which she presently told us was that of a drum—of music ; sometimes she trembled, taking an attitude as if afraid, and hiding her head in her clothes. Now she heard chains rolling, guns firing, and saw the devil escorted by a troop of demons ; again she called on her dead godfather and grandmother, crying out, " I wish to go with you." She fancied she saw the sea filled with red fish. Such was the account she gave of her visions on awakening from the attack, which had lasted a quarter of an hour. After a time seeing the circumductory movements of the arms and the contortions coming on again, we compressed the left ovary; the attack ceased, and the patient soon regained consciousness, shedding tears copiously, and then described her visions to us. She complained of pain in the part of the abdomen we had compressed, and showered on us a heap of epithets evincing her disgust. The previous evening Marie Jeanne had had an attack, or rather a series of attacks, lasting from midday to four o'clock ; this was in fact the usual duration of her and her sister's attacks. Towards the end of Marie Jeanne's attack Louise, feeling one coming on herself, emptied a bowl of water over her head, and quickly recovered. The Morcets employed this plan to arrest the nervous crises of their children whenever they felt themselves attacked.

We ought to mention that these fits occur about the same time in all the children, but Anne Marie's are shorter than those of her older sisters. Finally, it is seen that all the symptoms we observed resembled in every way those we habitually find in severe cases of hysteria. As the report of the occurrences that have taken place at Pledran has spread so far, we think it should be attributed principally to the rarity of *Grande hystérie* in our country places, and also to the imagination of the inhabitants, which has immensely amplified the facts they have seen or of which they have heard. Again, the devil and the wizards are not the cause of the troubles we have described ; if they exist, it is in the imagination of those who would do better to drive them out of their children by a strict and firm treatment rather than by prayers and exorcisings.

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3. *German Retrospect.*

By William W. Ireland, M.D.

New German Periodical on Neurology and Insanity.

We have received the first number of the " Neurologisches Centralblatt," published in Berlin at the beginning of this year. It is edited by Dr. E. Mendel, whose book on General Paralysis is reviewed in the present number of our Journal. In the programme the editor expresses his design to endeavour to establish a closer connection between the anatomy, physiology, and pathology of the nervous system

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and the medical treatment of insanity. The bridges connecting these departments of knowledge are frail and narrow. Dr. Mendel hopes to widen and strengthen them.

The Knee Phenomenon not Reflex.

The first number contains two original articles. Dr. A. Eulenburg seeks to determine whether the reaction of the tendo-patellæ be reflex or not, by measuring the time which elapses between the shock and the consequent movement. He finds the ordinary length of the latent period in healthy adults to be $\frac{2}{62}$ of a second $= 0{\cdot}03226$; when the latent period is abnormally long it has reached $\frac{3}{62}$ of a second $= 0{\cdot}0484$; and where the reaction is greatly heightened it has been found about $\frac{1}{62} = 0{\cdot}01613$. The length of the nerve tissue to be traversed to the spinal cord and back for a reflex action to the tendon patellæ is about 1 metre, and the rate of nerve conduction is stated by Helmholtz and Baxt to be 33·9 metres in the second, or about ·003 of a metre. Assuming these data to be correct, we have barely time for an impression to travel to the cord, arouse its action (for which some time must be allowed), and then return as a motor impulse in those cases where the latent period is $\frac{2}{62} = {\cdot}003226$, but where it is only $\frac{1}{62} = {\cdot}0016113$ there is not sufficient time for a reflex action. Hence he argues the patellar contraction cannot be reflex. Dr. Eulenburg has observed cases where with a latent period of $\frac{1}{62}$, the contraction was stronger and more prolonged than usual.

It may be asked, if the patellar reaction be not a reflex motion what is it? Dr. Eulenburg thinks it dependent upon the muscular tonicity of the quadriceps extensor cruris combined with a certain amount of quickness and integrity of the peripheral sensibility and conduction of impressions (Reizaufnahme und Reizfortpflanzung). Both these conditions are deficient in tabes dorsalis; the tactile sensibility is duller and slower, and the muscular tonicity is diminished through lesion to the posterior columns in the lumbar region of the cord. He thinks the existence of these two factors explains both the absence of the patellar reaction in tabes dorsalis and its presence in some rare instances. He himself has never seen a case of tabes dorsalis where the knee phenomenon was persistent, but he does not doubt the reality of those instances published by competent observers, such as Jewell, Bannister, Gowers, Sawyer, and Clifford Albutt.

Dr. Eulenburg has found in experiments upon dogs that the knee phenomenon disappears on the operated side after stretching of the crural nerve; but, as motor irritability and conducting power were found to be unaffected, this absence of the knee phenomenon, Dr. Eulenburg thinks, is to be explained by diminution in the muscular tonicity of the extensor quadriceps. He holds that the cremaster-reflex and reflex of the sole of the foot are undoubted reflex actions, and observes that they often persist in fully developed tabes dorsalis.

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He explains the heightened tendency to patellar reaction after the administration of strychnin by supposing that it is due to increase of the muscular tonicity of the quadriceps from the stimulant action of the drug on the termination of the nerve-fibres distributed in it.

Successful Treatment of Tabes Dorsalis with the Interrupted Current.

Dr. Rumpf, of Düsseldorf, showed to the Medical Society of that town a man who had been troubled with symptoms of locomotor ataxia for eleven years. The symptoms are given in detail, and it appears, as Dr. Rumpf states, quite a typical case of tabes dorsalis, beginning with shooting pains in the legs, then weakness in walking, abnormal sensation in the feet and hands, tightness round the waist, and weakness of the bladder, passing at last into ataxia of the upper and lower extremities, with muscular force little impaired, but diminished sensation of the whole body both to impressions of touch and heat and cold. Dr. Rumpf first saw the man, who was forty years of age, on the 29th of July, and on the 29th of September following he was quite recovered and able for work. The only treatment used was the interrupted current, the positive pole applied to the sternum, the pencil in connection with the negative pole applied to the back and then down to the extremities. The same procedure was reversed, beginning with the back. The strength of the current used was sufficient when applied to the median nerve to cause convulsions. The applications lasted ten minutes, and were repeated every other day. The improvement began at once. The pains first disappeared, then the sensibility began to return, and the feeling of tightness round the waist was no more felt. As the ataxy continued, in the beginning of September Dr. Rumpf used the galvanic current, which he alternated with the faradic. The man was stated to have been for a year quite strong and able for work.

Ueber die Verrichtugen des Grosshirns. Gesammelte Abhandlungen von Friedrich Goltz, Professor zu Strassburg im Elsass, mit 3 Tafeln in Farbendruck. Bonn, 1881.

Dr. Goltz's book is made up of four papers originally published in Pflüger's "Archiv. für die Gesammte Physiologie," the first of which appeared in May, 1876, the last on 17th September, 1881. It is dedicated to his friends in England. The concluding treatise therefore appeared after the distinguished author had returned from the International Medical Congress at London, leaving the brain of his celebrated dog to be examined by a skilled committee.* As in giving his book to the world Dr. Goltz has not taken the trouble to recast his papers, it may be well to advise those who take up the volume for

* An account of the discussion before the Physiological Section and the preliminary report upon the brain of the dog are to be found in the "Transactions of the International Medical Congress," Vol. i., pp. 218-243.

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scientific instruction that time and trouble will be saved by beginning to read it in the same way as a modern novel, in the inverse order, the last chapter first, and having progressed twenty or thirty pages towards the beginning, the reader will probably conclude that he is already in possession of all the real information the learned professor has to give him. If, however, he is fond of repetition, let him by all means begin at the beginning.

For the last ten years experimental physiology has been very busy in trying to find out the function of the different parts of the brain. The old method of simply removing those portions which could be reached from without had not yielded any new results from the time of Flourens, but it was thought that the discovery of Fritsch and Hitzig had really opened a new and surer means of investigation, and the results thus gained were confirmed by some pathological observations, though not entirely agreeing with others. Of late the conflicting experiments of Goltz have excited much attention. These are simple vivisections, but he has been much more successful in removing large portions of brain and keeping the animal alive. The experiments of Flourens were chiefly made upon pigeons. When large portions of the cerebrum were removed in the higher mammalia it was found impossible to save the animal from bleeding to death. The importance of Dr. Goltz's results depends upon his success in keeping alive the animals experimented upon. His vivisections have been exclusively performed on dogs. He trepans the skull in one or two places, and washes away the portion of the brain which he wishes removed with a jet of lukewarm water, or destroys it with a boring machine made for the purpose. He then carefully replaces the integuments, leaving a small issue, and applies effusions of cold water to the head. In this way he is enabled to escape inflammation; he even says that none of the animals operated on by him had fever or increased temperature. After severe operations the dogs often required to be artificially fed for many days, and though many of the animals experimented upon have died from one cause or another, he has succeeded in keeping others alive after removing larger portions of the cerebrum on either side than has been done by any previous experimenter. The consequences which he deduces from these experiments are, he considers, of great importance. He boldly claims to have swept away all the conclusions recently reached about the division of the brain into motor or sensory areas, and to have brought back our knowledge very nearly to the old view of Flourens, that the cerebrum was one organ having one function throughout. The professor hopes to see the day when the new-fashioned divisions of the cerebrum into motor and sensory centres will be consigned into the same grave in which the localizations of Gall so softly sleep. Alas, for our supposed progress in cerebral localization!

As the result of his numerous experiments, Goltz found that the degree of impairment of function depended upon the amount of brain

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substance removed, and not upon the situation of the lesion. Whether a portion of the brain be removed from the so-called excitable zone of Hitzig or from the occipital lobe, the functional disturbance was found to be of the same character. The first effect of removal of a portion of the cerebrum in the dog was found to be anæsthesia of the opposite side. It is probably owing to this anæsthesia being of short duration that it has been little noticed by previous observers. It rapidly passes into a dulness of sensibility which continues to improve, though probably it never entirely disappears.

Goltz is very emphatic in his statements that he found that no extirpation of the parts called the motor centres, nor any other portion of grey matter, could cause permanent paralysis to any muscle in the body. It is true that after removal of a portion of the hemisphere the animal was found to be paralysed on one side ; the paw, for example, would be quite limp and useless, but this condition slowly passes away. At first the dog halts and puts the dorsum of the paw on the ground, and in the course of time he plants the sole of the foot down firmly, though still unsymmetrically. The dog which has suffered the removal of a considerable portion of the hemisphere never seems entirely to recover the same power over the limbs. There is always a tendency to slide, a certain awkwardness on the affected side, which, however, is often so slight as to escape notice in a superficial examination. After the removal of a portion of the brain, the ear is observed to be motionless or weak for some time on the same side as the cerebral lesion, but this soon disappears. The motions of the tongue are not affected.

Goltz has very carefully examined the disturbances of vision following the removal of a portion of brain substance. He finds that the vision of the eye on the opposite side is always injured after removal of a portion of the hemisphere. If a considerable portion be removed, the dog becomes blind for some time after. His experiments are numerous and carefully detailed. A dog so treated could after a while see enough with one eye to avoid obstacles and distinguish people at a distance, or discern bits of flesh placed near, but was unable to calculate distances so as to leap from a chair. In one case, finding it difficult to blind the sound eye, which of course interfered with his experiments, Goltz removed it altogether, and thus, I think, introduced a new complication, for the sudden removal of a healthy eye, at least in the human subject, often very much injures the sight of the other. Goltz, however, proved by careful observations that a dog, which had suffered the loss of considerable portions of the brain on both sides, was for a time reduced to a condition approaching total blindness. He could not see pieces of flesh held before him, but could avoid bodies placed in his way when they were large and prominent.

Lussana and Lemoigne have already made a singular observation. They removed the left hemisphere and the left eye in a pigeon, and

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found that the bird, while it did not notice food thrown before it, nor show any fear of a person approaching it in a menacing attitude, yet could avoid obstacles placed in its way. Their explanation was that the impressions of vision were no longer the object of consciousness owing to the removal of the left hemisphere, the right eye having no relation with the remaining hemisphere on the same side. They thought that the bird avoided obstacles without any consciousness by pure automatic action through the influence of light entering the right eye, and acting through the uninjured cerebral ganglia and cerebellum. In such experiments, as Dr. McKendrick has pointed out, there is always a possibility that a portion of the hemisphere remains, as it is impossible in the pigeon to draw the boundary between the cerebrum and the corpus striatum. He found that when, to give certainty to the result, a portion of the corpus striatum was also removed, all indications of consciousness were suppressed. McKendrick observes that in the pigeon neither the removal of the anterior part nor the posterior part of a hemisphere interferes with sight, though the removal of one cerebral hemisphere is followed by loss of vision on the opposite side.

Goltz, while disposed to accept the automatic character of the motions in the pigeon, does not think that the explanation of Lussana and Lemoigne will hold good with his own experiments on dogs, since in this quadruped each optic nerve is in connection with both hemispheres, so that the stimulus of light in the right eye must arouse the sensation of light in the right hemisphere as well as in the left, and *vice versâ*. He thinks that the dog which has suffered the removal of a portion of the hemisphere has a much impaired sense of colour. Everything appears grey or cloudy to the eye. This will explain all the observed facts. A dog in this condition would not distinguish a piece of flesh from a stone, or a whip from a branch of a tree, or any particular individual, but would be able to recognise a body when moving, and distinguish objects sufficiently so as not to knock against them. When Hitzig and Ferrier found that animals, after certain lesions, had become blind on the eye of the opposite side, they said the truth, but their opponents had certainly some reason for denying the correctness of their observations, for the blindness only lasted a short time. They only asked, Is the animal blind, or does it see? and when they found that it saw or was blind they did not trouble themselves any further.

The author makes himself merry with the contradictions of different investigators who place their visual centre in widely apart gyri. Munk's visual area gets larger and larger in every paper he writes, and what with Ferrier's centre and Lautenbach's centre, and the corrections of Luciani and Tamburini, a great part of the brain is under suspicion of being a centre of vision! All these gentlemen, Goltz remarks, are right, and all are wrong. The visual area is really as large as all their visual centres together, and larger too, for if the re-

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maining portion of the grey matter which has not yet been put down as a centre of vision were removed, a like disturbance of sight would be noticed. The professor has extirpated all their so-called visual centres without inducing permanent blindness. He finds that injury to the occipital lobe causes a greater disturbance of vision than injury to the frontal lobe, and if the parietal lobes be also removed, the injury is greater still, but the animal does not become blind. He found it impossible by the removal of any portion of the grey matter of the hemisphere to induce total deprivation of any sense; hence he concludes that no portion of the cerebrum is devoted exclusively either to seeing, hearing, tasting, or feeling.

In observing the symptoms after removal of portions of the brain, the professor thinks it of the utmost importance that we should distinguish between those lesions which pass away after a time and those which seem permanent. The permanent lesions he considers to be a certain dulness in the sensation of touch, a diminished power of vision, and some awkwardness in the movements. Hitzig and his followers, when they found after ablation of the motor centres that the temporary paralysis passed away, tried to account for it by the supposition that some other part of the brain took up the function of the removed part, but Goltz not unnaturally treats this explanation as a virtual surrender of the theory of motor centres.

Ferrier and Soltmann have suggested that when one hemisphere is injured the other hemisphere may take up the functions for both sides of the body. There is no doubt, Goltz remarks, that each hemisphere stands in connection with all the muscles and sensory apparatus of the body. He has thus nothing to say against the view that, after injury to one side of the brain, the other side takes up more vigorously its hitherto neglected part, but Ferrier's idea that the so-called symmetrical centres are needed for the injured parts of the opposite hemisphere is contradicted by facts. Removal of a portion of the cerebrum always causes injury to the opposite side. In two experiments he found, after a lesion to the left hemisphere, the usual symptoms on the opposite side of the body, from which the animal slowly recovered. After this recovery he removed a portion of the right hemisphere, but instead of both sides of the body being affected, only the left side was affected by the lesion. This, of course, would not have taken place if the recovery on the right side had been owing to the left side of the brain taking up the function of the injured hemisphere. He remarks: "The recovery of lost functions is not owing to the formation of new centres in the hemispheres to replace those destroyed or removed, but owing to centres still uninjured again resuming their suspended activity. Simple mechanical movements like walking and running which are injured by removal of portions of the brain are not dependent upon the integrity of the hemispheres, but have their centres in the cerebellum and its connections."

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The professor explains all the appearances after injury to the brain as the result of inhibitory action resulting from the wound. When the spinal cord of a dog is cut through, the hind legs, bladder, rectum, and erectile power seem to be quite paralysed.

(*To be continued.*)

PART IV.—NOTES AND NEWS.

MEDICO-PSYCHOLOGICAL ASSOCIATION.

The Quarterly Meeting was held at Bethlem Hospital on Friday, 28th April, the President, Dr. D. Hack Tuke, in the chair.

Dr. W. M. Young, of the Suffolk County Asylum, was elected a Member of the Association.

The PRESIDENT referred to the attempted murder, on the 16th March, of Dr. John P. Gray, Superintendent of the Utica Asylum, N.Y., as reported in the "Utica Morning Herald," from which it appeared that on the evening in question, a man entered Dr. Gray's office and deliberately fired a pistol shot at him, wounding him badly in the face. Dr. Gray was, however, going on favourably, and, it was hoped, would make a good recovery. The Council thought it only fitting that some reference should be made to it at this meeting, and that this Meeting of the Association in London should express their feeling upon the matter. Dr. Gray was well known as the medical superintendent of the New York State Asylum, and as an expert. He had, in fact, only just returned from Washington, after paying attention to the new phases of the Guiteau case. Dr. Gray was also the editor of the "American Journal of Insanity." He was personally known to many on this side the Atlantic from his having visited England a few years ago. He (the President) concluded by proposing the following resolution:—"That this meeting of members of the Medico-Psychological Association desires to express to Dr. Gray, of the Utica Asylum, N.Y., their deep regret that his life should have been endangered by an assassin, and their congratulations on his escape, with the hope that he may long be preserved to perform the duties of his office."

Dr. SAVAGE said that it would be quite unnecessary for him to say more than that he had great pleasure in seconding the proposed resolution. He knew Dr. Gray to be an enthusiastic representative of their branch of the profession; a man who had done thoroughly good work; and one had a strong fellow-feeling for a man who, while doing his work, suffered through the malice of an insane person. It had always seemed to him (Dr. Savage) surprising that more of them did not get injured by patients.

The Meeting thereupon unanimously adopted the resolution.

Discussion was then resumed upon the question of

INSANITY AS A PLEA FOR DIVORCE.

Dr. SAVAGE said that there were three or four points of special interest under which the question of divorce and insanity could be considered, and, as it happened, three or four cases had recently come under his notice in which the question was whether insanity should be a bar to marriage. The first class was represented by two cases. In one a woman had been married to a man and had not allowed the marriage to be consummated because she felt that she

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