

cessation of the stimulus and the death of the animal. Experiments were therefore made on the recovery of cells thus stimulated, and such a recovery was found to take place to a degree and in a manner which showed that the changes observed could be fairly ranked as physiological.

If the conclusions from these observations were correct, it was plain that these changes ought to be found in animals as a result of their daily activity, and with the rhythmical alternation of rest and activity, we should have a corresponding alternation in the condition of the nerve cells.

Birds and insects have the periods of rest and activity very sharply marked off, and a study of the nervous system, in these cases, showed that in the morning the cells were in the resting condition, whereas in the evening, after a hard day's exercise, similar cells were much shrunken, and exhibited the other changes so well marked in cells artificially stimulated.

Finally, the author points out that many so-called pathological conditions of nerve cells, as in tetanus, for example, must necessarily be considered in connection with the above observations, since the nerve cells of an individual dying after repeated and long-continued convulsions must be expected to exhibit the characteristics of exhausted cells, an appearance which does not necessarily imply that such was their permanent condition.

The plates accompanying the paper admirably illustrate the points described in the text.

BY JOSEPH COLLINS, M.D.,

New York.

A Study of the Artefacts of the Nervous System.—(Van Gieson, N. Y., D. Appleton & Co. Reprinted from N. Y. Med. Jour.) Dr. Van Gieson has made a complete study of heterotopia of the cord and the results of autopsy bruises, and has embodied his labors in a monograph which marks the most important contribution that has yet been made to this subject.

Within the past few years quite a number of articles on heterotopia of the cord have seen light, and have attracted considerable attention. It was noticeable that most of the recent articles emanated from Mendel's lab-

oratory, and are apparently instigated by Kronthal's investigations on the spinal cord of an ox, which seemingly presented a congenital malformation. Van Gieson labors to prove that all the published cases of congenital heterotopia, with the exception of the cases of Pick, Virchow and Cramer, are simply dispersions of the substances of the cord by bruising done in its removal at the autopsy. That is, of the thirty-two cases in the literature of spinal-cord malformations, the only real instances of heterotopia are but eight in number. In Kahler and Pick's case the deformity is considered to be secondary to the tabetic lesion. Schultze's two cases are unhesitatingly pronounced to be due to artificial bruising, as is likewise the case of Fürstner and Zacher. The author tells us that he has been able to duplicate exactly the artificial doubling of the cord that was seen in the cord described by the last-named writers. The remaining cases are taken up, considered critically, and contrasted with artefacts produced by the writer. His deductions and conclusions are positive and convincing.

This work of Dr. Van Gieson's is very timely, as we were in danger of having artefacts made responsible for certain clinical manifestations. Kronthal after reviewing his own case and other cases of bruises, says "It can now be affirmed, that we must speak more definitely than formerly, and declare that a spinal cord with heterotopia of the gray matter has a diminished resistance to disease."

That portion of the book devoted to the consideration of experimental bruising of the spinal cord is extensive and the artefacts are illustrated by a large number of wood cuts.

A section devoted to the methods of removing the cord at autopsies and their relation to the production of malformation by bruises is well prepared and suggestive.

The labor involved in the preparation of this monograph must necessarily have been very great, and we are glad to remark that the work is of lasting value.