influence does not follow the pyramidal paths. The heightening of tonus, or spasms, without exaggerations of reflex, are to be regarded as a pathognomic symptom of disease of the lenticular nucleus. [J.]

Vogt, Cecile and Oscar. PATHOLOGICO-ANATOMICAL DIFFERENTIATION OF MOTOR DISTURBANCES DUE TO AFFECTIONS OF THE STRIATUM. [Journ. f. Psychol. u. Neurol., 1918, Nos. 1 and 2, p. 1.]

On the basis of unusually rich material which was examined in serial sections in the most exact manner, the authors have arrived at a differentiation of four distinct pathologico-anatomical processes corresponding to characteristic clinical pictures. They regard the relation between the anatomical findings and the disease picture as so constant that they think it possible to diagnose the anatomical process from the symptoms and in this way to predict the course of the disease. The first of these pathological processes is the *état marbré*. It is characterized by a shrinking of the volume of the striatum (nucleus caudatus and putamen of the lenticular nucleus), in the sense that the ganglion cells, which under normal circumstances are arranged in nest form, are replaced by a net of very fine fibers containing medullary substance. In this way the striatum assumes a marbled appearance. The disease is bilateral and begins in infancy. Its extension and intensity are strictly proportional to the quantitative development of the pathological changes. The clinical picture is characterized by spastic conditions associated with involuntary movements resembling athetosis and with accessory movements. Paralytic phenomena in the narrower sense of the word are not present, but rather a rigidity similar to that which occurs in Little's disease. The second disease picture is the *état fibreux* produced by an elective necrosis of the ganglion cells and the finer nerve fibers, so that the coarser nerve fibers which are preserved draw closer together. The tissue, therefore, seems to be abnormally rich in fibers, though the total volume of the striatum is considerably reduced. This anatomical condition finds a clinical correlate in a motor disturbance which takes the course of a slowly developing, bilateral chorea without psychical disturbances. Huntington's chorea presents the same picture as far as the striatum is concerned, but in this disease there are also changes in the brain. The anatomical substratum of the third form is a total necrosis of the striatum. There is such an extensive destruction of all the ectoderm elements of the tissue that the organ presents the appearance of a porous sponge. The process finds its clinical expression in Wilson's disease, or in conditions which resemble torsion spasms. In the fourth group belong the acute circumscribed lesions (hemorrhages or acute softenings). These conditions are clinically recognizable by their sudden appearance and by the improvement of the symptoms which soon sets in. When true paralytic phenomena are connected with the insult, the spasms and twitching make their appearance only after the process has receded. The symptomatology is variable, however, *i.e.*, presenting a picture of simple rigidity, of chorea, of athe-

tosis with spastic conditions, of pseudobulbar manifestations, or of paralysis agitans. The authors emphasize that their studies illustrate the value of pathological anatomy, the principal service of which is the discovery of constant relations between definite pathologico-anatomical changes and certain clinical disease pictures, or, as Nissl and Alzheimer have explained it in their studies of Progressive Paralysis, in the discovery of the morphological foundation for general pathological reaction forms. [J.]

Landau, Prof. THE CORPUS STRIATUM AND THE AMYGDALOID NUCLEUS. [Schweizer Archiv f. Neurol. u. Psychiat., 1919, Vol. V, No. 1, p. 171.]

The author presents the results of recent studies of the basal ganglia in embryological, comparative anatomical, and normal human material. Even in the human fetus of two months it can be determined that streaks of a gray matter unite only the putamen with the nucleus caudatus, but never the latter with the globus pallidus. At this stage and up to the fifth month (older material was not examined) the nucleus caudatus consists of different components; the laterobasal part is identical with the putamen; the innermost part, which is turned toward the ventricle, is a direct continuation of the innermost layer of the gray mass which envelopes the ventricle; the middle layer is in direct connection with the other layers of the central gray matter; only here it is much thickened and in places small dark-colored accumulations of cells are perceptible. In an embryo 4.5 cm. long the claustrum is not only entirely independent of the future island cortex, but at this stage is more advanced in development than this future island cortex. From study of the brains of adults it was shown that the claustrum cannot be regarded as the precise boundary of the island—not even as the approximate boundary. Contrary to the view of Wernicke and Brodman, the claustrum is not a part of the island cortex which has been broken off, but, as v. Monakow assumes, a consistent part of the basal ganglion, and in the anterior part is connected with the subst. perf. anter. and in the anterior with the amygdaloid nucleus. The claustrum stands in very intimate relation with the tractus olf. later., as well as with the olfactory cortex (the latter is especially clear in brains of monkeys). The amygdaloid nucleus is, contrary to the view of Obersteiner, not a thickened temporal cortex, but a constituent of the ganglia of the forebrain, and, indeed, as Edinger and Kappers hold, a modified secondary epistriatum. As such it serves as the point of beginning for the cell layer of Ammon's formation. Comparative studies of brain cuts from reptiles, insectivorous animals, rodents, carnivorous and anthropomorphic animals, led to the following general biological conclusions: From the brains of the lowest amphibians to that of man the evolution of the brain is dependent on the basal ganglia. While nearly the entire cerebral cortex of the *Seps chalcides* consists of Ammon's formation, the cerebral cortex of animals higher in