Short Notes and Clinical Cases.

THE QUESTION OF SILVER CELLS AS PROOF OF THE SPIROCHÆTAL THEORY OF DISSEMINATED SCLEROSIS.*

By

HELEN J. ROGERS, NEW YORK.

SINCE researches into the *Spherula insularis* theory of disseminated sclerosis have failed to furnish support for it, it was natural to turn to another prevalent view of the etiology of that disease, viz., that based on the work of Kuhn and Steiner, whose theory concerns a spirochætal origin.

Steiner in a recent monograph (1931) elaborated all his former work and devised a much simpler silver stain than he had formerly used. Among 28 cases of disseminated sclerosis he demonstrated a spirochæte in seven; this spirochæte did not resemble the *spirochæta pallida* of progressive paralysis, as it was much thicker and coarser. As further proof of his spirochætal theory he demonstrated 'silver cells' in 26 of his 28 cases and these silver cells he found also in every case of progressive paralysis examined, but never once in over 100 control brains.

During the last nine months I have examined very carefully 11 cases of disseminated sclerosis with the Steiner silver method; up to the present I can only say definitely that in one case I have found an organism similar to the Steiner organism. But in every case I have found the silver cells and also in many cases a histological picture resembling spirochætal fragments. At all events the slides I have obtained are identical with those that Steiner pictures in his monograph.

To be certain that the technique was correct, following Steiner's advice I experimented for a long time on progressive paralysis brains, and then controlled the disseminated sclerosis cases in each instance with progressive paralysis cases; in each progressive paralysis control slide the *spirochæta pallida* was quickly recognized as well as the silver cells.

* Based on a paper read at the joint Neurological-Psychiatric Meeting held in Vienna, June 14th, 1932.

I have also very carefully examined the brains from four other disease-conditions, viz., cerebral softening, myotonia congenita, bulbar paralysis, and diffuse brain sclerosis; and in no case have I been able to demonstrate either spirochætes or silver cells.

We can, therefore, definitely state that to a certain degree the anatomico-pathological changes are similar in these two diseases, so far as the appearance of silver cells is concerned.

As to the spirochæte itself, I wish to be most cautious and only say now that the question of its possible etiological significance must be left aside until it can be demonstrated in more cases and with less difficulty than at present. However, we owe much to Steiner for his silver method; any one who is interested can undertake study of the subject in a large number of cases until we come to determine exactly what is correct and what is false.

As to the significance of the silver cells—this is, of course, a very difficult question. Definitely, they have nothing to do with fat-cells, as fat-cells take no silver stain. Also definitely, they are identical with those seen in progressive paralysis, and in both instances are perivascular in position.

Many authors have commented on a possibleluetict factor appearing frequently in the histories of typical disseminated sclerosis cases, and it is natural, perhaps, to think of the possibility of that disease having aluetict antecedent. However, that is purely conjectural; and theories should not be advanced until a great number of brains have been repeatedly examined and further researches make us sure of our ground.

This is a preliminary report offered in the hope that it will stimulate further research along the same lines.

My work has been done in the Neurological Institute of the University of Vienna, under the expert and kindly guidance of Professor Otto Marburg and with the able assistance of Doctor Pfleger, to both of whom I am very grateful.