

### Part III.—Epitome of Current Literature.

#### i. Neurology.

*Recent Experiments on the Functions of the Frontal Lobes.* (*Psychol. Bull.*, vol. xxv, No. 1, January, 1928.) *Jacobson, Carlyle F.*

Since most of the early work lacked quantitative measurement, this review is concerned chiefly with the work of the last ten years. Twenty-five references are given in the bibliography, the largest number of contributions being by Lashley and Franz. Jacobson, referring to the work of the investigators on rats, states that the maze habit during the stage of learning shows no localization and survives destruction of the frontal regions. Once acquired, however, the habit is localized in the frontal regions, and complete destruction of this area abolishes the habit in spite of training to three times the amount necessary for acquisition; on the other hand, after partial destruction the habit is retained. Animals trained in visual discrimination lost the habit by the destruction of pathways in the occipital region, although they had received more than a thousand trials after learning the problem. Lashley concludes that long training does not reduce the habit to subcortical levels. Some other outstanding results are these: Although the frontals function in the acquisition of new habits, learning may still occur in their absence. No marked emotional changes followed the operations in either cats or monkeys. No part of the cortex in front of the caudal end of the corpus callosum or above the level of the floor of the lateral ventricles is concerned with the retention of simple kinesthetic motor habits. The different parts of the frontal area are, to adopt a term from experimental embryology, equipotential in the functioning of the habit. The experiments go far toward establishing the complete functional interchangeability of all parts of the cerebral cortex. The quantitative data point to the conclusion that the efficiency of the memory trace is proportional to the amount of functional tissue, irrespective of its locus, and this in turn suggests that the function of the memory trace must in some way be additive, efficiency increasing as a simple function of the mass irrespective of the neural pattern involved. The theory which makes the conditioned reflex arc the unit of cerebral organization is inadequate, and an additional cerebral mechanism permitting greater plasticity of action and resembling in its action the syncytium of the lower invertebrates must be postulated. Although Lashley's interpretations are based primarily on data for visual habits, they will not be without significance for the frontal areas.

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