-vessel proceeded to Tette, taking with her who had suffered when at the island.

At the time the Portuguese were engaged in war against a of rebels, and the army being destitute of Medical of every description, an opportunity was offered of the fever and other diseases in their worst forms those exposed without proper shelter or food, and in frequently worn out by consitutional disease.

The commanding officer was the first case we were requested see: he had obstinately refused all remedies, but being in a state of coma, and unable longer to refuse, an active was given, followed by thirty-grain doses of quinine, soon restored health. In him there had been no other beyond those of severe consitutional fever running rapidly to coma. This is the type most

frequent in the parts of the the Delta, especially at Quillimane. In the of Tette it is seldom fatal. The limited experience here had seems to indicate that the type once established a constant tendency to recur. Should further observation this, it would become of importance to send all on their arrival to higher lands; so that, should be subject to fever, they might have it in its milder form , and carry that with them to the more unhealthy .

While the party at Shupanga enjoyed good health, not-the partial discontinuance of quinine, several happened on board the steam-vessel. We may mention the accomodation on board was both very scanty and uncomfortable. Water running into the cabin while the was under steam, so as to keep the beds constantly wet

[0002] ; fortunately the weather was dry, or the rain would poured in from above also, as we subsequently expe-.

Mr.R -, the engineer, had taken quinine with unvarying , had an excellent appetite, and seemed to enjoy climate; in working the engine he was obliged to see the lighted at 2 1/2 a.m., in order to have steam by 7 a.m.

An officer had shifted his bed through the night, so as to Mr. R - getting his clothes, and he proceeded to the fire in his shirt; the consequence was pains all over body and limbs, the bones being especially sore, the face , eyes suffused, headache, and quick pulse. The had been regular, and the tongue clean. A pillcom-of resin of jalap, calomel, rhubarb, and quinine, which formerly been found efficient in fever, was given, more as precautionary measure, than from a belief that this was a of the complaint. It seemed more a common cold than African fever. As soon as the remedy had operated, the abated. Quinine was given, and one dose of grains produced severe cinchonism, from which, when recovered, he was quite well without loss of strength.

Towards the end of the rainy season the members of the were divided, those who had previously suffered fever remained at Tette, while we went down the Zambezi to the sea, and explored the River Shine, both very districts. While one of us was exposed to sun rain navigating the vessel, and ashore superintending wooding, the other was engaged botanising among grass and mangrove swamps. Yet both of us escaped . The use of quinine had been completely abandoned, we are inclined to attribute our good health to the regular active exercise which both these occupations imply. In respect our experience corresponds with that of the residents, who assert that while actively em-they enjoy good health.

While we explored the high lands around Lake Shirwa the -vessel was left in the River Shine, under the care of

Quartermaster Walker. We were absent twenty-four days,

Walker was seized with fever the day we left: it commenced , though he taken quinine regularly. On our we found that he had been delirious most of the time. the fever had shown no signs of abating; but the action purgatives, followed by quinine, soon restored health, and subsequent attacks, when at the sea-coast, among the , no difficulty was experienced in cutting short the at the beginning.

Our own experience in the high lands between the Shine Lake Shirwa during twenty-four days, when we were in the early hours to the dew from the long grass, the march without interruption throughout the of the day over rough country under the tropical , and then sleeping in the open air, and yet enjoying health, as did also the natives who were with us, clearly that there exists within a short distance of the a healthy region well suited for the residence of Europeans.

This region is elevated above the sea from 3000 to 4000 , and shut off from the coast lands by the range of high to the east of Lake Shirwa. It is of easy access the Shine, which flows to the foot of the hills, and is the whole distance. To the north, the southern of a chain of lakes, which extend far into the of the continent, reach within thirty miles of the Shine. This elavated region may be looked on as the , by means of these inland seas, to a great part of

Central Africa, cut off hitherto from communication with nations by the unhealthy lands which bound the .

The result of our experience has been to discontinue the use of quinine. It had been persevered in long after conviction of the members had been against its prophylactic power. It is our conviction that we owe our escape the disease far more to the good diet provided for us by .M. Government than to the use of quinine. We have as fully exposed to the malarious influence as any party likely to be. The vessel in which we have to navigate one which takes in so much water that our beds are con-damp, and often rotten beneath, with a quantity of in the bilge of the ship. Yet we have found the fever amenable to treatment when taken early, and attention to any local congestions which may manifest themselves. it not be thought that we undervalue quinine, to it we for the removal of the disease when given after purga-; in all forms of the fever we have found it of the value, and three does have always proved sufficient induce the constitutional action even in those who have not taking it previously.

We have found the fever assuming a formidable type only permitted to go on unchecked for some time in those to great fatigue, damp, and poor diet, or when the state of the stomach prevented the administration of .

In regard to the complications most frequently seen, among vomiting has been the most troublesome, and blister-over the stomach has seemed the best means of stopping . We have fortunately escaped without more serious lesions of the internal organs; but among the two cases have been observed with pneumonia; proved fatal - the tartarate of antimony seemed to have effect, while stimulants were equally powerless when once had commenced. Enlargements of the spleen, when recent date, have yielded quickly to the use of the sulphate iron and quinine.

The ship's company, consisting of Krumen, have showed no immunity than the Europeans. The experiment of was made with them, but its prophylactic action equally feeble as in our own case.

In future Expeditions of a similar nature, we beg to suggest the work of the contracting ship-builders be more tested than it had been in our case, when the once observed completely baffled all attempts at .

Zambesi, July 1859