

and unstable nervous constitution; this may show itself in the form of the various psychical departures, which are all more or less interchangeable. They may, however, remain latent, but in any case we are apt to find anatomical stigmata of degeneration.

International Medical Magazine, July, 1896.—“Arterio Sclerosis among the Insane,” by E. D. Bondurant, M.D. Dr. Bondurant bases his observations on 200 consecutive autopsies, and finds that only 15 per cent. are free from the disease in some form. The cases are divided into three groups, one showing no arterial disease, one slight involvement of the larger arteries, and a third exhibiting well-marked changes. The first and second group are found to die of acute disease, and the third of chronic, especially renal. It is stated that atheromatous disease appears very common among negroes. He shows that where arteries lie comparatively free, irregularly distributed patches of atheroma are common, and on the other hand where they are intimately connected with the stroma of a glandular organ adventitial thickenings are found. The question of auto-poisoning from defective excretion is discussed at some length, and the relationship between arterio sclerosis and mental disease. He also points out that the ever present mental expression in atheromatous disease is dementia of some kind.

ITALIAN.

By *W. Ford Robertson, M.D.*

Functions of the Pituitary Body.

Vassale and Sacchi (*Rivista Sperimentale di Freniatria*, 1894, p. 83) record the results of some further experiments that they have made in the course of their investigations into the functions of the pituitary body. In their previous communication on the subject, published in 1892, they stated that they found that complete destruction of this organ in dogs and cats had fatal consequences within fourteen days. The symptoms produced included anorexia, depression, rigid gait, fibrillar contractions, muscular spasms, and lowering of temperature. They also found that partial destruction produced a series of similar symptoms, and they concluded that these were consequent upon a true functional insufficiency of the gland. As the result of their second series of experiments they have now supplemented these observations in certain important particulars. They have ascertained that the symptoms produced by destruction of the pituitary, including the depression of temperature, can be temporarily relieved by an injection of an extract of the organ from the ox. In a case in which the pituitary was only partially destroyed the characteristic phenomena were observed for about three weeks, after which the animal gradually recovered, and remained healthy for eleven months. It was then

killed, and the fact of the incomplete destruction of the gland was confirmed. The authors maintain that the results of their experiments show that the pituitary body has certain close functional analogies to the thyroid gland. Thus its partial destruction may be tolerated, and the lowered temperature, which follows its complete destruction, is restored to normal by injection of an extract of the organ. They are of the opinion that the pituitary body, like the thyroid, elaborates a special product of internal secretion which is indispensable to the organism.

Toxicity of the Gastric Juice in the Insane.

Masetti (*Rivista Sperimentale di Freniatria*, 1894, p. 204) has carried out a number of experiments, the results of which have an important bearing upon the question of the occurrence of auto-intoxication in the insane. With certain precautions, for the purpose of ensuring uniformity of conditions, he obtained the gastric juice from several insane patients, and after passing it through a Pasteur-Chamberland filter, injected carefully-measured quantities into the auricular vein of rabbits. He also made control experiments with fluid obtained from the stomach of healthy persons. He found that the filtrate derived from cases especially of melancholia or mania accompanied by sitophobia, and of acute mania, displayed a strong toxic action. The symptoms produced were progressive rise of temperature from the time of the injection, and, supervening some hours subsequently, sometimes suddenly, myosis, great depression, paralysis and death in convulsions. On the other hand, the gastric fluid obtained from healthy persons had no such poisonous effects. The author gives reasons for rejecting the view that these toxic properties of the fluid from the stomach of certain of the insane are due to hyperacidity, or to a permanent hypersecretion of the gastric juice, and maintains that they must be attributed to the presence of altogether abnormal constituents, in explanation of which he offers three hypotheses. (1) It may be related to a primary disturbance of the gastric functions, in which case, through processes of abnormal fermentation, the toxic substances are produced in the stomach and absorbed from it, giving rise in individuals whose nervous system is in this respect susceptible to psychical disturbances. (2) The disordered gastric function may be secondary to disturbed function of the nervous centres, that is to say, secondary to the psychosis. In this case abnormal materials absorbed from the gastro-enteric tube will contribute in turn to aggravation of the mental disease and to retardation of recovery. (3) The stomach, like the rest of the alimentary tract, may act simply as an eliminating organ of a toxic principle circulating in the blood, and formed in the body. The author strongly urges that, whichever of these hypotheses may be correct, it will always be useful in cases of the kind indicated to adopt the recommendation of Régis, and regularly wash out the stomach.

The Superficial and Deep Reflexes in the Insane.

Agostini (*Rivista Sperimentale di Freniatria*, 1894, p. 481) has studied the condition of the superficial and deep reflexes, and of the general sensibility to pain, in over a thousand cases of insanity in the asylum of Perugia, and also, for purposes of comparison, in 200 sane persons. His paper contains, in addition to a statement of the results he has obtained and his conclusions from them, a discussion of the explanation of the phenomena observed in the light of previous physiological and pathological researches. The following are some of his more important conclusions. In epileptic insanity the sensibility to pain is generally blunted, the superficial reflexes are weak (though the plantar is often active), the idiomuscular and tendon reflexes are active. After a fit the sensibility to pain is diminished, the superficial reflexes are weak or absent, except the plantar, which is more active, while the tendon and idiomuscular are increased. In general paralysis, in the first stage, the sensibility to pain is weakened, the superficial reflexes are diminished, except the plantar, which appears to be more active, the tendon and idiomuscular reflexes are accentuated; in the second stage the sensibility to pain is diminished, the tendon and idiomuscular reflexes are exaggerated; in the third stage the sensibility to pain is very much weakened, the superficial reflexes are absent, the tendon reflexes are weak or absent, the idiomuscular are active. In epileptiform, or congestive attacks, the sensibility to pain is weak or absent, the superficial reflexes are absent, the tendon and idiomuscular are exaggerated, and particularly so on a side which has been specially involved in the seizure. If the percussion is repeated several times fibrillar convulsive tremors occur in the limb, and may pass across the trunk into the corresponding limb of the other side. In alcoholic insanity the sensibility to pain is often more acute. The superficial reflexes are weak, except the plantar, which is exaggerated; the idiomuscular and tendon reflexes are also exaggerated. In mania the sensibility to pain is acute, the superficial and deep reflexes are normal. In melancholia the sensibility to pain is normal or increased, the superficial reflexes are normal, the tendon and idiomuscular more active. In stupor the sensibility to pain, though in appearance weak, is well preserved; the superficial reflexes are weak, the deep are exaggerated. In neurasthenia the sensibility to pain is more acute than normal, and all the reflexes are more active. In secondary dementia, the sensibility to pain is diminished, the superficial reflexes are weak or absent, the deep are normal or accentuated. The author draws special attention to the different ways in which the cutaneous and tendon reflexes behave, and maintains that his observations on the subject support the view that these reflexes are represented by two distinct systems in the grey matter of the cord. Thus the one may be

affected without disturbance of the other. He also holds that the disturbance of general sensibility, in association with disease of the cerebral cortex, confirms the theory of the existence there of centres for general sensibility in association with the motor centres. The abolition of the superficial reflexes, in like cases, further points to the existence in the same region of co-ordinating and exciting centres for these reflexes.

Observation of Direct Connections between Cortical Nerve Cells.

Vassale and Donaggio (*Rivista Sperimentale di Freniatria*, 1895, p. 170) in a preliminary note upon certain results obtained with a new modification of Golgi's silver method, record some observations which, if their accuracy should be fully confirmed, must have great importance in relation to cerebral physiology. The modification consists merely in the addition to the bichromate solution of 5 per cent. of acetic aldehyde. In this mixture thin pieces of brain are hardened for from 15 to 20 days, and then further treated as in the ordinary silver method. The authors state that this procedure brings out certain details of structure not otherwise revealed. The spines of the protoplasmic processes of the nerve-cells are longer and more delicate than they commonly appear, and here and there they assume the aspect of true fibrils. In the brain of the fowl, which they have found to give the best results with the new method, the axis cylinders can be followed for a long distance. They repeatedly ramify, and some of the finest branches can be traced into the spines of the protoplasmic prolongations of nerve-cells more or less distant. Regarding this observation, the authors say, "This fact, which, if it should be confirmed, would naturally have the greatest importance for the theory of the continuity as opposed to the modern doctrine of the contiguity of the nervous elements, we for the present limit ourselves to merely stating with due reserve, intending to continue the line of research."

Pathology of Acromegaly.

Professor Tamburini (*Rivista Sperimentale di Freniatria*, 1894, p. 559; ditto, 1895, p. 414) gives a very full description of a case of acromegaly, and discusses at considerable length the pathology of the disease. The patient was a woman, aged 37, who, for a year before her death, was an inmate of the asylum at Reggio. The history pointed to the disease having probably commenced about the age of twenty. On the other hand the mental symptoms on account of which the patient was sent to the asylum began to show themselves only a year before her admission. They consisted chiefly in delusions of suspicion accompanied by threats and acts of violence. The patient presented in a marked degree the bodily changes characteristic of acromegaly. While in the asylum she was confused, resistive and suicidal, and refused her food.

The immediate cause of death was chronic intestinal catarrh. The post-mortem examination revealed, in addition to marked osseous changes in the skull—of which the author gives a very minute description—the presence of a tumour of the pituitary body of about the size of a pigeon's egg. Only the anterior lobe was involved, the posterior presenting no change either in volume or structure. The enlarged lobe showed in microscopic sections a delicate connective tissue stroma, supporting cells having the characters of the chromophile cells of the normal organ. The author states that, as far as he has been able to ascertain, the number of cases of acromegaly previously described in which a post-mortem examination was made, is only twenty-four. In seventeen of these, which were all undoubted typical cases of acromegaly, a tumour of the pituitary body was found. Of the other seven, in which there was no lesion of this organ, he disposes of five as not having been cases of acromegaly at all. In the remaining two the disease had only been of very brief duration, and he maintains that there might have been functional alterations in the organ which were not accompanied by any perceptible change in its volume, while the absence of structural changes was not established by microscopic examination. On these grounds he maintains that one is justified in concluding that the lesion that is constantly met with in autopsies upon typical cases of acromegaly, is tumour of the pituitary body. This usually takes the form, as in his own case, of an adenoma.

Dr. G. Angiolella on General Paralysis of the Insane.

Dr. G. Angiolella, of the Asylum of Nocera Inferiore, contributes four papers on the subject of general paralysis to *Il Manicomio Moderno* (1894-5), in which he formulates some conclusions of considerable interest regarding the pathology of the disease. In the first paper he continues the statistical inquiry of Roscioli, who, in 1890, in an article published in the same journal, drew attention to the marked increase of general paralysis in the south of Italy. The later figures, compiled from the records of the same institution, show a still further increase, while at the same time the author is led to conclude that the disease grows in gravity and malignity with regard both to its clinical type and the rapidity of its course. The second paper deals with the results of a histological research, which go to show that in general paralysis the sympathetic ganglia are constantly affected by a chronic inflammatory change of the connective tissue and vessels, accompanied by degeneration and necrosis of the nerve-cells. The third article is a review and critique of recent work upon general paralysis, and contains the following among other conclusions:—The pathological changes in general paralysis result from the presence of toxic substances in the blood. These may be produced by syphilitic infec-

tion, or by certain special poisons, such as alcohol and nicotine; or they may originate in the organism itself in consequence of excessive activity of the nervous system. The small vessels are first affected by morbid change, and to this the alterations in the other tissue elements are secondary, though the nerve-cell degeneration may be in part a direct product of the action of the toxic agents circulating in the blood. The fourth paper records the results of an investigation into the condition of the vessels of the liver and kidneys in general paralysis. The author finds that the small arteries in these organs show morbid changes similar to those that occur in the nervous system, and maintains that the observation goes to confirm the view that general paralysis is produced by toxic substances circulating in the blood.

The Descending Endo-hemispheric Degenerations following Extirpation of the Frontal Lobes.

Professor Bianchi, of Naples, has followed up his important experimental researches upon the functions of the frontal lobes with a study of the paths taken by the descending degeneration that occurs after the removal of this portion of the brain. He gives an account (*Annali di Neurologia*, 1895, p. 149) of his observations upon the brain of a monkey eleven months after extirpation of both frontal lobes. He found degeneration of the cingulum and of the other longitudinal fibres of the limbic convolution, of the superior longitudinal fasciculus, the occipito-frontal fasciculus, and the whole of the external capsule. He distinguishes between a superior longitudinal and an occipito-frontal fasciculus. The former goes to the external capsule, the latter follows the curve of the caudate nucleus, turns downwards at the level of the optic thalamus, and then spreads itself out in the angular gyrus, the occipito-temporal lobe and the tapetum. He opposes the theory of Sachs that an occipito-frontal fasciculus only exists when the corpus callosum is wanting; and he also disagrees with the opinion of Wernicke that its fibres join the internal capsule. He maintains that there is no basis for Schnopfhagen's statement that the external capsule consists of fibres of the corpus callosum derived from the frontal lobe of the opposite side. He concludes that the frontal lobes contain a vast corona radiata of association fibres, but only a very small number of projection fibres; and regards their functions as consisting specially in that physiological fusion and synthesis of all the sensory and motor products by which is constituted a psychological personality, and in the exercise of a control over all the other centres.