muscles of the hand, forearm or arm, and the fine and coarse movements of the hands could be executed in a perfect manner.

A tendency to ataxia, staggering towards the right side, developed.

The writer claims that motor aphasia and agraphia do not necessarily exist together, and, secondly, if both exist the lesion probably involves both the second and third left frontal convolutions in the right-handed. Third, motor agraphia depends on a lesion of the second left frontal gyrus.

CAMP (Philadelphia).

BRAIN SURGERY IN EPILEPSY AND CONGENITAL MENTAL DEFECT. William P. Spratling (N. Y. Med. Journ., Sept. 19, 1903).

Thirty-three cases of epilepsy of the head have been operated on at the Craig Colony, twenty of which were due to trauma of the head. The average duration of the epilepsy before the operation was approximately five years and a half. The results after one or more years showed in two cases no improvement of the disease, either temporary or permanent. In eight the attacks were lessened in frequency and severity, the operation being a part of the treatment only. In three the disease was much worse after the operation. Improvement, therefore, occurred in only 25 per cent. of the cases, and these were subject to the regular routine of medical treatment.

The author reports 194 cases from literature operated on for idiocy. Of 111 of these 19, or 17 per cent., died in consequence of the operation or soon after; 25, or 22.5 per cent., were operated on with no result; 10, or 9 per cent., were operated on with slight result; 24, or 21.5 per cent., were improved; 30, or 27 per cent., improved without reports as to their character.

In 83 more permanent cases, 24 per cent. died, 65 per cent. were unimproved, 10½ per cent. were improved, 74 out of 83 received no benefit. The writer holds that if the epilepsy is unessential, reflex, rudimentary in type, or of short duration, and the operation removes the cause early enough, we may expect the convulsions to cease in many cases. Of congenital mental defect, not a single case is reported where a normal mental status was established through surgical intervention.

W. B. NOYES.

GROWTH AND HISTOGENESIS OF NERVES. Charles Russell Bardeen (Amer. Journ. of Anatomy, March 28, 1903).

In the development of the peripheral nervous system it is convenient to recognize several stages, although it is difficult to draw a sharp line of demarcation between them. The first stage is that of the differentiation of the motor nuclei and sensory ganglia; the second includes the period of outgrowth from the region of the central nervous system to various peripheral anlagen; the third the development of the branches from the primary nerves, to the various parts differentiated from these anlagen; and the fourth, the development of functional unity between the nerve fibers and the structures to which they are distributed. During the second period the proximal nerve-plexuses are formed, during the third the coarser peripheral plexuses, and during the fourth the finer terminal plexuses.

The axis-cylinder fibrils of the nerve grow out by continuous extension from central cells. They divide and branch extensively as they proceed from the region of the central nervous system outwards. They leave the central nervous system and spinal ganglia, in naked bundles, but soon become intimately related with sheath-cells which accompany them closely throughout the period of growth. At the growing tip of a nerve it is difficult to decide whether the axis-cylinder fibrils or the sheath cells proceed. Posterior to this the nerve gradually becomes dis-