complex took place. A patient, for example, had a certain conception with which was connected a certain affect, and that affect was of such an unpleasant kind that he tried to disassociate it from the conception and carried it over to another conception which was closely associated with it, but which was not so repugnant to him.

Dr. L. Pierce Clark said he had applied the method described by Dr. Scripture in a number of cases, one of the most interesting of which was that of a neurasthenic in which he had been unable to get the emotional complex which precipitated the episodes. In applying the test to this patient, he noticed that the words "unhappy," "blood," "child" and "accident" gave a very long interval, and the result was the same in repeated trials. When the patient was asked whether he had ever had an accident to a child attended with the loss of blood he denied it, but his physician subsequently stated that about a year ago this man's wife had become pregnant for the first time, and that she had an abortion produced without the husband's knowledge and much against his wishes. Upon his arrival home one day he was shocked to find her in a condition of collapse, with severe flowing, which nearly cost her life.

ON SOME PECULIAR HOLLOW NUCLEAR-LIKE STRUCTURES IN THE NEURONE BODIES IN RABIES.

By Dr. Ira Van Gieson.

The description of the newly-found bodies in rabies was of very much less importance than the endeavor to interest neurologists in a seemingly forgotten subject within their field of investigation. The subject of the Negri bodies had received little or no attention from neurologists, chiefly, it would appear, for the reason that these bodies were regarded as protozoa, and consequently foreign to neurological research investigation. As a matter of fact, the Negri bodies were degenerated products of the neurone under the action of a peculiar virus, and scientific study was bound to throw light upon the process of rabies in particular, and upon the life history of the neurone in general.

In his original article (*Zeitschrift für Hygiene und Infect. Krankheit.*, 1903), Negri described rounded or ellipsoidal bodies measuring from one to twenty-five or more microns, lying in or near the substance of the nerve cells in rabies. These bodies contained particles of ordinary chromatin in their interior. These the Italian writer considered protozoa and the parasitic causal transmitting agents of rabies, although any approach to proof or confirmation of this surmise was conspicuously absent in his paper. Besides these typical bodies, which were probably at the present time regarded exclusively as the Negri bodies, there was another form quite distinct and different. This second form of corpuscle lying in or on the neurone bodies in rabies differed from the preceding in that they contained no internal chromatin particles and appeared quite homogeneous without exhibiting any internal differentiated structure. Thus there were two sets of these bodies appearing on or in the neurone bodies in rabies, and the speaker advised their differentiation by characterizing the first type as the nucleated and the second as the non-nucleated bodies.

Negri described the nucleated forms quite thoroughly, but the non-nucleated forms he barely recognized and evidently had a confused notion of their individuality. He failed to identify them signally, and to distin-

guish and separate them from the nucleated type which he regarded as the characteristic, typical and *sui generis* body in rabies. Furthermore, his distinction of the second or non-nucleated type of body was vitiated by his hasty surmise that the bodies were protozoa. In addition to these two forms of structure in rabies (it was to be understood that only street virus rabies was considered), there was still a third structure recently found by Dr. Van Gieson which was again quite distinct from the other two. The third type of structure differed radically from the other two in that it was not solid as they were, but hollow, and composed of a delicate skein or network of chromatin material. These bodies looked quite like the naked nuclei of a great variety of cells, with a delicate chromatin network inclosing apparently empty spaces. These bodies the speaker had so far found only in the bodies of Purkinje's cells in street rabies, and he suggested that provisionally they be distinguished from the other two types as the fenestrated or reticular bodies in rabies. The possibility that these fenestrated bodies were normal structures or artificial modifications of the other two types induced by technical methods, or the nuclei of neurophagi had been eliminated.

Dr. Van Gieson's paper was illustrated by charts depicting the structural characteristics and differences of all three types of the bodies.

Dr. James Ewing said that ever since the publication of Negri's articles he had been engaged in the study of these so-called Negri bodies. He thought that a fair estimate of the situation as it stood today was that while the adherents of the protozoan character of the Negri bodies had had a fair opportunity to substantiate their claims, they had not yet succeeded in convincing the majority as to the correctness of their theory.

Dr. Ewing said he was especially interested in Dr. Van Gieson's division of the two sets of bodies that he had found in or on the neurone in rabies as nucleated and non-nucleated. Personally, he had observed reticulated structures without any nuclei, but he had never considered that they deserved a separate classification, and he thought that he had at times observed certain transitional forms between the nucleated and the non-nucleated structures. In addition to the two bodies described by Dr. Van Gieson, Babes had recently found a very minute granular body in the ganglion cells in rabies, so that we now had three different structures that claimed recognition in connection with rabies.

Dr. Ewing said he had searched through many different types of diseased ganglion cells, and had never been able to find anything that he could recognize as a Negri body excepting in rabies. The speaker said he agreed entirely with Dr. Van Gieson that the problem was one for the general neurologist who was able to recognize minute structural changes in the nervous system. No one who was not properly trained in that field could properly cope with the subject.

Dr. Van Gieson, in closing, said he had found these bodies in quite a variety of diseases of the nervous system, such as cerebro-spinal meningitis and in various types of delirium. He regarded them as a new form of neurone degeneration, and he did not think that anyone could say how far a study of them might lead us. The particular point which he wished to emphasize in his paper was that rabies should again be regarded as a proper study for the neurologist.