As the author regards the matter, the psychic phenomenon can only be scientifically considered as resembling a reflex, with afferent, efferent, and intermediate phases. Many centres and many paths in the most varied parts of the nervous system must take part in this reflex psychic arc, which must be enormously more complex than a spinal arc, and it is impossible to admit those theories which would assign to intelligence, memory, will, consciousness, etc., a limited seat in the frontal lobes. The psychic arc must be regarded as including a whole series of paths and centres. So far as any definite statement can be made as to the prefrontal lobes, Roncoroni would say that they are concerned with "the elementary functions of that part of the reflex psychic arc which corresponds to the associations which are on the threshold of a conscious act." HAVELOCK ELLIS.

Histological and Experimental Researches on the Choroid Plexuses [*Ricerche istologiche esperimentali sui plessi coroidei*]. (*Riv. Sper. di Fren., vol. xxxvii, fasc.* 1 *and* 2.) *Pelizzi, G. B.*

In a publication of over 100 pages, Pelizzi gives an account of his investigations of the histology of the choroid plexuses. Frogs, birds, and various mammals furnished the material, but for purposes of experiment rabbits and then dogs, cavies and frogs were preferred. Due note is taken of the work of other authors. The main conclusions arrived at are as follows: Throughout the vertebrate series the choroid plexuses present essentially analogous features in their histology. In all species the nuclei of the cells contain nucleoli, granules and chromatinic filaments, and clearer roundish spaces of the karyoplasm free from chromatinic substance. The cell-protoplasm contains globoplastic granules, initial globes, and globes in course of secretion. For a long period of fœtal life the choroid plexuses in bird and mammals are furnished with a large number of granular embryonal cells. In the human fœtus these reach an enormous proportion and size. They consist of an accumulation of fatty droplets, with also some droplets of fatty acid disposed round the nucleus. This fat and fatty acid present special microchemical reactions. Small droplets of a fat which reacts like the neutral droplets of the granular cells are found irregularly scattered in the protoplasm of the choroid epithelium in course of formation. These granular cells and fatty droplets in the protoplasm begin to disappear before birth, and are entirely absent after the first stages of extra-uterine life; *pari passu*, the epithelial protoplasm assumes definite histological characters. The hypothesis might well be advanced that these elements are constructive cells destined for the formation of a part of the choroid epithelial protoplasm, and hence of the lipoid wall of the secretory globules formed from that part of the protoplasm. This lipoid wall, dissolved in the cerebro-spinal fluid, might then exercise a myelogenic action after the fashion suggested by Wlassak and Merzbacher in the case of the embryonic granular cells of the central nervous system. The granular cells of the plexus have probably a hæmatogenous origin.

The epithelial cells contain globules with a lipoid wall. These contain, dissolved in their plasma, a substance which presents microchemical reactions analogous to the nuclear and globoplastic granu-

lations. These are only nuclear granules passed from the nucleus to the protoplasm, and there closed with a special wall and gradually enlarged by absorption from the protoplasm of a special fluid substance so as to become secretory globules. There is evidence to show that these two components of the globules, wall and contents, which probably constitute their essential elements, are two different substances which become dissolved in the cerebro-spinal fluid, and are of great importance in the formation, nutrition and function of the central nervous system. The secretion of the globules is abundant in intra-fœtal life (in man from the third to the seventh month), and gradually diminished afterwards with age. At the same time the choroid epithelium undergoes a slow evolution, which manifests itself especially by a granular fatty degeneration, most pronounced in the plexus of the old man.

From birth onwards there is deposited in the protoplasm of the epithelial cell and in the tissue between epithelium and blood-vessels granules of fatty acids or droplets of special fats (frog, tortoise, rabbit) or soaps, calcium salts, lecithin, lipochromes, etc. These are waste products derived from the cerebro-spinal fluid, and probably resulting from functioning of the central nervous system. The largest and most varied accumulation occurs in man. In severe acute experimental intoxications and after cerebral decortication (and physiologically in the latter half of pregnancy) the deposit of fatty acids and fat in the epithelium and vascular walls increases.

The choroid plexuses of the fourth ventricle assume the features of the adult choroid epithelium, and present a large quantity of fatty acid granules sooner than those of the lateral ventricles. Injections of alkalies increase the secretion of the globules into the cerebro-spinal fluid. Acids have an opposite effect. Secretion of globules is also favoured by making an occipito-atlantoid fistula.

There is reason to believe that the cerebro-spinal fluid is formed in great part of transuded lymph. The secretory globules introduce into it special substances of immense importance for the specific biological function. Total extirpation of the plexuses in the frog gives rise to a state of torpor. In severe and acute intoxications in cerebral decortication, in various experimental and natural pathological conditions in the rabbit, guinea-pig, dog, and in man, there are to be seen typical cells (Abraümzellen) containing granules of fatty acids, fat, detritus of tissue, globoplasts and initial globules in various stages of destruction. These cells, like the granular cells, are very probably hæmatogenous in origin. Mast cells are numerous in the plexuses, especially during fœtal life, and in severe intoxications as well as experimental and pathological lesions.

The fresh method of staining with *Nilblau* was found to give the best results in this study. J. H. MACDONALD.

The Influence of Alcohol on the Movements of the Brain [*L'influenza dell' alcool sui movimenti del cervello*]. (*Ann. di Nevrol., anno xxix, fasc.* 3, 1911.) *Bianchi, V.*

Dr. Bianchi, who has already published some valuable researches regarding the action of alcohol on the circulation, records in this