PART III.—PSYCHOLOGICAL RETROSPECT.

German Retrospect.

By WILLIAM W. IRELAND, M.D., Stirling.

The Functions of the Cortex Cerebri.

Dr. Goltz, at the meeting of neurologists and alienist physicians in Baden, held in June, 1880 ("Archiv.," xi. Band, 1 Heft), described a new series of experiments in order to ascertain the functions of the cortex cerebri. By the help of an instrument specially made for the purpose, he removed portions of the pia mater of the brain in animals. Even after removing a large portion of the cortex cerebri he never saw enduring paralysis of any muscle, nor enduring anæsthesia of one side of the body. The animals became demented, and showed permanent dulness of all the senses. What is especially remarkable, Goltz, by destroying the white substance under the so-called motor zone, could produce convulsions in the opposite side; but as long as the instrument only touched the grey matter there were no convulsions. Mechanical irritation of the parts was followed by the same results. Dr. Goltz therefore believes that, in electrical irritation of the brain as practised by Fritsch and Hitzig, we have not to do with irritation of the grey matter, but of the underlying white substance.

The Weight of the Hungarian Brain.

There have been some contradictory statements about the size of the brain of the Magyar race. Davis asserted that the Hungarians had the lightest brains of all the nations in Europe, standing in this respect almost as low as the Gypsies. Engel asserted that the Germans and Italians in the Austrian Empire had, on the whole, the heaviest brains; while Weissbach, on the contrary, held that the mean of the Hungarian brain was greater than that of the Germans, Poles, Slavonians and Italians in the Empire. Laufenauer examined 656 brains, all from insane patients. Cases where atrophy and sclerosis existed were excluded. It may be remembered that Meynert found that, by weighing 157 brains of insane people between 20 and 69 years of age, there was a mean weight of 10 grammes greater than that of 174 soldiers about the same age.

Out of 414 male brains he found a mean weight of 1,339 grammes, and of 242 brains of females a mean weight of 1,218 grammes. Amongst these there were of pure Magyar race 82 males, giving a mean weight of 1,378, and 41 women, with a mean weight of 1,247 grammes. There were some other brains from persons who

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spoke the Hungarian language, but were of alien origin, which were excluded.

From Laufenauer's inquiries it appears that the brain of Hungarian men is 21 grammes heavier than the German and Slavonic races of the Empire, and that the brains of Hungarian women are heavier than those of German women by 37 grammes, and by 43 grammes than the Slavonian women. The Hungarian brain is therefore heavier than that of other people of the Austro-Hungarian monarchy, except that of the Bohemians, who hold the first rank with a weight of 1,368 grammes. The lowest brain weight is that of the Jews, the men having a mean of 1,291 grammes and the women of 1,138.

Dr. Wirsch found that the brain attained its greatest weight with men in the third, with women in the fourth decennial period. From that time it gradually falls off. In melancholia, mania, and insanity with delusions, there is the smallest diminution, whereas all forms of insanity leading to dementia show a great loss of weight.

A New Explanation of Microcephaly.

Dr. G. Joseph ("Zeitschrift," xxxvii. Band, 4 Heft) has a new hypothesis on the cause of microcephaly, that it is owing to abnormal narrowness of the carotids. This condition has actually been found in the dissection of a microcephalic brain by Jensen, in which the carotid canals were diminished in size by about one-fourth of the normal calibre of the apertures.

The Brain of Criminals.

Professor Benedikt (as quoted in the "Zeitschrift," xxxvii. Band, 4 Heft) has been continuing his studies on the brain of criminals. The difference is summed up in the following sweeping sentence. In the normal brain the typical convolutions are separated from one another; in the brain of criminals they are fused. There are, besides other anomalies of development, shortening or lengthening of the posterior half of the skull, peaked form of the head, early synostosis of the sutures, numerous wormian bones and nondescript irregularities of length and breadth of the cranium. According to Benedikt, we have in the criminal class a zoological variety of the human species—in fact, a retrogression of type.

Loss of Weight after Epileptic Fits.

Dr. Paul Kowalewski ("Archiv.," xi. Band, 2 Heft), in a series of inquiries made in the asylum of Charkoff, found that epileptics lose weight after every fit. The amount depends upon the duration of the disease and the intensity of the attack. In chronic cases the amount lost is small—from one to two pounds. In recent cases it amounts to as much as from one to three pounds. In the status epilepticus, where from five to twenty fits occur in the twenty-four

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hours, the loss of weight is as much as fifteen pounds. If the status is prolonged a day longer, the loss is less than the first day, by from one to five pounds in the twenty-four hours. In ordinary epileptic attacks the loss is the most considerable, amounting to as much as twelve pounds. In epileptic vertigo the loss of weight is not so great, generally from two to five pounds.

In epilepsy combined with mental symptoms the so-called epilepsia psychica, the loss is always very great, sometimes as much as one-fourth of the whole bodily weight. After the cessation of the fits, the loss of weight is rapidly repaired.

The patients were regularly weighed every morning between 10 and 11, and often immediately after a fit.

The author reserves for farther consideration the question from what process of decomposition in the organism does this loss of weight arise. He is making experiments upon the urine, and will be much gratified should other observers institute investigation into the excretions from the lungs and skin in epilepsy.

Is Albuminuria present in Epilepsy?

Dr. Kleudgen has in the asylum at Bunzlau ("Archiv.," xi. Band, 2 Heft) examined the question whether albumen is present in the urine after epileptic attacks, as represented by Huppert. In common with Richter, Rabenau, Karrer and others, Dr. Kleudgen comes to the conclusion that this is not the case. He finds that, whenever the urine reaches a certain degree of condensation, traces of albumen are to be found in it. The urine of epileptics showed neither this degree of concentration, nor does it show traces of albumen. In those few cases where albumen was detected it was ascribed to admixture of the seminal fluid.

The Temperature in General Paralysis.

Dr. Wirsch, in an inaugural dissertation (quoted in the "Central Blatt für Nervenheilkunde," 1 Marz, 1881), has made a great many observations on the temperature of the body in general paralysis. He found that the temperature is higher during the stage of excitement with grandiose ideas, and that it falls when the mood becomes calmer. It cannot, however, be held that the bodily heat is raised in all cases of mental excitement. Sometimes, in maniacal attacks, the temperature is normal, or even lower than usual.

Dr. Wirsch has found that a limb, after it becomes paralysed, is at first colder than the sound one, but that subsequently its temperature rises higher than the others.

In the last stage of general paralysis the scale either rises very high or falls very low. He has observed before death the temperature to mount as high as from 40° to 43°, or to fall from 30° to 23°. In one case, where the temperature had fallen to 31°, Dr. Wirsch succeeded,

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through exciting and stimulating treatment, in renewing the normal temperature, thus inducing considerable improvement. He has observed, by taking thermometrical observations at the site of the great fontanelle, that there are variations of from 33° to 36·5°.

Mental Disorders in Ergotism.

Dr. Fritz Siemens ("Archiv.," xi. Band, 1 und 2 Heft) describes the nervous derangements caused by the use of spurred rye in the food of the inhabitants of the circle of Frankenberg in Hesse. A similar epidemic had occurred in the year 1855-56 after the rye harvest. It prevailed in some dozen villages, having in all about 2,500 inhabitants, out of whom one-fifth were affected. Many deaths took place. The disease was especially frequent with children, but infants at the breast escaped. The proportion of ergot in the rye was said to be about nine per cent. The epidemic described by Dr. Siemens occurred in 1879-1880. It is somewhat disappointing that Dr. Siemens, in his interesting papers, confines himself so much to the disorders of the nervous system, and to those cases which took the spasmodic form of ergotism, as a correct picture of all the morbid symptoms is needful to the physician. Dr. Siemens appears to have seen twenty-one cases, of whom six men and five women were received into the asylum at Marburg. The cause of the disorder was undoubtedly the use of the rye bread containing ergot; but the people themselves who used this powerful drug mixed up with their food, observing that only some who eat the rye bread were affected, would not admit the explanations of the physicians, inquiring, "If the bread is injurious, why are the rest of us not also ill? They have caught cold, and nothing else." So even those who came out of the hospital cured returned to eat the same unwholesome bread. The author thinks it curious why all were not affected who eat of the bread, and this question is deserving of attention. Though most causes of disease are not universal in their action, all the grains of rye on the same head are not spurred; some have escaped the disease, which has altered the composition and form of the rest.

It was noticed in several cases that persons with a marked tendency to insanity were not affected by eating the unwholesome bread, while those of a good constitution suffered. The symptoms in some respects resembled those resulting from the abuse of a narcotic drug, such as Indian hemp or belladonna, upon the nervous system.

The complexion was sallow; there was a feeling of formication or burning of the hands and feet, with giddiness, fulness in the head, sometimes headache, and flickering before the eyes. This was followed by a period of excitement, gradually surmounting the bounds of self-restraint; jerkings of particular muscles were felt at an early stage, passing in the course of the disease into severe epileptic fits. These convulsions were present in all the cases: in all the female

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patients the menses were suppressed. The pulse was generally high and the pupils dilated. The sensibility was diminished. Though the reflex action from tickling of the skin was not affected, the patella tendon reflex was wanting, and did not reappear till convalescence was well established. There was also motor ataxia. The appetite was generally good. Gangrene of a finger is mentioned in one instance.

In many of the cases there were hallucinations, especially of sight; visions of dazzling brightness mixed up with the delusions of a wandering, incoherent fancy. One of the patients, after her recovery, thus described some of her feelings :—

" I cannot tell you the brightness that I saw, and I heard all kinds of voices. Once it came into my mind how the thief on the cross had become holy. It is inconceivable how many things came before me. Once it appeared to me as if the world was to be destroyed by fire, and I could save it. I thought that all the brightness which came into my fancy went into a little chest, and that there was near Frankenberg a water where I could make everything right by plunging it in." At another time she said: " When I am lying in bed, and even when I am up, everything seems bright around me, and I see everything full of flowers, and I see spirits, and everything that I have learned or heard of appeared before my sight, and it seemed to me as if the brightness and the beautiful apparitions came out of my leg."

She had injured her left leg by throwing herself out of a window.

At a later stage the patients passed into a state of deep stupor, ceasing to speak, and were roused with difficulty by sounds cried into their ears. They recovered quickly when they no longer used the noxious rye bread.

Two of the patients received into the asylum at Marburg died, one —a vigorous man of 32—suddenly, the other apparently from the exhaustion of the epileptic fits. In neither case were the morbid lesions found of a marked or distinctive character. The only thing abnormal noted in the examination of the body of the man who died so suddenly was that the vessels of the pia mater were very full; in the second case the examination was carefully made. The grey matter of the brain was noted to be somewhat tough; the white substance presented an unusually strong contrast to the cortex; it was a little congested. In the cerebral ganglia there were patches of a pale yellow colour, especially in the lenticular ganglia and optic thalamus.

Dr. Siemens remarks that ergot for medicinal use costs a hundred times as much as the same quantity of rye, and that the people might thus have made money by separating the poison from their food instead of swallowing it.

Hallucinations.

Victor Kandinsky, a physician in Moscow, gives (" Archiv " xi. Band, 2 Heft), the result of his studies on his own mental derange-

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ment, for he had the misfortune to suffer from insanity during two years. His paper is written in a thoroughly scientific spirit, with great power and precision of expression. I have thought the interest of the subject sufficient to justify my giving a free translation of many passages, retaining the expressions which are of a materialistic character, as far as the differences of the language will allow. He begins by running over some of the most modern theories on the nature and origin of hallucinations, rejecting them all save the theory of Meynert. This distinguished physician holds that hallucinations are the result of a stimulus supplied to the cortex of the anterior lobe of the brain. He has demonstrated the anatomical connection of the corpora quadrigemina, the centres of visual perception, with the cortex of the brain. Through this path travel visual impressions with the sensory impressions of the adaptations of the muscles of the eye to the brain where they are associated with the representations of space, but the connection with the factors of the representation of space already begins in the corpora quadrigemina. The gray matter of the anterior part of the brain has for its function the reproduction and association of ideas and the regulation of the subjective excitement or other parts of the brain, as also the excitation of the infra-cortical centres of the organs of sense. If an excitation representing no outward sensation comes from one of the infra-cortical centres of sense to the cortex cerebri, the centre of consciousness, there are no means of distinguishing this from a real outward impression, and thus a hallucination is produced. In the normal state the activity of the cortex regulates the merely subjective excitations of the organs of sense; in ordinary language the intellect distinguishes and interprets our sensations, and by an exertion of the will we pay attention to some of these and dismiss others. The suspension of this mental activity makes hallucinations possible, so that hallucinations are no proof of excitement of the cortex, but rather a proof of the abatement of its activity. Though hyperæsthesia of the sensory nerves may favour the production of hallucination, it neither can produce them nor is it necessary for their production. Dr. Kandinsky holds that his observations confirm Meynert's theory, and decidedly contradict all other explanations. He himself was affected with hallucinations of all the senses with the exception of that of taste. Hallucinations of smell were comparatively rare, and it was difficult to distinguish them from real impressions, because the sense of smell was very active. "In many cases, too," he naïvely remarks, "it was not easy to distinguish hallucinations of hearing from real auditory perceptions, for in asylums the patient hears from every side so many sounds, voices, and speeches of all kinds that it is sometimes difficult to distinguish the real from the fanciful." Of all his hallucinations, he tells us those of sight and feeling were the most frequent and the most lively and diversified. There were also numerous impressions of touch and pressure, and very remarkable

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hallucinations about the equilibrium of the body, and its position in space. Objects appeared to turn round the axis of the body or round the visual line. There was a movement either in one or in several fixed directions. The ground, he writes, seemed to fly under my feet; the walls to fly or to be pushed asunder. Sometimes one part of the wall seemed, to the right eye, to go upwards, while to the left eye a part seemed to go downwards, producing a very painful feeling of sundering of the brain. There was a feeling of rolling down a slope or a turning up of the bed, or being turned round or thrown into the air, and there was a very lively feeling of flying in space. Dr. Kandinsky considers that all hallucinations which give the impression of a continuous movement of objects in one direction where the feeling of equilibrium is destroyed, or the position of the body in space is altered, are the results of impaired nutrition in the cerebellum. In the first month of his illness there was no hallucination, but an irregular mental activity, an intellectual delirium, a race of delusions and involuntary thoughts. At the same time he was in a state of deep melancholy, brooding over his altered circumstances, and the probable sequence of his unfortunate illness. The hallucinations, he observes, began after the brain was exhausted by the rapidity of his thoughts, and an anæmic condition was produced through his voluntary abstinence from food. Not more than one-tenth of the hallucinations he experienced had any relation to the delusion and involuntary ideas which occupied his mind. The hallucinations were not in general incongruous with his personal education and culture; but there were others which especially appearing at a later stage of his malady harmonised so little with his experience of himself that he sought to account for them on the whimsical theory that they were hallucinations communicated by some process like electrical induction from the brain of the patients around him.

Dr. Kandinsky found that the condition most favourable to the appearance of hallucinations was the suspension of activity, both of the mind and body. The only influence which the will has over the hallucinations is that it may place the patient in a favourable position for receiving them. He never succeeded either in intentionally calling before him hallucinations or changing a recollection or a product of the fancy into a hallucination, or even in recalling one which had recently appeared to him. Hence he rejects the view of Lelut that hallucinations are simply thoughts projected outwards. There is no sharp distinction between the period of waking and that of sleep. On the one hand the images in dreams are so vivid that the patient may be said to wake during sleep. On the other hand the hallucinations are so wonderful and diversified that the patient may be said to have waking dreams. "During the period of my illness," he says, "my dreams were not less lively than what I experienced in real life, and when the representations and dreams came back to my remembrance, it was only by a slow

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and difficult process of questioning myself that I could make out whether I had experienced those things in reality or had only dreamt of them. Some of my hallucinations were in comparison with others colourless and indistinct; others were vivid and diversified with the bright colours of the real objects of ordinary vision. For a week I saw on the wall, which was hung with smooth tapestry of one colour, a row of pictures with wonderful golden frames or borders, fresco pictures, landscapes, sea pieces, sometimes portraits with colours as bright as those of Italian artists. Another time when I made myself ready to sleep, I saw suddenly before me a statue of middle size of white marble in the attitude of a stooping Venus. After some seconds the head of the statue fell off, leaving the stump of the neck with the red muscles. The head, when it fell, broke in the middle, exposing the brain. The contrast between the white marble and the red blood was especially striking.

"There were hallucinations with the eyes open as well as with the eyes closed. In the first of these cases they were seen on the ground, or the carpet, or on the wall, or they appeared in space covering the objects lying behind them. Sometimes the whole surrounding scene disappeared to be replaced for a few seconds by an entirely new one. For example, from being in a room I suddenly saw myself transferred to an arm of the sea, and on the opposite shore there was a chain of mountains with all the semblance of reality. Even when my eyes were shut I saw images of living beings, microscopical preparations and ornamental figures upon the dull background of the field of vision. In time I became accustomed to the hallucinations of sight. They ceased to excite or overwhelm me, and at last simply amused me."

There is always a clear distinction between hallucinations and images furnished by the memory, or moulded by the fancy. What is characteristic of hallucinations is not their vivid character, for some are faint, but their felt objectivity, while the images of the memory and imagination are associated with a feeling of activity of the brain and thus always retain a subjective character. Some artists and poets are gifted with a very powerful and lively imagination, but have no hallucinations, while a man may have a very weak power of imagination and yet be visited by hallucinations. In answer to the question whether his hallucinations were of a peripheral or central origin, Dr. Kandinsky writes, "My organs of sense were in a state of hyperæsthesia, but this hyperæsthesia showed itself only in the later period of delirium of the senses. It was expressed through noise in the ears, simple and co-ordinated sounds, through sparks in the eyes, universal lighting up of the field of vision, or by the appearance of points of light moving in circles and sparks. These simple hallucinations had no resemblance to the others of central origin which were both complicated in detail and harmonious as a whole. Moreover the peripheral hallucinations lasted after the eyes were shut; those of

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central origin either disappeared or were replaced by others. The images derived from hallucinations of peripheral origin followed the movements of the eyes; those of central origin generally disappeared on turning the eyes away from them, so that in a new direction nothing was seen or a quite new image appeared. On casting the eyes quickly back I could sometimes see the same image as before. "Without energetic exertion of the will," he observes, "my hallucinations would probably have become permanent and my mental powers totally extinguished; but after I had become accustomed to the hallucinations I began steadily to read. At first it was difficult, for the hallucinations of hearing disturbed me, and those of sight stood between the book and the eyes, but in time I succeeded in continuing my reading without paying any heed to the hallucinations. With the beginning of a regular mental activity the hallucinations became paler and less frequent, and disappeared entirely some months later after I had begun to work."

It appears as if Dr. Kandinsky had wrought out his own cure, and his experience furnishes valuable indications how similar cases should be treated. The only trace of his old hallucinations is the appearance of sparks, stars, and other figures of light before he composes himself to sleep after fatiguing mental work.

PART IV.—NOTES AND NEWS.

REPORT OF THE THIRTY-SIXTH ANNUAL GENERAL MEETING OF THE MEDICO-PSYCHOLOGICAL ASSOCIATION.

The Annual Meeting of the Medico-Psychological Association was held on Tuesday, 2nd August, at University College, London, Dr. Hack Tuke presiding. The following members and visitors were present:—Drs. Ringrose Atkins, Bacon, Bayley, Boyd, Brushfield, Blandford, Bower, J. A. Campbell, Crochley Clapham, Clouston, C. MacIver Campbell, Courtenay, T. V. de Denne, P. M. Deas, Eager, Bonville Fox, Gill, Greene, Glendinning, Gilland, Huggard, Hingston, Ireland, Jepson, Maudsley, Monro, Mickle, Mickley, W. Macleod, Major, T. W. McDowall, J. G. McDowall, Ley Manley, Manning, Mould, Needham, Hayes Newington, T. Newington, Orange, Paul, Patton, Philipps, Rayner, Rogers, Rutherford, A. Robertson, Savage, Sibbald, Spence, W. von Speyr, Swain, Stocker, Sutherland, Sankey, Claye Shaw, C. M. Tuke, Urquhart, W. Wood, W. E. R. Wood, Oscar T. Woods, Woollett, Whitcombe, T. Outterson Wood, Wallis, H. F. Winslow, Yellowlees, &c. At the afternoon meeting there were also present the Earl of Shaftesbury, Mr Bagot, Dr. Rhys Williams, Dr. Bucknill, Dr. C. Browne, and Professor Gairdner. Delegates, (see next page).

Mr G. W. MOULD, the retiring President, thanked the officers and members of the Association for the kind consideration which had been shown towards him during his year of office. He said that he was very grateful to receive the post, and at the same time he was very thankful that his time was over. He had had the good fortune to follow an able and distinguished man, and he was pleased that it had now fallen to his lot to hand the office over to another distinguished man, who he was quite certain would add lustre to the position.

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