paralysis is of neo-kinetic origin, the tremor of paralysis agitans palæo-kinetic. Huntington's chorea and epilepsy are both kinetic, the former being striatal, the latter cortical. All forms of myotonia are sarcoplasmic, referable to the static system, as is also the tonic rigidity of tetanus. The coarse movements of intention tremor are an effort of the kinetic system to compensate the loss of the postural or static functions of the sarcoplasm.

In addition to such various somatic expressions of kinetic and static function, we find indications of a similar division of function in the mental sphere; we may mention catalepsy, catatonia, and certain hyperkineses of psychic origin. It is therefore possible to trace the evolution of the static and kinetic systems of motility from the lowest to the highest levels of the neural mechanism. SYDNEY J. COLE.

On Deep Localisation in the Cerebral Cortex. (*Journ. Nerv. and Ment. Dis., April*, 1920.) *Van't Hoog, E. G.*

In 1909 Ariëns Kappers inferred from his studies in comparative anatomy that the neo-cortex has two functionally different zones: an outer or supragranular (layers 2 and 3 of Brodmann), associative and receptive; and an inner or infragranular (layers 5 and 6), predominantly corticofugal and commissural. Between is the granular layer (4), which is receptive, and consists of cells whose axons are too short to form corticofugal fibres. Layers 2, 3 and 4 are all receptive and associative, but whereas 4 establishes intracortical connections at a short distance, 3 establishes connections at a much greater distance. Kappers suggested that 4, as matrix of 3, might merge with the latter. After separation of the cortex from the subcortical centres, the upper layers retain some capacity for growth but the lower layers atrophy (Nissl, 1911). In the infragranular pyramids the corpus callosum has its origin (van Valkenburg, 1910).

[In 1907, Dr. G. A. Watson, of Rainhill Asylum, working on Insectivora, had already pointed out that the infragranular layer has projection and intraregional associative functions. The still earlier pathological and ontogenetic studies of Dr. J. Shaw Bolton on the human species (1900, 1903) have also important bearings.—S. J. C.]

If with a small animal we compare a large animal of a nearly related species (for example, the lion with the domestic cat), we shall expect to find in the larger animal—if Kappers' inference is correct—a very pronounced increase of the supragranular cell-layers; for not only is there, with an increase in body-bulk, an increase both of receptor and of effector functions, but, as was explained mathematically by Dubois, receptor functions increase with bulk more than do effector. Van't Hoog has measured the thickness of the cell-layers in the postcentral region of the cortex in pairs of species of apes, semi-apes, cats, bears, dogs, ungulates, rodents and marsupials—the species being so selected as to contrast a large with a small representative of each group. His drawings, diagrams and tables are very impressive. His measurements show that in the larger animal of each pair there is not only a much greater increase of the supragranular layers than of the infragranular, but also an absolute decrease of the granular layer; there has been a development of pyramids from, and at the expense of, the subjacent

granules. The granules are therefore to be regarded, not only in the fascia dentata but also in the neo-cortex, as "matrix cells." To the possibilities of such a development from the granules there must be some limit, and in the postcentral cortex of the elephant a granular layer is no longer to be found; the reserve cells having all been used up, there can never be a super-elephant. SYDNEY J. COLE.

3. Clinical Psychiatry.

Two Cases of Familial Dementia Præcox [*Deux cas de Démence Precoce Familiale*]. (*L'Encephale, April*, 1920.) *Laignel-Lavastine.*

Cases of dementia præcox occurring in different members of the same family are by no means uncommon. The first example given is of brother and sister both admitted to the asylum during the same year. The family history is bad. The father died æt. 63; he was an alcoholic, was irritable and prone to anger, suspicious, and seclusive. He was also influenced by ideas of persecution; stated to have had syphilis. All the family on the paternal side nervous and unstable. A nephew was an idiot. Mother healthy. There were five children, of whom the first two died in infancy of meningeal trouble. The eldest of the three surviving children is normal. The other two are the patients noted. The brother was nervous and fretful as a child. The symptoms of dementia præcox appeared when he was 17½ years old, a month after a fall from a bicycle, when he was unconscious for several hours. He was suspicious, restless, destructive, and deluded, believing that people interfered with him and prevented him from working. Then for several months he was mute. He became increasingly apathetic.

The sister was apparently a normal child and was quite intelligent. Mental disorder appeared when she was æt. 12, after she had been frightened by her insane brother. There were bursts of laughter for no apparent reason. For a time she was able to continue with her work; but at 15 years of age she again experienced emotional shocks, and is stated to have suffered from chorea, which was soon cured. At about 17 she became worried because she thought people were going to do her harm; she was apathetic, capricious in regard to food, usually mute; there were grimaces and mannerisms.

In both there are now mental enfeeblement, disorientation and apathy, grimaces, and a tendency to remain in one position for prolonged periods.

The youth exhibits more mutism, inertia, and catatonia; echolalia and stereotypy. The girl is more excited, laughs, talks incoherently, is childish and timid, and speaks in the third person. They scarcely recognise one another. The condition is one of hebephreno-catatonia. Wassermann of blood and of spinal fluid negative in both patients, nor is there any noteworthy change in the number of leucocytes or in the amount of albumen in the cerebro-spinal fluid.

In the second series of cases there was paranoid dementia præcox in three sisters. The first exhibited mutism, stereotypy, explosive laughter, and emotional indifference. She had pulmonary tuberculosis. For a time she improved, then again began to laugh and grimace, was difficult