

given. As a matter of experience there is a gain in weight under the local treatment alone; how much, however, of this is due to the effect of hope and suggestion would be difficult to estimate. In no case has any pyrexia been produced.

The drawbacks of the method are its slowness, taking months; the impossibility of treating with it the affected mucous membranes because of the hitherto insuperable difficulties of focussing the rays to curved surfaces. The diseased mucous membranes are treated after the ordinary fashion by iodine or lactic acid and that treatment cannot with confidence be carried on with the lenses at present in use near the eye for fear of implicating the conjunctiva, but in practice the eye is protected by a pad of damp wool covered with a piece of brown paper.

The advantages of the method are that the results are better than by scraping; there is no pain, there is no scarring. Even if relapses occur the treatment may be quite easily and painlessly recommenced.

Facilities are to be afforded at the London Hospital for the treatment as private patients of that somewhat neglected class—the moderately poor or moderately well-to-do. They are required to bring a recommendation as to suitability from their medical attendant, and to attend daily between the hours of 2 and 5 P.M., and all must be approved by the medical officer in charge of the department.

POSSIBLE DEVELOPMENTS OF THE TREATMENT.

The treatment of lupus erythematosus has not in Copenhagen been nearly so successful as that of lupus vulgaris; only about a third of the cases have done well. The treatment of alopecia areata is, however, decidedly promising. It may yet become a recognised method of treating ringworm and favus. We were informed by Dr. Sequeira that epitheliomata had been treated in Copenhagen with the modified light on the assumption of their parasitic nature, and that they had done well. It is quite within the bounds of possibility that microbic lesions of more deep-seated organs may be treated by some light modification—say by the Roentgen rays, as recently suggested in our columns.

During the month in which the Light Department of the London Hospital has been in action between 25 and 30 cases have been treated; the results will in due course be given to the profession. We may recall the fact that Professor Finsen has now treated patients in this manner for a period of three years, and in one case at least there has been no recurrence of the disease after a two years' interval succeeding the cessation of the treatment.

PROFESSOR KOCH'S INVESTIGATIONS ON MALARIA.

FOURTH REPORT TO THE COLONIAL DEPARTMENT OF THE GERMAN COLONIAL OFFICE.

THE *Deutsche medicinische Wochenschrift* of June 21st publishes a fourth report by Professor Robert Koch on the work of the German Malaria Expedition, of which he is the head. Translations of the second and third reports appeared in the *BRITISH MEDICAL JOURNAL* of February 10th, 1900, p. 325, and May 12th, 1900, p. 1183. The following is a translation of the fourth report, which is dated Stephansort, German New Guinea, April 28th, 1900.

THE PREVENTION OF MALARIA.

In my last report I stated that we had tried by the destruction of the malaria parasites in man to bring about the disappearance of malaria, and that in this way we had obtained very favourable results. I am now able to report that this result has not been transient, but has during the course of the last two months shown itself more and more markedly, as may be gathered from the figures given below.

Patients suffering from malaria were admitted into the Hospital for Coloured People at Stephansort as follows:

MALARIA IN STEPHANSORT.		Chinese.		Malays.	
January	13	...	6
February	6	...	5
March	3	...	2
April	1	...	1

Some sick Malays, almost all of them Ambonese, who had been sent to the hospital from other places, as to whom I shall have something to say later, are not included in these lists.

Among the Melanestians there were on the whole not many cases of malaria, but the number of sufferers fluctuated. In January it was 5, in February 1, in March, owing to the occurrence of some fresh cases among the coolies recently imported from New Hanover.¹ But in April there were no Melanestians in the hospital. Among the Europeans there occurred only isolated cases of relapse, which under appropriate treatment recovered in a few days. There were no instances of fresh contraction of the disease.

Malaria has therefore actually been reduced to a minimum in Stephansort, and this at a time of year which, according to the experience of former years, is most unfavourable in respect of malaria. With the beginning of the rainy season—that is, in November or December, malaria here as a rule increases. It continues to increase more and more, reaching its highest degree of prevalence in March and April, and subsiding in May. This year, owing to the measures recommended by us, malaria for the first time has exhibited an entirely different behaviour. Since the beginning of the present month we have been in the period of transition from the wet to the dry season. In March much rain still fell every day, but from April 1st fairly long intervals without a drop of rain alternated with others in which tolerably heavy falls of rain occurred. We are therefore just in the most dreaded time. There is also no lack of mosquitos, especially *Anopheles*; moreover, from time to time coolies come here from non-malarious districts. In spite of all this, malaria, instead of increasing, has steadily diminished. Moreover, the last cases which have come under observation are not instances of fresh infection, but almost without exception cases of relapse of the quartan type, which according to experience must be counted among the most severe forms and most tends to relapse.

Even these stray cases did not long resist treatment. We are, however, quite prepared for the occurrence of other isolated fresh cases in future from the continuous introduction of coolies from other parts and for the conveyance of infective material to and fro between Stephansort and the neighbouring village of Bogadjim, where nearly all the children suffer from malaria. But the knowledge once gained how malaria is successfully to be resisted, then it will be easy in future to keep the disease at the lowest level.

The condition of the children in Stephansort is particularly noteworthy. Formerly the children, if they were not immediately taken to other districts, were always killed off by malaria, and this was the real reason why families, especially Malays, were unwilling to engage for New Guinea. On our arrival we found only two children, who were both in a most wretched state as the consequence of malaria. Later there were three others who had come here with their parents, and in a few weeks also fell ill with malaria. The children were all placed under treatment. As the result of this, they recovered very quickly, and are now in excellent health.

PROPHYLACTIC USE OF QUININE.

The same measures that answered so brilliantly in the treatment of malaria have also proved very useful for purposes of prophylaxis, as the following instances show:

Of the coolies who came from the Gardner Islands, 47.7 per cent. were affected immediately after their arrival.² The sufferers were at once placed under treatment and completely recovered. Those who have remained well up to the present have been taking quinine prophylactically, and not one of them has contracted malaria.

In February a number of Ambonese came to Friedrich-Wilhelmshafen. It has been found by experience that these people are very susceptible in regard to malaria. About one half of them took quinine prophylactically while the other half did not. The former group remained well; of the latter, all fell ill of malaria with the exception of one woman. They were sent to Stephansort for treatment, where they very quickly recovered. At the present time all these Ambonese are in a good state of health.

The two members of the Malaria Expedition have regularly carried out the prophylactic use of quinine, and up till now (four months) they have remained free from malaria.

It is clear, therefore, that human beings susceptible to

¹ IV, 6, in the list given in the last report; see *BRITISH MEDICAL JOURNAL*, May 12th, 1900, p. 1183, Table I.
² IV, 5, of the last report; see *BRITISH MEDICAL JOURNAL*, May 12th p. 1183, Table I.

malaria in a malarious region can with certainty be protected against infection. I assume, however, that in future men will not trust to the prophylactic use of quinine alone, but will take pains as far as possible to destroy the malaria parasites. The less infective material there is about the less will men be compelled to submit to quinine prophylaxis, which is always somewhat troublesome, and for many people is extremely disagreeable.

CHRONIC AND MILD CASES.

I would draw special attention to a circumstance which revealed itself in our researches, and which is of the utmost importance for the successful fighting of malaria. There are in malaria besides the pronounced cases, which are easily recognised by the clinical symptoms, very many which are not at all or at least not certainly recognisable, and can be diagnosed as genuine cases of malaria only by the discovery of malaria parasites in the blood. Cases in the chronic stage of malaria are to be found in which, after a number of relapses, the familiar symptoms of malaria become gradually less marked. Pronounced attacks of fever occur only exceptionally or not at all. Patients of this description no longer feel themselves obliged to go to the doctor, so that the latter, if he does not make inquiries, generally learns nothing about such cases.

Besides these chronic cases of malaria, I am under the impression that I have also seen a number of others which from the beginning run so mild a course that they never reach the point of development of distinct clinical symptoms, and therefore can be diagnosed only by examination of the blood. In this respect therefore malaria behaves just like the specific epidemic diseases, cholera, plague, etc., and as with these it is precisely the slight cases which are found by experience to require the greatest attention in combating the scourge, so it is with malaria. If one confined one's attention to those patients who go of their own accord to the doctor, one would remove only a fraction of the malaria parasites. There remains therefore no other course than to subject all men who are in any degree liable to harbour malaria parasites, and above all children and recent immigrants, to blood examination from time to time in order as far as possible to discover all hidden cases and render them harmless. This is a very tedious and time-consuming undertaking, but I know not how otherwise we can proceed in order to suppress malaria quickly and certainly. We have worked here exactly on those lines, and I am convinced that it is only by this means that our efforts have been crowned with success.

After all these experiences I consider myself warranted in asserting that we are in a position, by means of the procedure which I have described, to make every malarious region, according to circumstances, wholly or nearly free from malaria. The only requisites are the necessary number of doctors and a sufficient supply of quinine. In the case of an intelligent and obedient population it will not be difficult to carry the struggle against malaria to a successful issue. It will be more difficult in uncivilised regions, where the natives know nothing of European medicine. Even in New Guinea the natives are not easily induced to take medicines, but I have often succeeded by persuasion and small presents to get them to allow quinine to be given to their children. I believe, therefore, that in time we shall attain our object with these people.

MALARIA-FREE DISTRICTS IN NEW GUINEA.

Towards the end of March the opportunity presented itself to me by a journey in the New Guinea Company's coolie ship *Herzog Johann Albrecht* of getting to know some other parts of the colony. I availed myself of this chance, and in the course of a few weeks I was able to collect a number of interesting observations concerning malaria, of which I will, in order not to be too prolix, present the following.

My conjecture that the whole coast of German New Guinea is malarious has been on the whole confirmed. In Finschhafen and all the Jabim villages lying to the south of it I found almost the same conditions as were described in the previous report as to the villages of Astrolabe Bay, Bogadjim, and Bongu. The same holds good of the tolerably thickly-populated coast of the Huon Gulf to Cape Parsee, to which the journey extended. But to the north of Finschhafen in the lands laid out in terraces where there is no virgin forest but only pasture, and which therefore have the appearance of

steppes, I found on the coast a village which was entirely free from malaria. Probably there are other villages on that stretch of coast which are similarly exempt. This agrees with the experience of the New Guinea Company in regard to coolies engaged in those districts. They are much less resistant than the Jabims living to the south and the Bukauas of the Huon Gulf.

Going further in an easterly direction one much more finds non-malarious places. Thus the Siassi Islands (lying at the southern point of the large volcanic island of Rook) are probably quite free from malaria. Of Manlott Island, where there is a trading station, I can assert this with certainty; but likewise on Aramut Island, where I could procure only a small number of children for the purpose of blood examination, I met with no case of malaria. Nor was any case found on the north-west coast of New Pomerania opposite the Siassi Islands.

It looks, therefore, as though malaria had not yet reached those regions. They nowise differ in regard to climate, soil, vegetation, and water from the other islands, for instance the Tami Islands, there are very malarious. The conditions in the French Islands are peculiar. The largest of these—Merite—which has 1,000 inhabitants, is entirely free from malaria. From this island coolies were engaged a few years ago, and in the first half year most of them died of malaria. Therefore it has never happened since that coolies have come from that island. The coolies from the French Islands mentioned in the last report, who as the result of the examination in Stephanort shows, must have come from a malarious region, belong not to the island of Merite, but to Deslac Island, the most easterly of the group of the French Islands. On that island I found the children procured for examination almost universally suffering from malaria, and thus the diagnosis previously made at a distance was fully confirmed.

It is easy to see of what importance in relation to the engagement of coolies in New Guinea it must be to learn the distribution of malaria, so as to be able to act according to knowledge.

As this journey has been so fruitful, I propose within the next few days to proceed in the same ship to the eastern part of the Archipelago, principally to New Mecklenburg and New Hanover.

THE RADICAL FEDERATION AND THE PRINCE OF WALES'S FUND.

We print below the report of the Executive Committee of the Prince of Wales's Hospital Fund upon a memorial sent to them by the Metropolitan Radical Federation. What connection there can be between any particular party in politics and any particular opinion about London hospitals passes our powers of understanding. Nor should we willingly attribute to any school of political thought the narrowness and ignorance which this memorial displays. The Radical party have good reason to complain of the memorialists for connecting them with so puerile a composition. The specific statements of the memorial—if such a term is applicable to these vague and half unintelligible utterances—are, however, so well dealt with, and their folly so completely exposed in the Committee's report, that we need not spend much space on them.

One thing only of any real importance seems to us to come out of the memorial—the obstinacy with which the vulgar, both educated and uneducated, cling to the idea that medical research must necessarily be cruel, and medical experiment unjustifiable. If this were so, of course medicine, which has been of late one of the most progressive of all the sciences, would be doomed to perpetual stagnation, for it is only by experiment that any progress can be made in any art or science. If a new medicine is tried, if a new operation is devised, the first trial of either is an experiment. Yet the sapient persons whose views the Radical Federation embody are animated by an undying hatred of our schools of medicine because they say physiological experiments are performed in them, and of our hospitals because, according to them, patients are "experimented on" by "medical doctors and students." There is no truth whatever in these statements—at least, in the sense which their authors mean them to convey. No physiological experiments are performed in