Measurements have been made on a number of neurons from the cerebral cortex of the cat in thick sections (150 μ) stained by the Golgi method. The regions of the cortex selected for the study were from the sensori-motor and visual areas. The total volumes of the cells ranged from 3000 to 33,000 μ^3.

A general survey of the results showed that the dendritic surface forms approximately 90 % of the total receptive surface of the neuron. Some of the smaller stellate cells showed a dendritic surface of about 85 % of the total, but, in general, no differences of this kind could be found between stellate and pyramidal cells. Plotting the area of the dendritic surface against perikaryal surface showed that the relationship could be regarded as approximately linear. Fitting a linear regression showed that, in general, 90–95 % of the receptive surface of the neuron was formed by the dendrites.

Cell territories in the cerebral cortex of the rat. By H. MATURANA (introduced by J. Z. YOUNG). *University College, London*

Neurone counts in different regions of the cerebral cortex were undertaken with a view to making an indirect estimation of the interneuronal plexuses. No special attention was paid to cortical areas or laminar arrangements, and Nissl preparations of transverse sections were selected at equal distances along the longitudinal axis of the brain. Parasagittal sections which passed through the frontal and occipital poles were also used. Thus in twenty-one regions evenly distributed on the cortical surface the total number of neurons, in its whole thickness, was counted. In the same regions, the nuclear and cell diameters were measured for the Abercrombie correction and calculation of cell territory.

It was found, in the six animals used, that the number of cells per unit of surface (in the whole thickness of the cortex) was nearly constant in all the parts of the isocortex examined. As the cortex increases in the thickness from the occipital to the frontal pole, the cell density decreases in the same direction and the cell territory becomes at the anterior end twice as large as at the posterior end. The cell density also decreases from the dorsal to the lateral aspect of the cortex, though less markedly.

This increase in cell territory from the back to the front and from the dorsal to the lateral aspect of the cortex is not due to an increase in the glial cells and blood vessels, since the count of their nuclei shows that their density is nearly constant throughout the cortex. The large differences in cell density in the frontal and occipital poles suggest that there may be significant differences between the number of afferent and efferent fibres and the extent and complexity of the intercellular plexuses in the predominantly motor (frontal) and the predominantly sensory (occipital) regions of the cortex.

A study of fibre degeneration methods in the nervous system. By D. H. L. EVANS and L. H. HAMLYN. *University College, London*

A number of histological techniques have been used for the investigation of degenerating nerve fibres and terminals within the nervous system. In view of the difficulties experienced by the authors in interpreting the results of some of the reduced silver methods, an attempt has been made to compare these and other techniques in situations where the neuroanatomical connexions are being investigated.

For this purpose use has been made of the Bielschowsky-Gros, the Glees and Nauta methods. Although the three methods can be used for studying the course and site of termination of fibre tracts the appearances produced by the Bielschowsky-Gros and Glees techniques differ from those obtained in Nauta preparations.

Examples of the results of this comparison of methods, after varying degeneration times, were shown in the avian optic tectum, the mammalian neo-cortex and the mammalian medulla oblongata. The interpretation of the different appearances produced were discussed.