

of the brain cortex has recently been obtained, especially from the improved methods of staining nerve tissue, and, along with this, experiments on animals have done much to lessen the difficulties of the task, and to help us to form a more definite idea of the cause of so-called functional nervous diseases. One of the most frequent causes of neurasthenia is continued mental over-exertion, however brought about, and from this cause one sees cases develop varying in intensity from the simplest form of this affection to absolute insanity. An examination of the primary factors leads us in the first place to consider the two most important causes, viz., hyperæmia and changes in cell structure. That hyperæmia always exists with mental exertion is proven by the use of a thermometer. If, for example, a suitable thermometer be applied to the temple of an individual who is at perfect mental rest, and a note of it taken, and then the individual be asked to solve some difficult mental problem, the thermometer will at once show a decided increase in temperature, and the increase will be greater on the left side of the brain should the patient be right-handed. And farther, it has also been found that the brain will bulge through an opening in the skull during mental action and recede as the stimulus is withdrawn. Hence there can be no doubt that hyperæmia of the superior surface of the brain occurs in direct relation to psychical activity. Now the first question to consider is, how is this hyperæmia induced? Two factors have been proved to exist which must favor this condition; first, a *general* increase of blood pressure during psychical activity; second, the manner in which the greater veins of the pia enter the longitudinal sinus, since these are directed in an opposite course to that in which the blood in the sinus flows. Hence the latter would tend to retard the venous flow, and both acting together would favor the rapid production of hyperæmia. Moreover, the researches of Langendorf and Gescheidlen appear conclusive that the reaction of normal brain tissue is alkaline, but that it becomes rapidly acid under certain conditions. Acting on this conclusion, an acid brain filtrate was introduced into the cerebral circulation with the result that a cerebral hyperæmia was immediately produced. The result of this experiment would indicate that the products of cerebral metabolism, being absorbed by the lymph which bathes the walls of the vessels, possessed the power of causing variations in calibre of these vessels, consequently of causing prolonged hyperæmia, where the metabolism had been too active. It might farther be stated in this respect that Mosso has clearly shown that fatigue caused by *psychical* action produces a poisonous effect on the general but more especially on the muscular system.