FEVERS OF THE TYPHUS GROUP IN THE BHIM TAL AREA, KUMAUN HILLS, U.P., INDIA.

BEING A REPORT OF AN INVESTIGATION CARRIED OUT INTO THE ALLEGED INCIDENCE AND NATURE OF TYPHUS GROUP FEVERS IN THE BHIM TAL AREA, KUMAUN HILLS, JULY, 1936.

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(Continued from p. 245).

DISCUSSION.

The salient features in connection with the incidence of alleged typhus-group fevers in the Bhim Tal Valley have been reviewed. Megaw's prima facie case against the tick as a vector has been subjected to experimental tests and the results noted. It remains to weigh carefully the evidence which has accrued before conclusions can be drawn as to its validity in the past or to its applicability to the present.

I.—WHAT WAS THE NATURE OF THE FEVER DESCRIBED BY McKECHNIE AS TYPHUS?

A perusal of the details leaves no room for doubt that the fever was either typhus or an enteric group infection. As regards the latter with its protean manifestations, the clinical picture cannot be regarded as definitely eliminating it. It must be admitted, however, that the clinical syndrome is more in conformity with a typhus infection. Confirmatory laboratory results would be essential to justify an enteric diagnosis. These are not forthcoming and, on the contrary, are definitely against such a diagnosis. It should be remembered, however, that the Widals of that time were not arranged to detect the significant "O" agglutinins of enteric infections and Felix and Felix and Clitxky (Topley and Wilson, 1929) have shown that a high percentage of such cases only produce "O" agglutinins. While this is true of the individual case it could hardly apply to all cases in a given epidemic such as McKechnie's series; and there are no published records of such occurrences. The negative Widals in McKechnie's cases must, therefore, be regarded, despite the discrepancy, as eliminating an enteric group infection which is further confirmed by the completely negative blood cultures.

The alternative diagnosis is typhus. There is nothing against this diagnosis and there is everything for it. Firstly, it conforms closely with the accepted clinical picture—the type of the fever, the rash, the marked stupor, the extreme and early prostration. Secondly, it occurred in a population which presented every feature necessary for the outbreak of a louse-borne disease. This will be discussed later in these studies. Sufficient it is to say that this was clearly McKechnie's view—he mentioned the louse as a possible vector. His reference to the possibility of fleas and bed bugs
being in deference to his views on the epidemiology as affected by the European incidence.

As regards the nature of the fever one must at least agree with McKechnie that it was typhus and not an enteric infection.

II.—Do the Epidemiological Factors of this Typhus Justify McKechnie's Conclusions As to the Vector or Vectors Concerned?

Through the valley of Bhim Tal runs the main hill road on its way from Kathgodam to Ramghar and Almora (this is excluding the main motor road through these hills which on account of its circuitous course is little used by the natives travelling on foot or horse through the Kamaun). Through this valley pass the hill people on their annual migrations, as must also all travellers to and from the hills beyond and

Case 2 (McKechnie).—Sat Tal, September, 1913. European gentleman, aged 60. Blood culture, third day, negative. Rash, third day. Photophobia, flushed face, sunken expression, rapid recovery.

Nepal, and the village of Bhim Tal is the last halting place for the downward traffic and the first for the upward. It would thus appear that the area is particularly exposed to the introduction of disease. In particular, however, it is exposed to the introduction of louse-borne diseases in general, and especially to louse-borne typhus by the travellers from the endemic areas further back in the hills and in Nepal and Tibet. It has certainly experienced epidemics of louse-borne disease as is evidenced by the outbreak of louse relapsing fever which McKechnie encountered on his arrival in Bhim Tal. It was proved to have been introduced to Bhim Tal by an itinerant native woman from Haldwani in the plains (Megaw 1922). While there is no doubt that the area is exposed to
these infections there is equally no doubt that it offers all the necessary conditions for the establishment of these diseases in the valley. Firstly the indigenous population are themselves louse-infested, secondly the conditions of hill village life are characterised by dirt and over-crowding, and thirdly there is a temperate climate. It is thus apparent that the district is unusually exposed to louse-borne infections, and in addition offers every condition necessary for them to thrive in.

One may wonder then why McKechnie had any difficulty in diagnosing the nature of the disease. The clinical picture was clear, and in fact it was on this alone that he was eventually convinced that the disease was typhus. Further there was no doubt that the natives were louse-infested, were exposed to louse-borne infections, and were, in fact, just recovering from a louse-borne epidemic. What presented the difficulty was the European incidence—they were not louse-infested nor were any lice found on them. This, then, was the stumbling-block—the feature which he could not adjust with his views on the epidemiology of typhus—this fact and this alone prevented him from accepting the clear-cut picture which the disease in the natives presented. Later, however, he was to readjust his views on the epidemiology and accept what, but for the European cases, left no room for doubt. For reasons to be discussed later it is clear the apparent difficulty with regard to the European patients is only what one would expect, and should, in view of the associated incidence among the natives, have given rise to no difficulty.

As regards the vector involved one may wonder why he felt it necessary to postulate the existence of any vector other than the louse. He tentatively suggested the flea and the bed bug, though there were no grounds whatever to justify such a view, except that these, with lice, are common ectoparasites of man in the hills. It must be noted that the louse is mentioned as a possible vector. His further conclusion that the disease is contracted from contact with the natives is in complete harmony with this view.

There seems no reason to discuss the flea and the bed bug any further at this stage; there is no evidence for them and they are obviously introduced rather timorously in deference to his not finding lice on the Europeans. As such the prima facie case for the louse must stand. One must agree with McKechnie as to the nature of the fever and that the louse considered by him as a probable vector was undoubtedly the vector concerned.

III.—Do the Fevers Which Have Occurred in the Ensuing Years Conform in Their Clinical Picture and Epidemiology with Those in 1913?

In this connection we have eleven cases available for study.

There is a complete conformity in the clinical picture, and we must agree that clinically, at any rate, the diseases are similar.

As regards the associated epidemiological factors. The incidence
reveals a number of sporadic cases scattered throughout the ensuing years and in no way apparently associated with an epidemic among the natives. The natural disinclination of all natives to discuss their illnesses with outsiders must be borne in mind. The incidence among them is usually hidden by a wall of suspicion, or all fevers are spoken of as malaria until matters assume major epidemic proportions. Then, and only then, is the wall of suspicion removed, and the observer may catch glimpses of disease which previously were unrecorded and unsuspected. This is particularly true among the natives of comparative hinterlands like the Kamaun. Further it is apparently characteristic of epidemics in the hills that they are usually confined to one or more huts and rarely assume major epidemic proportions. Again the position of the villages, out of the beaten track, does not facilitate systematic routine inquiries such as are carried out in the more civilized communities. Bearing all these facts in mind it seems not improbable that minor typhus epidemics have frequently occurred and passed unnoticed. Whether this is true or not, it is certain that sporadic cases among the natives have occurred and it is on record that one of the fatal cases in a European was associated with the disease in a native (Banerjee 1927). In discussing this and another case he remarks: “I could find no clue to the source of infection in the first case, in the second (Sharp) a daughter of an Indian employee of the patient’s had typhus just before his illness.”

These remarks are not only notable for the light they throw on the possible aetiology of Sharp’s attack, but in the support it gives to the contention that sporadic cases occur among the natives and are only noted in exceptional circumstances—e.g. the fatal attack in a European—and the presence of a distinguished observer on the spot to make inquiries.

As regards seasonal incidence, and close contact of the cases with louse-infested natives, there is complete harmony between the more recent cases and those of 1913.

It seems reasonable to assume, therefore, that while the epidemiology differs from that of 1913 in the absence of a recorded epidemic among the natives in association with the cases, yet there is considerable reason to believe that minor epidemics may have been so associated with the European incidence. If this is true, and it seems the reasonable explanation bearing in mind our knowledge of the 1913 outbreak, and the susceptibility of the area to such infections, it follows that the differences in the epidemiology is one of degree rather than any essential change. It seems reasonable to accept, therefore, that the clinical and epidemiological picture associated with more recent cases are essentially the same as in McKechnie’s time.

*(To be continued.)*

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