

*Physiologische und Klinische Untersuchungen über das Gehirn.*

By EDUARD HITZIG. Berlin, 1904. (Hirschwald.)

"CONQUERED not by my opponents, but by all-powerful fate, which has almost entirely robbed me of my eyesight, now and for ever I lay down the knife, the pen, and the sword." These words in Professor Hitzig's preface will be read with the deepest sorrow by all neurologists. But a little while since, as Hughlings Jackson lecturer, he gained the highest honour it is in the power of the Neurological Society of Great Britain to bestow. For more than thirty years his name and his work have inspired deep respect among physiologists, and, long though his activity has lasted, his concluding works leave us with the feeling that but for this misfortune much more would have been accomplished.

The book is divided into two portions; the first contains a collection of all his earlier contributions, and these are not bare reprints, each paper is enriched by annotations and considerations of researches which have since been published by others. On re-perusing these interesting *brochures*, arranged in serial form, our admiration is immediately secured by observing how methodically Hitzig planned and set about his life's work, what pains he took first to lay down sound foundations, whereon to build up consecutive works all dependent on one another, all in regular order, and all complete. The discovery, made in the year 1870, that the surface of the brain of the dog is susceptible in places to electrical excitation, was alone sufficient to make the name of Hitzig famous. Not satisfied, however, with the results bearing on the localisation of function obtained by this means, he proceeded to supply deficiencies with a brilliant series of extirpation experiments. Next he succeeded in locating the motor area in the ape, and finally enjoyed the distinction of being the first to publish an observation on the effects of a localised lesion in man.

Many of these early papers are devoted to the localisation of the motor area, and in view of the controversies which have arisen on this subject, it is instructive to find Hitzig first stating emphatically that all the motor centres lie in the anterior central convolution, and then supplying details which agree, not absolutely but remarkably well, with those yielded by the most recent investigations. And when we consider that these observations were made when electricity had been employed for physiological purposes by this man alone, when histology had not been exploited as an adjuvant, and when apes were so scarce that one

only could be procured for experiment, we see a register of the high standard of this master's work. Indeed, among pioneers in experimental neurology, there is none who has established more principles of brain physiology, none who has had less to take back as incorrect, and although he has indulged in polemics more than others, his opponents must concede that he has always met them with fair weapons.

The second half of the book consists of matter which has appeared more recently in the *Archiv für Psychiatrie und Nervenkrankheiten*. It is entirely devoted to the visual sense, and is the product of a great number of experiments on the dog, which are recorded in detail and faithfully illustrated. First, the effects of lesions of the occipital lobe on movement are discussed. In such cases Hitzig has frequently seen what he calls *Defecte der Willensenergie*, and originally thought that they denoted loss of motor impulses issuing from the destroyed parts; but now he recognises the inconstancy of the disability, and abandons it as inexplicable. Attention is next drawn to the production of visual changes by destruction of cortex away from the occipital lobe. Hitzig is assured that transitory hemiopic defects follow operations on the cortex and white substance of the sigmoid gyrus of the dog—that is, the motor area. This result has no parallel, so far as I am aware, in the cases of the human being and higher ape, and again the Professor is unable to supply a satisfactory explanation. Another interesting result was that when the temporary hemianopia caused by a lesion of the sigmoid gyrus had passed off, a lesion in the occipital region of the same side did not intensify the visual disturbance. Further, it was frequently observed that the left hemianopia to be expected from a lesion of the right occipital lobe did not occur if, previously, by lesion of the left occipital lobe, a right hemianopia had been produced. It appears correct to explain these effects by assuming that the dog is an animal in which sight is strongly represented in the primary sub-cortical centres.

In this part of the book Munk's conclusions are criticised with great severity. According to Hitzig partial destruction of the occipital lobe of the dog produces no permanent change in particular, the partial permanent cortical blindness of Munk does not occur. Also, the projection of the retina on the occipital lobe, as Munk describes it, is disputed; it is only admitted that a temporary quadrantic hemianopia downwards attends lesions of the anterior half of the visual area and an upward hemianopia lesions of the posterior portion. And, in Hitzig's experience,

lesions of Munk's zone A produce no psychic blindness, but only transient crossed hemianopia, hence the psychic blindness of Munk must be quite different from that which has been recognised in man, and must arise from simple amblyopia.

Hitzig brings forward such a fund of experimental data in support of his different arguments that he almost places himself outside the bounds of criticism, and yet, since the visual cortex has been recently submitted to thorough investigation by the microscopist, we cannot refrain from looking at these questions from the histological standpoint, and the regret forces itself upon us that this magnificent series of experiments was performed before the area striata—so easily demonstrable in the dog—and the homologies of the visual area were determined. If the area striata represents the "visuo-sensory" area, as appears certain, and if "visuo-sensory" cortex is invested by "visuo-psychic" cortex, as appears likely, surely these points in anatomy will need most careful attention, before experiments made to instruct us regarding hemianopia, partial or complete, the restitution of vision, psychic blindness, and so on, can be freed from misinterpretation and confusing imperfections.

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*The Diseases of Society and Degeneracy.* By G. FRANK LYDSTON, M.D. J. B. Lippincott Company, Philadelphia and London, 1904, pp. 626. Price 15s. net.

THOUGH the views in this book have been promulgated by an author who has lived for a considerable time in Chicago, and for a time as resident surgeon to the Blackwell's Island Penitentiary, New York, yet a considerable amount of it will apply equally to criminology in England. The author states that "this work, then, is not a treatise on sociology, criminology, criminal anthropology, penology, nor yet upon that latest omnibus to which some assign all moral or psychic aberrations—degeneracy, but is intended to comprehend all of these subjects, in so far as they bear upon social disease in its various divergations." From this it will be seen that the author has not limited himself to any one particular study, but has treated of a great number. The census of 1890 showed that criminals, paupers, and insane, numbered about