

## GOVERNMENT NOTIFICATION.—No. 389.

The following Clinical Report on Malaria, as seen in the Government Civil Hospital during the half year of 1901, is published.

By Command,

J. H. STEWART LOCKHART,  
*Colonial Secretary.*

Colonial Secretary's Office, Hongkong, 19th July, 1901.

## CLINICAL REPORT ON MALARIA,

AS SEEN IN THE GOVERNMENT CIVIL HOSPITAL DURING THE HALF YEAR OF 1901;

BY

Dr. J. BELL, Acting Principal Civil Medical Officer,

and

Mr. G. STEWART (Lieut. I.M.S.), Acting Assistant Superintendent.

Having had the great privilege of being instructed all last summer and winter by Captain JOHNSTON, I.M.S.—a co-worker of Major Ross—in the technique of the examination of blood for malaria, the various forms of the disease and the deductions to be drawn from an examination of a blood slide, we determined this year to examine the blood of all patients with fever and as many, as possible, with symptoms suggestive of malaria, and the results of our observations are embodied in this report. We are not aware of any extensive attempt in this direction having yet been made in a tropical hospital where, needless to say, there is a large amount of material available. No case of uncomplicated malaria has been returned as such without the parasite having been previously found. Many cases which might have shown malaria, as a complication, have no doubt been passed over, for, owing to the pressure of work, especially during the prevalence of plague, we have not been able to keep the record as complete as we would have liked. Practice in this, as in other similar work, makes perfect and it is surprising how quickly, after a few months' training, the eye detects the slightest signs of malaria in a blood slide. In a few cases—and very few—it has been necessary to withhold quinine for a few hours till a second examination showed the parasite, absent or overlooked at the first trial. A routine practice of this kind, apart from the benefit to the patients which naturally ensues, may, also lead to the accumulation of facts which, it is possible, will tend towards helping to eradicate the disease itself. We make no claim whatever to being authorities on malaria, but have simply recorded facts which have come under our notice clinically. We have dealt with over 400 cases, in the majority of which malaria has been present if not at the first examination at a subsequent one and it is possible these facts may be of interest to others.

## PHTHISIS.

The combination of malaria with this disease is very important as well as very interesting. Of 17 cases examined 15 were complicated with malaria. Hongkong and, we believe, most tropical countries are looked upon as being very prejudicial to the cure of tubercle. Amongst the Chinese here it is generally, and probably rightly so, to a certain extent, put down to overcrowding and insanitary surroundings, but this does not apply to Europeans and Indians who form the bulk of our patients and who suffer quite as much as the natives. We are inclined to think that the malarial combination accounts in a great measure for the rapidity with which the disease advances. Several of the cases have come in two or three times for fever without anything but malaria being found until eventually they have returned with another attack of malaria, the sputum previously negative now full of tubercle bacilli and the lung symptoms in full swing.

*Case 1.*—European wardmaster with phthisis, who improved very considerably, especially when doing duty at Kennedy Town Hospital, contracted malignant malaria with dysentery. This set a light to the lung mischief which advanced rapidly, after the malaria and dysentery had been cured, and ended fatally.

It is useful to examine the blood of all phthysical patients for, if the disease is in an early stage, and the malaria treated, some cases improve considerably, and without a blood examination most of the cases would be treated only for the phthisis to which the fever would be supposed to be due.

*Case 2.*—An Indian Policeman with fever and cough. Malaria was present in the blood and though no lung symptoms could be detected tubercle bacilli were found in the sputum. Under quinine the fever subsided entirely, the patient put on weight and the bacilli disappeared. After a lapse of four months he is still doing his duty.

*Case 3.*—Chinese cook to Acting Principal Civil Medical Officer was a similar case. After a long stay in hospital the fever subsided under quinine and he is now (five months after) working with the tubercular symptoms in abeyance—no cough and no loss of weight.

Unfortunately there is a reverse side to this picture, as in most of the cases after one or two attacks of malaria the fever does not subside but takes on the hectic type and the case goes downhill. In this disease we think it is as well to examine for malaria as we are inclined to think the combination much more prevalent than is generally supposed or even than our figures show. Another practical suggestion we would offer is that in all cases with fever and cough, however slight, though there are no lung symptoms, an examination of the sputum should be frequently made. We have by this means detected several cases in the very earliest stage, *i.e.*, the stage when treatment or change holds out most hope. As a diversion we may add that all phthisical cases have been treated routinely with Chinosol but we have found that the drug has no effect on the disease and after a long course the bacilli are still as numerous as ever. It has therefore been abandoned here and must, we think, be added to the long list of reputed specifics for this disease which have been found wanting. Carbolic acid in large doses has been substituted and the result will be duly recorded.

#### LIVER ABSCESS.

Only two cases have been under treatment and both showed malaria in the blood. It is laid down by the authorities that malaria does not produce suppuration in the liver but both our cases are against this view and we therefore give them in short detail.

*Case 4.*—A young Officer was admitted to hospital from Lyeemun fort with fever. He had only three months' foreign service and had never been ill before. His liver was much enlarged and the blood slide contained numerous malignant parasites. Quinine was administered in various doses, both by the mouth and hypodermically, but notwithstanding this, the fever kept up and the parasites continually recurred in the blood. As the liver diminished in size slowly, the fever was looked upon as purely malarial and our attention was taken off the hepatic condition. Eventually, however, he was aspirated and on pus being found the usual operation was performed and the patient went home in due course. The case impressed us with the necessity of watching each case of hepatitis carefully even though malarial parasites are present. None of the ordinary causes of liver abscess were here present and we do not see to what other cause it can be put down to save malaria. Another feature in the case was the extraordinary manner in which the parasites recurred in the circulation, some days being present and on others absent notwithstanding the constant use of quinine.

*Case 5.*—A French Officer from a coasting steamer was brought to hospital with fever and a typical liver abscess pointing in front. He had never had dysentery or diarrhoea and had always been very abstemious. The operation was performed successfully but the temperature still kept up and three days after the operation he had a rigor and looked very ill, temperature 104.8. This condition recurred for two days but just previous to again exploring the liver—which we were loathe to do owing to his feeble condition—his blood was examined and showed numerous malignant parasites. Under quinine he rapidly improved and leaves for home by next French Mail. His condition was most suggestive of another liver abscess and we think the blood examination was most useful as it avoided another operation—not serious perhaps—but one which it was as well to avoid in an already feeble patient. We also consider, possibly erroneously, malaria as the cause of this hepatitis going on to suppuration.

#### APPENDICITIS.

The combination of malaria with this disease is interesting. We have only had two cases and both showed malaria. The first came in with malaria and later on complained of the appendix trouble. The usual operation was performed successfully. The second was more instructive.

*Case 6.*—A French gentleman from Saigon was admitted with symptoms which were diagnosed as an appendicitis pointing towards the rectum. The temperature kept about 100°. The abscess eventually burst into the rectum and the patient's condition improved very much until four days after when the temperature suddenly rose to 103° and we concluded that the abscess must have filled up owing to the entrance into the rectum having become obstructed. Previous to any surgical interference the blood was examined as part of the routine and to our surprise malignant tertian parasites were found—under quinine the temperature ceased rising in the evening in a day or two and the patient is now at home quite well. The only attack of malaria he had ever had was 8 months previously at Saigon.

#### DYSENTERY.

The combination of malaria with this disease is extremely common. Out of 37 cases examined 35 showed malarial parasites. None were fatal though one or two were very obstinate and none were followed by hepatic abscess. Needless to say we found quinine most useful in addition to the saline

and ipecacuanha treatment. We would almost say that, if a case of acute dysentery does not improve in 48 hours under the latter treatment, it is combined with malaria and requires quinine either by mouth or by enema.

*Case 7.*—A case of chronic dysentery from Manila was extremely obstinate and resisted all treatment until the blood was examined and parasites found. Quinine, given as above, soon cured the case and the patient left for America looking and feeling very well after six months of this troublesome complaint.

#### TYPHOID FEVER.

The combination of malaria with this disease is most interesting to tropical practitioners. Without a *post mortem* examination our diagnosis in some of these cases may be called in question but they were all seen several times by other medical men who agreed with the diagnosis in every case and if they were not typhoid it would be difficult to explain the long continued fever. Of the 10 cases examined all showed malaria. The effect of the malaria on the chart was various. In some cases for several days the temperature intermitted regularly and markedly until, apparently, the malaria dropped out and the typhoid element had free play; in others, however, notwithstanding quinine, there was no intermission and the chart from the beginning was very suggestive of typhoid. We have not found much assistance from Widal's reaction, which in most of our cases has given a negative result—as late as the 16th and 20th day in two fatal cases. Our only dictum on this subject is that held by most other practitioners—if after thorough treatment by quinine for 10 days, the temperature does not fall in the absence of any symptom to account for the continued rise, the case is in all probability typhoid and purgatives should be withheld. Typhoid is held to be a more fatal disease in the tropics than in temperate climates but why this is so is not quite clear, unless the malarial element, which is present in the greater number of cases, has something to do with the high rate of mortality. The previous treatment of the malaria tends, we think, to keep the typhoid temperature lower than it would otherwise be. Our rate of mortality was 30%.

*Case 8.*—A Police Constable who had been doing duty at Tai O—a fairly malarial spot—up to May 9th, returned on that day to the Central Police Station. On May 25th he was admitted to hospital suffering from fish poisoning as the result of eating raw oysters. On June 1st he was attacked with fever and the malignant parasite was found in his blood. In spite of quinine the fever continued and on the 18th day a slight hæmorrhage from the bowels occurred. The diagnosis was now altered to typhoid and the quinine discontinued. The temperature fell to normal on the 29th day of the illness and he is now progressing favourably.

In some of these combined cases the blood examination gives information or relieves one's mind regarding a relapse.

*Case 9.*—A Policeman with malaria and typhoid. On the 18th day the temperature fell to normal and continued so for 12 days when it suddenly rose to 105. An examination of the blood showed the return of the malignant parasite and under quinine the fever ceased in a day or two and the patient left for Japan on leave.

*Case 10.*—A very bad case of malaria and enteric. After the temperature had been normal for 8 days it suddenly rose. No malaria was found and the case was treated as a relapse which it turned out to be and lasted 14 days. Patient recovered slowly and left the hospital on the 62nd day of the illness.

#### PLAGUE.

Up to date 8 cases have passed through the hospital, all being admitted as malaria and parasites being found in each case. It is very desirable to keep these cases out of a general hospital, as it entails such a lot of extra disinfection and there is always a risk—though small—of some of the other patients or the staff contracting the disease. We do not, however, see how this can always be managed. We were both on the alert throughout the plague epidemic and yet failed to detect some of these cases until they had been some time in hospital. We have not been very successful in finding the plague bacillus in the blood in these cases until the case was far advanced. Professor KITASATO states that it is rare to get them in the early stage and if present there may be only one in a whole slide. Detecting it under these conditions must be due to good luck. The invention, by some bacteriologist, of a double stain, similar to Gabett's for tubercle bacilli—one of the most useful ever invented—would be a great boon. The agglutination test, as improved by Professor KLEIN, we have not employed as it requires a good deal of time and skill in preparing the media. Its use in these cases will no doubt be settled in next epidemic by the Government bacteriologist. Cases of plague are so interesting that we need not apologise for detailing one or two.

*Cases 11 and 12.*—Were of interest as both presented the point of inoculation, one on the finger and one on the thigh and from the bleb in each case, plague bacilli were easily found. Both showed malaria as well and only slipped into hospital owing to the absence of the medical officer and were after an hour or two transferred to Kennedy Town Hospital.

*Case 13.*—An Indian Policeman admitted for fever. Parasites were found in his blood but in spite of quinine the temperature ran a typhoid course till the 11th day when some characteristic sputum was obtained in which were numbers of plague bacilli though there were no lung symptoms of any note. He was transferred to Kennedy Town Hospital, recovered and returned to us for debility. After two days' stay he had another bad attack of malaria with parasites in his blood. He is now well and doing his duty.

*Case 14.*—Admitted with fever and numerous parasites in the blood. He looked ill but had no bubo and no plague bacilli could be found. He died suddenly from heart failure and at the *post mortem* there was found an extensive retro-peritoneal hæmorrhage with both malaria and plague bacilli in the spleen.

*Case 15.*—A Chinese Policeman was admitted and malaria found in the blood. In spite of quinine the temperature still continued without any symptoms save a clean but tremulous tongue and no plague bacilli could be found. On the 10th day a cervical bubo developed and he was transferred to Kennedy Town Hospital. These and other cases we might mention show how difficult it is to diagnose some of these non-bubonic cases when combined with malaria.

#### RHEUMATISM.

Nine cases were examined, 6 being positive and 3 negative, one of the latter, if not two, being due to gonorrhœa. Acute rheumatism is said to be rare in this Colony and our experience bears out this view, but there is a great deal of what, for want of a better name, is called "rheumatism." Patients who have no swelling in the joints and little or no fever come to hospital complaining of nothing but pains in or about the joints. It is, in these cases, extremely difficult to be sure one is not being imposed upon, as "pains all over" is a favourite way of getting a few days' rest, but we cannot help thinking that if more of these cases were examined it might turn out that some of them were really a form of malaria. If this disease produces inflammation of the nerves and their sheath one does not see why it should not equally affect the fibrous ending of muscles or joint ligaments without giving rise to any objective signs much in the same manner as syphilis does. For obvious reasons, not many of these cases are admitted to hospital so we have not been able to collect more cases. One case is, we think, worth recording.

*Case 16.*—European Constable admitted several times to hospital with malaria (fever and sciatica) came in again in April with fever. Parasites were found as usual and he had effusion and pain in the right elbow and left knee. Under salicylate of quinine and blisters he improved slowly when suddenly the right knee became full of fluid, but without any pain. He eventually recovered after six weeks' stay but returned again with malaria and sciatica and was invalided home, having been in hospital for malaria every month in the year.

#### JAUNDICE.

This is by no means a common sequela of malaria though hepatitis is common enough. Four cases were examined and 3 showed malaria. The fatal case is worth recording.

*Case 17.*—European sailor from a coasting steamer was admitted to hospital with fever. His conjunctivæ were slightly jaundiced, temperature 100°, pain over left lobe of liver and vomiting. The blood slide teemed with malaria of the malignant type. The temperature rose to 104° and the jaundice extended more rapidly than we have ever seen before. Notwithstanding hypodermics of quinine and other treatment delirium set in and he died three days after admission. The *post mortem* showed no obvious cause for the jaundice though the gall bladder was distended. A smear from the spleen teemed with malaria.

#### HEPATIC COLIC.

One case was under treatment and his blood showed mixed malarial infection. Under quinine and morphia he recovered without jaundice.

#### BERI-BERI.

We do not see very much of this disease owing to our limited accommodation. Five cases were examined and three showed malaria.

*Case 18.*—Bad attack of malaria and acute beri-beri. Notwithstanding iron and arsenic and 15 grains of quinine every morning for 10 days he had a second attack of malaria and yet a third 18 days after. He was a long time in hospital but eventually recovered completely. If more cases were examined we have no doubt malaria would be frequently found associated with this disease.

## PNEUMONIA, PLEURISY AND BRONCHITIS.

Of these diseases 13 were examined and in 9 malaria was present. None of the cases were fatal. It is a question as to whether a good deal of what used to be known as "influenza" in this Colony was not malaria with a lung complication, the pains in the muscles, &c. being due to the malarial element.

## ASTHMA.

It is an interesting fact that malaria has been recognised as a cause of this disease long before the parasitic days though no one has yet attempted, as far as we know, to explain the pathology. The disease is not very common here. Seven cases were examined and in 6 the malarial parasites were present. Hypodermics of quinine and morphia we found the best treatment.

## NEURALGIA, &amp;c.

Malaria has long been looked upon as a cause of inflammation of nerves or of effusion in their sheaths. These, not being exactly hospital cases, did not come much under observation and we cannot say if this is a common form of malaria here. Two cases only of neuralgia were examined, one of which was positive. The negative one subsequently turned out to be due to syphilis. Two cases of sciatica were examined, both being of malarial origin. They were so obstinately recurring that both patients were invalided. Hypodermics of quinine in the line of the sciatica nerve is the best treatment and it is just sufficiently painful to prevent malingering for the disease being one entirely of subjective symptoms offers a fair field for a rest in hospital.

## COLITIS.

Only one case of this disease came under treatment and was most interesting.

*Case 19.*—A German sailor was sent in by the medical officer of the steamer to be operated on for appendicitis which the symptoms pointed as the cause of the illness in a marked manner. The routine blood examination, however, showed malaria and the case was treated with quinine and saline purges. He recovered rapidly but had a return of all the symptoms whilst in hospital but eventually rejoined his ship quite well. On each occasion the stools were very typical being full of "jelly like" mucus.

## DIABETES.

The only case of this kind, which came under our notice, is recorded as a curiosity, the disease itself being very rare indeed in this hospital. The case was that of our Hindu cook and interpreter, an old Government servant of some 20 years' service and a subject of diabetes for over 8 years. The disease seems to have absolutely no effect on him although when in hospital with his malarial attack he was passing over 4 grains to the ounce.

## ALCOHOLISM.

Only a few cases were examined, two of which were positive and one negative. We have not had many opportunities of investigating these cases for malaria but we think there is little doubt that over-indulgence in alcohol, with the exposure which generally goes with these cases, helps to precipitate an attack of malaria in anyone who is already infected with the disease.

## CHYLURIA.

*Case 20.*—This case was interesting as the fever was due to the malaria and not to the filaria. In a very few days, under quinine, the fever disappeared. We had a very good opportunity of seeing the filaria both in the blood and the urine of this patient. We had hoped to be able to try the effect of thymol—recommended by Indian authorities for this disease—but as soon as the fever was over the patient insisted upon returning to Jaqan.

## PURULENT MENINGITIS.

Only one case of this disease occurred.

*Case 21.*—A Chinaman from Manila was brought to hospital in a dying condition and without any history of his illness. The presence of malaria in his blood led to the belief it was a case of malarial coma. An examination after death showed extensive suppuration at the base of the brain extending up both sides and without any primary cause apparent either in kidneys, liver or elsewhere. Although it does not come under the head of a clinical report, another case might here be mentioned which, by a curious coincidence, came under the notice of one of us (Dr. BELL) a few days after at the public mortuary. As no internal cause of death was evident the brain was examined and a precisely similar condition to the above was found. A smear from the spleen also showed recent malaria. Is it possible to get purulent meningitis as a result of wholesale blocking of the vessels of the brain or meninges by the malarial parasites?

## PERNICIOUS ANEMIA AND MALARIAL CACHEXIA.

One case of each of these diseases came under notice and both had the malarial parasite present in the blood. Both, I regret to say, ended fatally.

## SYPHILIS.

Only 4 cases were examined and 3 showed malaria. One of them was sufficiently interesting to deserve notice.

*Case 22.*—Patient was sent in from Canton and parasites were found in the blood. He was treated for some time with quinine, both by the mouth and hypodermically, but the fever still persisted running an irregular course. Eventually a typical sore was found on the scrotum and under mercury and iodide of potassium the fever rapidly subsided and the patient left quite well. In some of these obstinate causes of malaria it is just as well to bear in mind the possibility of a syphilitic element.

## ABSCESSSES.

Four cases were examined and in all malaria was present. Those in the neck and thigh were very large and required several small operations for their cure. In only one was any obvious cause found. They all did well.

## INJURIES.

The shock of an injury, even when very slight, seems frequently to bring out an attack of malaria. Of nine cases examined five showed malaria. One case seems worth reporting.

*Case 23.*—Patient was admitted having had his hand blown off in an explosion. The arm was amputated, and on the 3rd day the temperature went up to 103°. Under the impression the wound was not healing by first intention, it was examined and found to be doing very well. His blood showed a mixed infection of simple and malignant tertian malaria and under quinine he did well. He had been subject to malaria all the summer and had only just returned from Japan where he had been recruiting his health. Another time we will examine the blood first and the wound after.

## GONORRHOEA.

Four cases of this common complaint had fever and their blood was examined. All showed malaria and under quinine the fever rapidly subsided.

## ERYSIPELAS.

Only two cases of this unwelcome complication in a hospital have occurred, both in the surgical ward. Malaria was found in each and both were very bad probably owing to the complication. They, however, did well. They were at once isolated and no further cases occurred.

## MEASLES.

Two cases of this complaint were under treatment, one being complicated with malaria. The disease itself is a very mild one here, but the combination of malaria made the case more troublesome and necessitated a longer stay in hospital.

## NEGATIVE RESULTS.

A few other cases with fever, slight or otherwise, were also examined but gave negative results. They comprise cases of Burns, Dyspepsia, Endocarditis, Otitis, Anæmia and Hepatitis. The shock of a burn should, we think, produce an attack of malaria and further investigations on this head are required. We were only able to examine one case.

## MALARIAL FEVER (UNCOMPLICATED).

Of these cases—perhaps the most interesting of the record—261 were under treatment during the past six months out of a total of 1,323 patients. There is, therefore, a fair amount of material available for the study of the disease in this hospital. Of this number 216 were of the malignant variety which is here at any rate by far the most common form of the disease. Simple tertian fever occurred in 30 cases and only one quartan came under observation. The latter variety would, therefore, seem to be extremely rare, which is perhaps fortunate, as it is stated to be very unamenable to quinine and tends more to produce anæmia than the other forms. Fourteen cases of mixed infection were also seen but the combination of two forms of malaria in the same patient does not appear to make the case more serious or more obstinate. One Policeman, who has been in three times, always has the mixed infection. In pondering over malaria, as viewed clinically, one cannot help being struck with the various forms of the disease which are all due to the same cause. From the patient who either has no fever, or a fever which after a few hours disappears leaving him well and able to get up, to the patient who is suddenly overwhelmed with coma and in spite of all treatment passes away after only a day or two's illness occur all shades of the disease, some yielding rapidly to treatment and causing no anxiety,

others running their own course without, as far as one can see, any cause for the continued fever or for the difference between any two cases.

“Coma” malaria is very interesting. The five cases we had were all very serious and two ended fatally. Only one was in a Chinese so that it would appear as if Europeans were more subject to this form.

*Case 24.*—Came to hospital with slight fever and with a history of intermittent fever of a week's duration. He was in a dazed, apathetic condition from which he never rallied. Numerous parasites were found in the blood and all internal organs were as far as one could judge healthy. In spite of vigorous treatment by quinine hypodermically the unconsciousness increased slowly but surely and he died a few days after admission.

*Case 25.*—This case was interesting from the fact that he came to hospital after a week's fever quite unable to talk. He lay quite quiet in bed but no answers could be obtained to any questions put to him. For a week his temperature ranged between  $100^{\circ}$  and  $103^{\circ}$  in spite of quinine grs. v every 4 hours. The drug was then given more frequently and without effect until it was administered hypodermically when the temperature slowly came to normal and the patient after a long stay recovered though his speech was always a little slow.

*Case 26.*—A Chinese female prisoner (who was pregnant) was suddenly seized with a fit at the Gaol. She was quite unconscious, stertorous breathing and dilated pupils. Under the impression it might be a case of uræmia she was transferred here. Her blood was found full of parasites. She never regained consciousness in spite of quinine, &c. As these cases all show at the *post mortem* increase in the cerebral fluid one of us performed lumbar puncture and drew off a quantity of fluid. The case seemed to improve slightly after this but eventually, after the birth of a dead child, terminated fatally. Parasites were present in the blood up to the last in spite of 20 and 30 grains of quinine hypodermically every day.

In these “coma” forms we have been somewhat disappointed in quinine as it does not appear to have much effect on the disease. In those who recovered we found iodide of potassium and arsenic help greatly towards regaining their normal mental condition, possibly by causing absorption and so relieving brain pressure. In all cases there was a marked slowing of the pulse for some time after (40-50) indicating stimulants and stychnia.

Two cases of malignant malaria, both in natives of Manila, were interesting in the way they ended. After three and five days respectively of a continuous fever their temperatures dropped suddenly to  $95^{\circ}$  with a very bad pulse, profuse sweating, &c. They both, however, under strychnia and stimulants recovered. One of them was delirious on the 2nd day—rare in malarial—and but for the history might have been taken for typhoid.

#### MALARIA WITHOUT FEVER.

Two cases of this anomalous form occurred.

*Case 27.*—Was admitted on January 24th with crescents and sporing quartan parasites in the blood. On 25th quartan, 28th quartan and malignant tertian, and on the 31st crescents and malignant tertian were found. No rise of temperature throughout.

*Case 28.*—Admitted 30th January with malignant and simple tertian parasites *en masse*. Patient felt very seedy but had no fever. Under tonics and quinine he recovered.

In some few cases quinine did not seem to have much effect on the temperature though why this was so was not clear.

*Case 29.*—Parasites in the blood. Quinine grs. v every 4 hours was administered for 6 days without in any way affecting the temperature. The quinine was stopped and 4 days after the temperature fell to normal and remained so.

*Case 30.*—Parasites in blood. Temperature rose to  $100^{\circ}$  in the evening for 2 days when quinine was administered in 15-grain dose in the morning for 3 days. In spite of this the evening rise was  $101^{\circ}$ ,  $102.6^{\circ}$  and  $103^{\circ}$  when the fever ceased.

*Case 31.*—Quinine grs. xv every morning for 3 days, then quinine grs. v every 4 hours for 6 days when temperature at last fell to normal with no further rise.

We found crescents in the blood of one patient throughout in spite of treatment for the attack of fever for which he was admitted. He left with the crescents still present, advised to continue arsenic and iron for a long period.

#### CLASSIFICATION.

As there seems to be some difference amongst authorities, as to the nomenclature of malarial parasites, we have adopted that suggested to us by Captain JOHNSTON, which we believe is that used by Major Ross. It seems to us both simple and scientific:—

*Simple Malarial.*—Simple Tertian and Quartan.

*Malignant Malaria.*— $1^{\circ}$  M. Tertian (ring-shaped parasites with pigment).

$2^{\circ}$  M. Quotidian (ditto without pigment).

To distinguish between the two forms of malignant malaria involves so many examinations of the same blood that we think it is sufficient to differentiate between the simple and malignant forms which is what we now attempt to do.

#### TREATMENT.

Though we have nothing new to bring forward under this head, a clinical report would hardly be complete without a few words on the subject.

#### PROPHYLACTIC.

This hardly comes within the scope of a report of this kind, but we think we have shown that, until the day dawns when the mosquito will cease from troubling, a good deal more attention must be paid to endeavouring to prevent such conditions arising as precipitate a second attack of the malady. Briefly this consists in good and cheap food, good water, well ventilated and dry houses and avoidance of all excesses.

#### CLINICAL TREATMENT.

Our experience in this direction has been solely with quinine. As far as we know none of the other drugs brought forward lately have fulfilled expectations and quinine will, we think, for a long time to come, be the sheet anchor in dealing with this tropical ailment in all its forms. Now and again one, no doubt, meets with a case in which, in spite of the drug, the fever still continues and search, as carefully as one may, no cause can be found for the persistent rise of temperature. These cases are few and in our opinion most of them should be viewed with suspicion as cases of early phthisis. No less than four of our cases have, after repeated examination both of the lungs and sputum, at last given us the clue to the obstinate temperature chart.

We have only given quinine by mouth, hypodermically and by enema. Of the intravenous injection we have no experience and we doubt it ever being extensively used save in the "coma" forms where as we have already stated we have not had much success with quinine given in ordinary ways. It is certainly worth a trial and we propose, on the next opportunity, trying its efficacy in this manner.

Quinine by the mouth will, we think, be the usual way of administering the drug for a long time to come and the only question is as to how and in what doses it is best used. First of all, there is no question that in all cases of fever the first drug to be used is calomel. The routine practice here is always to precede all treatment by a calomel purge and a saline draught and the benefit of this cannot be questioned.

We tried what, we believe, is known as the foreign method, viz., a large dose either at the fall of the fever or at its height and we gave 15, 20 and 30 grains in some cases in the morning and in others in the evening. As far as our fevers go this system is useless or not nearly as effectual as the old way in vogue in this hospital to which we have returned. This consists in giving quinine in 5-grain doses every 2, 3 or 4 hours irrespective of the fever or the condition of the parasites as seen in the blood. We have no hesitation in saying that for this country this is the best method and gives the best results. The use of antipyretics (phenacetin, antipyrin, &c.) we have entirely given up as we think their employment depressing and of course quite useless as far as the destruction of the parasites go. In combination with the quinine we give a diaphoretic mixture (Liq. Ammon. Acet. 4 drs. and Pot. Acetat gr. xx) every 4 hours whenever the temperature rises above  $102^{\circ}$  or  $103^{\circ}$ . This acts as a diuretic and diaphoretic and is at any rate harmless though personally we have a high opinion of it as tending to the comfort of the patient.

We may add that given in the above frequent doses we have seen no ill-effects nor have any of the patients complained of anything more than a temporary deafness.

We may also state that we tried in one case iron in large doses and quinine in small (Tr. Ferr. Perchlor.  $\eta$ . xx, Quinine gr. ii) every 3 hours, as recommended by a West Indian practitioner—and we certainly agree that it is worth a trial in those few cases which resist quinine.

Diet and the after use of tonics call for no remarks. Sir WILLIAM JENNER'S dictum "Feed your fevers" is as true of this fever as of any other.

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