

NOTES ON SOME TROPICAL DISEASES IN
PALESTINE.

(Continued from Vol. XIII. No. 1.)

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(With Plate I and 1 Chart.)

III. *Enteric and Typhus Fevers.*

UNTIL recently there has been a general impression among a large proportion of the local medical faculty in Jerusalem that enteric fever was very uncommon and that typhus fever was practically unknown. As we are now basing our diagnosis of malaria increasingly upon the discovery of malarial parasites in the blood, we find that while on the one hand many of the most severe malarial infections, especially those with subtertian parasites, have little or no pyrexia, on the other hand, many cases which we should have called "remittent malaria" or "malignant malaria" or "typho-malaria" in years gone by, are proving to be of other origin. A case of remittent pyrexia which does not yield in three, or at the outside five, days to efficient dosing with quinine is not in our experience a pure malarial infection.

Enteric Fever.

With regard to enteric fever there has not been a single year, during the 20 odd years in which I have been connected with our hospital, in which we have not had well-marked cases in our wards. In looking through our records of the decade from 1903-12 I find we had 60 cases definitely diagnosed as enteric. Of these 60 cases—36 males and 24 females—three died, one of acute dilatation of the heart (she had mitral disease), one of haemorrhage, and one (probably) of perforation.

Of the total 70% were 20 years of age or under. It is possible that one or two typhus cases may be included, but it is certain also that some of the more prolonged "remittent" fevers in children which we considered in the earlier years to be malarial were mild enteric. Cases are by no means rare with an "intermittent" temperature throughout. Now that we are having systematic examinations of the blood and excreta at the "International Health Bureau" we find such atypical cases occur. It seems probable that the comparative rarity of enteric fever among the middle-aged native-born population is largely due to its not uncommon occurrence in childhood. It should be pointed out that the statistics of in-patients are no real criterion of the actual prevalence of enteric fever because there is, as a rule, such a strong prejudice on the part of many members of the native population—Jewish and Moslem—against sending their friends to a hospital when acutely and dangerously ill that a large proportion of these cases are treated at home where under the conditions of medical practice here—which often means a new doctor every two or three days—they never get properly diagnosed. Here again Widal's test or bacteriological examination of the excreta is proving of great assistance for speedy and accurate diagnosis. During the present year we have had three cases of enteric in the hospital, in all the diagnoses were confirmed by the Widal test.

Among the British residents in Palestine, enteric fever is certainly not as frequent as in Beirût and Cairo—with their public water supply and town sewers—but the eight cases I have personally known of, have all been severe attacks and three were fatal. With reasonable care it does not seem to me that European residents and visitors, living under favourable surroundings, run very much risk of acquiring enteric fever in Jerusalem; in this respect this city compares most favourably with Cairo.

I am informed by the assistant-physician of the large German hospital here that they have from 15 to 20 cases of enteric fever in their hospital annually but the majority of these are not from Jerusalem itself, many are from Jaffa and others from villages between Jerusalem and Jaffa. In 1908 when there were 30 cases, no less than 14 were from one family in Ramallah. The majority are natives—Moslems or Christians—but a certain number come annually from among the poorer German colonists and from what we should call tramps. All those cases which have been in this hospital in the last year have yielded a positive Widal reaction.

Typhus Fever.

Typhus fever is probably a very much commoner disease in Jerusalem than has been supposed. Cases usually occur during the colder months. During the last cold season we had seven such cases in our hospital and I saw others in the homes. Dr Canaan, an able Syrian doctor with a large private practice, says that he attended 25 undoubted cases—chiefly Moslems—in the winter (1912–13) and other doctors have had a similar experience. In the cases briefly detailed below it will be noticed that three of them were members of our staff infected from the patients; a few years ago one of our English nurses also caught the disease but happily recovered.

As there is still a certain amount of scepticism regarding the prevalence of typhus—these cases being sometimes called “malignant, remittent malaria,” etc.—I give below in brief outline the main symptoms of our seven in-patients.

Case I. S., a Russian Jewish immigrant, aged 19, admitted Nov. 30, 1912, in a semi-dazed condition with a temperature 102° F. He was unable to give any clear account of himself but we gathered that he had probably been ill for one week. During the next week his temperature was mostly below 102°, but once reached 104°. His mental condition was confused. Bowels constipated (had to be treated by enemata, to which he offered violent resistance). Slight rash on abdomen not unlike “rose spots” but far more plentiful. Urine: no albumen. Temperature fell to normal on what we calculated must be about the 13th day—seven days after admission—and, after a rise to 99·4° next afternoon, remained down. Good and rapid recovery.

Case II. B., a Spanish Jewess, aged 45, employed as a ward servant, was ill with “fever” two or three days before she took to bed. Seen in bed Dec. 4, 1912, with severe headache, aching all over, etc. and supposed to have, the then prevailing disease, dengue. Temperature, first day in bed, 101°; rose gradually, 104° (8th inst.); 104·2° (9th); 104·6° (10th); and 105° (11th). In searching for “rose spots” a general mottling of the skin of abdomen and chest was seen but not at the time noted as the case was supposed to be enteric. Dec. 10th, muttering delirium, stools very offensive; 11th, patient very drowsy, headache better. Temperature fell by crisis on Dec. 15th—the 13th day—from 102·2° to 99°; next day rose once to 100·2° and then remained down. Blood examination negative: Widal’s reaction negative.

Case III. Z., Spanish Jew, aged 10, admitted Dec. 11th, 1912, with fever of some days duration. Temperature 103° on admission, 104° next day. Pulse 120–130. Abdomen retracted, no “rose spots,” no rash noticed, lungs clear. Urine: no albumen. Blood negative to malaria. Widal’s reaction *positive* (this rather upset our diagnosis but must have been a result of a *previous* attack of enteric). On the sixth day after admission, temperature fell by crisis from 101·4° to normal

and except for one rise at 7 a.m. next morning to 100°, it remained down. Rapid and complete recovery.

Case IV. M., Spanish Jew, aged 4, brother of Case III, admitted Jan. 6, 1913, with fever of some days duration. Temperature 103·4° first day; rose to 105° second day, but afterwards remained between 101° and 103° till the eighth day after admission, when it fell by crisis to 98° and, except for one rise to 99° next evening, remained down. A slight evanescent rash observed. Constipation throughout. Urine normal. Blood negative to malaria and enteric tests.

Case V. D., a Spanish Jewess, aged 28, mother of Cases III and IV, admitted Jan. 8, 1913, with history of six days illness. Aching all over, tongue dry and furred, very constipated, no cough, no rose spots, a slight vesicular eruption noted about waist. Urine: considerable cloud of albumen. Very drowsy and indifferent to her surroundings—this increased after crisis. Substultus tendinum marked. Pulse 112 to 140, very weak. Temperature fell by crisis, on ninth day after admission, to 99°; next morning rose to 100°, fell by noon to normal and remained down. Albumen disappeared from urine at once; pulse, however, became alarmingly weak and irregular after crisis, but patient left quite well three weeks later.

Case VI. R., a Spanish Jewess, aged 45, employed as servant in the hospital, taken ill with "fever," Feb. 3rd, 1913, temp. 101° to 102°; next day fell to 100°; following day reached 104° but later almost always below 102° till the end. Profuse typhus rash, at first an erythematous mottling of the skin, well marked, later widely diffused petechiae; horrible faector; urine loaded with albumen. Blood negative for malaria and enteric. On the seventh day of the fever patient got rapidly worse, respirations ran up to 56. Eighth day, violently delirious, pulse 140, respirations 60; ninth day, pulse 144, respirations 64; patient semicomatose; died at 8 p.m.

Case VII. Miss W., an English nurse, aged 37, had "fever" for two days before being put to bed (Feb. 5th) with temperature 102°; rose by seventh to 104° and remained generally between 102° and 104° next ten days. Rash and faector characteristic and marked. Heart very irregular—no valvular disease. Pulse never above 120, after crisis rapidly fell to 70–80. Condition last two days before crisis seemed very critical. On Feb. 17th (14th day of illness) temperature fell from 101° to 97·4° and after rising to 99° at six next morning remained down. Unbroken and rapid recovery. Blood examination (at beginning of illness) for malaria and enteric, negative.

I think these brief notes are sufficient to convince anyone that we were here dealing with a small epidemic of typhus. All the cases that recovered had a typical crisis about the 14th day; in all but one Widal's reaction was negative; the rash was distinct in three cases and would no doubt have been noticed in the earlier cases—although it must have been very faint—had we not diagnosed these (supported in one case by a positive Widal's test) as enteric; in the severe cases the faector was strong and overpowering. As usual, age had a great bearing on the severity of the symptoms—the one fatal

case was the oldest. In looking through our hospital records I find that there were during the last 10 years—previous to this epidemic—eight cases among the in-patients diagnosed as typhus, of which three were fatal. In the more squalid parts of Jerusalem, within the old city walls, epidemics of typhus are not uncommon, but such cases, if only seen under the difficult conditions of their home surroundings—in semi-darkness, amid filth and rags—are liable to be confused with malaria, enteric, pneumonia, etc.

IV. *Jericho boil.* (Plate I, fig. 1.)

It is a fact, long familiar to the inhabitants of Southern Palestine, that every new-comer visiting Jericho during the summer months—and especially during August and September—is liable to acquire a troublesome skin affection which lasts as a rule for six months and may last for a year, or more. The residents in the little village of Jericho having all had this disease—in childhood if born there—are all now immune, but it is said that practically every new-comer in the summer gets the disease. I myself had occasion to visit Jericho in the hot season and soon got half a dozen “boils” scattered about my legs and arms—fortunately not on my face—which lasted several months and have left small scars.

The scars left by the Aleppo “button” or “boil,” the Syrian variety of Oriental sore, are very familiar to us as we have many hundreds of Aleppo Jews in Jerusalem, and I never saw anyone who has resided long in that city who could not point to the scars. Indeed, in the case of those infected as young children, the scars, often very extensive and unsightly, are usually upon the face. The same is the case with the “Baghdad boil.” Occasionally we have people coming from one of these cities with their Oriental sores unhealed. One patient of mine went to Aleppo to keep the Passover feast with her relatives; she was only there a few days but acquired a sore which it took months to heal. My friend, Dr Adams, of the Syrian Protestant College, Beirût, has had great success in treating these Oriental sores with solid carbon dioxide. Now, the “Jericho boil” presents some clinical features distinct from the Oriental sore as we see it acquired in Aleppo and Baghdad. I have long been inclined to think that it is a disease *sui generis*. It has the features, common to such sores, firstly, of belonging geographically to one locality. It seems to be peculiar to the village of Jericho itself, and to a few neighbouring places in the Jordan valley;

secondly, it seems to attack all those not immunised by previous attacks; and, thirdly—until recent methods of treatment—its duration has always been long, several months at least. On the other hand, it differs from the ordinary Syrian Oriental sore as follows:

(1) In my experience it is the rule that the lesions are far more numerous. The Aleppo boil is solitary or at most there are three or four: in the case of the "Jericho boil" the lesions may be as many as a dozen and are frequently very many more.

(2) The lesions of the Jericho boil are *as a rule* more superficial in character and do not lead to such deep scarring as the Syrian Oriental sore. I have seen one or two exceptions to this: *e.g.* one small girl at Jericho who had a scar on her nose very like that of an Aleppo boil, although she had other more superficial scars besides, and an old Moslem woman, in debilitated health, who had a very large and septic sore on the back of the hand, which I think was due to a secondary infection with septic microorganisms.

(3) My friend, Dr Huntermüller, of the "International Health Bureau," has, at my suggestion, made a very exhaustive examination of some skin sections which I excised for him from Case II and he finds no Leishman-Donovan bodies but certain other bodies of a distinctive character. A report on these pathological appearances will be published later when more material has been examined.

Jericho is a small place, with 300 inhabitants, and not greatly visited by the susceptible during the summer months, so that cases of this disease are not common. In a special visit which Dr Huntermüller and I made this summer for the purpose of getting material, we only saw four cases and of these two were practically healed. A couple of years ago I had under my care the family of a Turkish official whose duties had necessitated his residence in Jericho for many months. All the members of his family returned to Jerusalem infected with these "boils" but all, except in the case of the old lady mentioned above, healed after a few months of treatment.

The two following cases were in-patients in my hospital:

Case I. A., a Jew from Yemin, aged 20, was in Jericho in July, 1905, for one month and came to the hospital two months later with the following lesions. He had thirteen "boils" on his face; eleven on the front of his chest; twelve on the upper part of his back; eight on his right lower leg—three of which were large and crater-like—these were the first to appear; seven on his left leg. My description, written in the clinical notes at the time, is: "The spots began as small raised papules, pink in colour and varying in size from a pin's head to a considerable size:

there is a certain amount of desquamation over the papules and when scratched, as for example on the hands, they have become small, suppurating, ulcers. The larger spots are about the size of a sixpence, they are flattened out and ulcerated at the centre, nothing can be squeezed out of them. The lesions are quite superficial and there is very little induration around. They have little or no scab on the surface." The patient was treated for a few days with arsenic internally and an ointment of zinc and mercury, but he would not stay in the hospital and has been lost sight of.

Case II. S., an Aleppo Jewess, aged 17, admitted to the hospital, Feb. 3, 1913, with a large crop of "boils" consequent upon residing a few weeks in Jericho the previous autumn. The lesions were similar in character to those described above, and I send a photograph which may give some general idea of their appearance (see Pl. I, fig. 1).

The lesions were situated as follows: one at external angle of left eye; one on the left side of the nose. Seven on the right arm, one of which was nearly one inch in diameter, one above right elbow; two at left elbow, two at left wrist and one at the back of the left hand, five near the right knee and one in front of ankle; two above left ankle, one in front of left foot and one at back of left heel.

This patient was, through the kindness of the Director of the International Health Bureau, who supplied the drug, treated by intramuscular injections of neo-salvarsan: 0.1 of a gramme being given at intervals of a few days. Four injections were given with marked improvement. Healing commenced after the first injection and was complete in a few weeks.

It seems probable, from the situation of the lesions, that many of them are produced through auto-inoculation by scratching.

Since writing the above I have had four more cases under my care all presenting the same general symptoms. Two, who were brothers, were Moslem fellahin from Siloam, and had spent some weeks shortly before among the bedoin on the banks of the Jordan some miles north of Jericho. They told me that all the bedoin living in that region had at some time suffered from that disease. One of the brothers altogether refused to submit to treatment with neo-salvarsan, saying that he knew the sores would in any case get well in a few months and that all he wanted was a little ointment. The other brother was admitted to my Hospital, had an intramuscular injection of neo-salvarsan (0.3 gramme) which he found very painful, and when some days later we proposed to give him a second injection intravenously, he took flight and left us rather than submit to further treatment.

The other two cases were Jews, a father and son, who had spent several weeks in the summer at Jericho and came to me with very many lesions. The son refused to come into the Hospital but the father was admitted. I excised one of the lesions under cocaine for microscopic examination and gave him an intramuscular injection (0.3

gramme) of neo-salvarsan. He too felt much pain from the injection and either on account of this or, as he said, on account of his business, he left for Jericho two days later. I was therefore unable to give systematic treatment in any of these cases.

I understand that many Russian pilgrims acquire this disease on their visits to Jericho and the Jordan, and we hope that during 1914 the treatment of these cases with salvarsan or neo-salvarsan will be given a thorough trial in the Russian Hospital.

V. *Ulcerative stomatitis.* (Plate I, fig. 2.)

There is a form of ulceration of the mucous membrane of the mouth which I have observed for several years and which has proved very resistant to ordinary remedies. Cases we have had improve considerably while under hospital treatment but relapse on going out. It occurs commonly in children and young people, sometimes also in pregnant women. The lesions consist of elongated ragged ulcers with deep red edges and sloughy whitish bases, which form especially at the junction of the mucous membrane of the gums and that of the lip; also, commonly, as an irregular line on the inside of the cheek opposite the line of junction of the molars. When the ulceration is deep the affected lip or cheek is often markedly swollen. In more severe cases the alveoli of the teeth are involved and portions become necrosed; indeed some of these cases are actually an early stage of noma. The breath in all these cases is foul; if there is necrosis it is naturally very foul indeed.

In connection with these cases two important points were determined with the assistance of Prof. Mühlens of the "International Health Bureau":

(1) A case of this nature which was in our hospital nearly a year ago had gone on until it assumed the characteristic appearance of Cancrum oris. The child, aged 15 months, was a Jewess from Urfa in Northern Syria and on admission was found to have a large and deep ulcer connected with the upper lip. Soon after admission a piece of necrosed upper jaw with three incisor teeth attached was removed but the gangrenous process spread rapidly and the whole upper lip and left cheek were progressively destroyed, the child dying 17 days after admission. On consulting Prof. Mühlens about the case, soon after its admission, he suggested taking a smear from the edge of the ulcer: this when stained with Giemsa's stain showed what looked like a pure



Fig. 1. Case of "Jericho Boil.



Fig. 2. Case of Cancrum oris due to *Spirochaeta vincenti*.

culture of *Spirochaeta vincenti* and *Corynebacterium fusiforme*. Subsequently I took a number of smears from cases such as are described above—which appeared to me to be the earliest stages of noma—and in all those with these characteristic symptoms we found the same microorganisms. Other ulcerations of the mouth show on the smear merely enormous quantities of mixed bacilli and occasionally a few teeth-spirochetes. Thus it would appear as if this particular form of ulcerative stomatitis is due to these special organisms. Whether one is the primary agent and the other of no directly pathogenic importance or whether they are only pathogenic when acting together is not yet clear. Since we made these observations I have learned that similar ones have been made elsewhere¹.

(2) At the suggestion of Prof. Mühlens—who kindly supplied the drug—we commenced treating these cases with neo-salvarsan. The unfortunate child with noma had four intramuscular injections (0·1 gramme) of neo-salvarsan: although the spirochetes disappeared almost at once from the wound, the utmost that the drug accomplished was, probably, some prolongation of the patient's life—a doubtful benefit under the circumstances. But in a whole series of cases which we have had since this treatment has proved most successful; the spirochetes disappear or greatly diminish after the first injection and healing is only a matter of a few days. One case came back with a recurrence after some weeks and the second course of injections did not seem to have so rapid a result either in causing disappearance of the microorganisms or in producing healing. I am told that in some cases of this nature the application of a solution of salvarsan to the surface of the ulcer itself has proved successful. The case in question healed without great delay so I have not yet had occasion to try this mode of treatment.

SUPPLEMENTARY NOTE ON MALARIA.

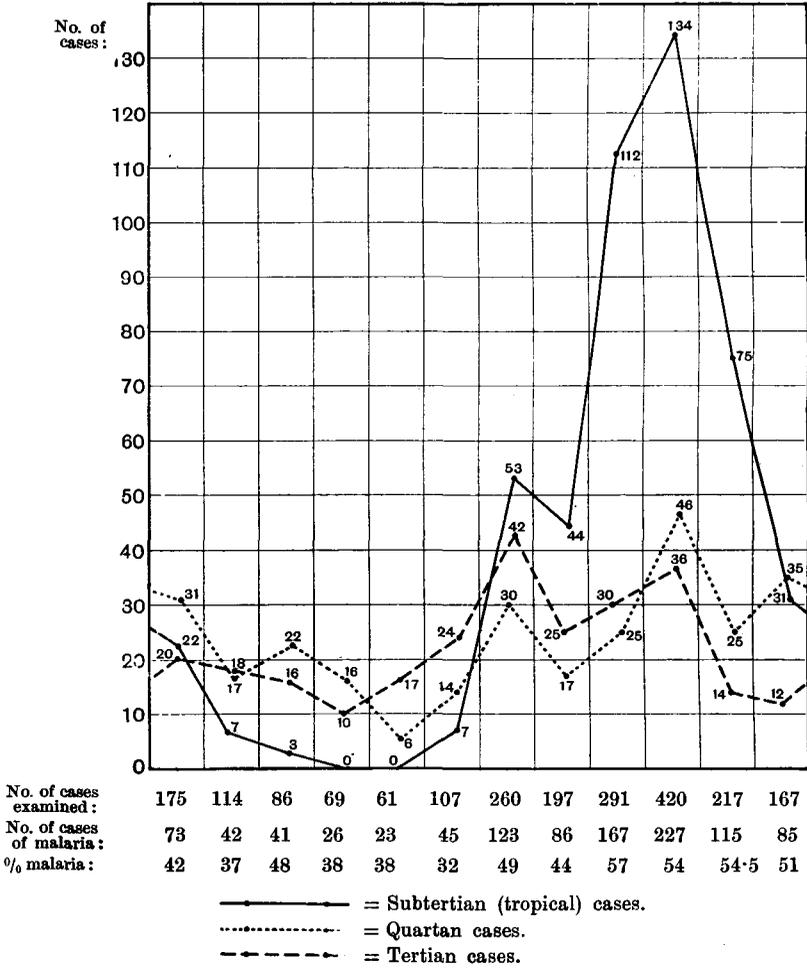
In the *Journal of Hygiene*, Vol. XIII, No. 1, I gave some account of the "Malarial fever of Palestine." I now send a chart to illustrate the results of a systematic blood examination of our "fever" cases, made for a whole year commencing Sept. 24, 1912. Dr Corbitt, my assistant, and I, have as far as possible taken the blood of all new cases coming to our out-patient clinics from week to week. The slides have been stained for me at our "International Health Bureau" and have been

¹ See *Atlas und Grundriss der Bakteriologie* (Lehmann Medizin. Handatanten), vol. x. pp. 577-5'.

Diseases in Palestine

The results of blood examinations of "fever" cases attending the clinics connected with the English Hospital, Jerusalem, during a whole year commencing Sept. 24th, 1912.

JAN. FEB. MAR. APR. MAY JUNE JULY AUG. SEPT. OCT. NOV. DEC.
 Mean atmospheric temperature, Fahr., per month:
 49° 46° 54° 61° 65° 74° 76° 76° 75° 68° 60° 52°



systematically examined by Professor Mühlens or, after the first few months, by myself. Unfortunately through our having had a Medical Congress in Jerusalem in the middle of August, neither I nor my assistant was able to take blood preparations for about ten days at that

time. In consequence of this our total numbers that month are at least one-third less than they should be and the rise in the number of cases of all forms of fever, which certainly occurred in other years, appears as a fall. To make the chart more in accordance with the facts about one-third ought to be added to the numbers for each kind of fever.

It is noticeable how far more prevalent is malaria during the latter half of the year. Thus, out of a total of 2166 cases examined during the year, there occurred 612 cases with 250 "positives" (41%) between 1st of January and 30th of June whilst there were 1554 cases—with 812 "positives" (52%)—during the latter half of the year. These figures do not in any real degree represent the actual number of malaria cases under our care as during the whole hot season "positive" cases were attending the clinics regularly for treatment, but they were, as far as possible, only registered as such on their first attendance. Thus for example in November, 1912, the number of cases examined were considerably less than in October, although the actual number under treatment for malaria was still high (see *Journal of Hygiene*, Vol. XIII, p. 55, Chart).

The most striking feature of the Chart is the entire disappearance of Subtertian (tropical) malaria during the early Spring. The few cases occurring in February, March and June are usually importations from the hot maritime plains or from the Jordan Valley, where this disease occurs in all seasons. It is noticeable however that all malarial cases diminish in the cool rainy season, when mosquitos are very scarce.

Correction. Dr Cropper informs me that the list of Anophelens of Palestine I quoted in my earlier paper (Vol. XIII, p. 53) is incorrect in that (a) I omitted *Pyretophorus superpictus* and (b) *P. palestiniensis* = *Cellia pharoensis*.