that of melancholia, improved so that she recovered completely. He alluded to Dr. Sutherland's researches at the West Riding Asylum, which proved that menstrual irregularities were more common amongst the insane than the sane.

Dr. BLANDFORD believed that the improvement from such operations would be temporary.

The following were taken as read:—

A Case of Multiple Apoplexies Simulating General Paralysis in a Woman. By G. H. SAVAGE, M.D. (Bethlem Hospital).

On the Necessity for a School of Medical Psychology in London. By J. CRICHTON BROWNE, M.D. (Edin.)

The Accommodation of the Insane in Workhouses. By T. M. DOLAN, L.R.C.P. (Halifax).

SECTION OF PSYCHOLOGY.

DISCUSSION ON SLEEP AND HYPNOTISM.

Mr. Braid appears likely to have justice done to him at last. Some years ago we pointed out the important bearing of hypnotism on mental disorders in this Journal, in an article entitled "Artificial Insanity." Subsequently, in 1872, the writer, in his work on the "Influence of the Mind upon the Body," insisted on the interest and influence of hypnotism in mental therapeutics. The progress of scientific truth, if certain, is rather slow. It has taken some forty years for the British Medical Association to repair the error then made in refusing to hear a paper by Mr. Braid on his discoveries, when it met at Manchester.—[D. H. T.]

Professor PREYER said he felt deeply honoured by the invitation which had been given to him to open the discussion on sleep and hypnotism. In view of the extreme complexity and obscurity of both phenomena, and the diverse and contradictory views respecting them, he had found it impossible, on such an occasion as the present, to treat the physiology of the sleeping and the hypnotised brain as fully as it deserved to be treated. He deemed it advisable rather to indicate the problems which must be solved empirically, and to state what he considered to be new in his own researches into the causes of sleep and hypnotism, than to enter into a detailed description of the facts. Four years ago he published a theory of the cause of sleep, which was founded on the fact that natural sleep is the direct consequence of fatigue, whenever the conditions of the fatigued animal are such as to exclude all continuous and intense stimuli. According to the theory, there occurs, during muscular and cerebral activity, the formation and accumulation of certain substances, which hinder further activity by attracting to themselves the oxygen which, in the last instance, is necessary as well for the activity of the muscular fibre as for that of the nervous cell. Both these organs fail to execute their specific function if they are not supplied with oxygen by the red blood-corpuscles. To these noxious substances the term *Ermüdungsstoffe* (fatigue-products) has been applied. They are easily oxidisable bodies; and, according to this theory, they accelerate the dissociation of the oxygen and hæmoglobin in the capillaries of the brain and muscles. Sleep then ensues, and the tissues which most depend upon a regular supply of oxygen, viz., the grey substance of the hemispheres and the muscles, are the first to be affected by the accumulation of *Ermüdungsstoffe*. As soon as the oxidation-process has reached a certain degree, the oxygen of the blood is no longer used up so quickly, and now even weak stimuli suffice to arouse into activity the nervous and muscular tissues; and the animal is awake once more. If this theory of sleep be true, the following two inferences should stand the test of experiment: 1. The artificial injection of the products of activity which accumulate during fatigue ought to

cause sleep. 2. The direct withdrawal of oxygen from the brain ought also to cause sleep. Both consequences have been put to the proof. With regard to the first, the results have been conflicting. But most experimenters have agreed with Professor Preyer in finding that one of the principal products of muscular and of cerebral activity, viz., lactic acid, is a true hypnotic. Others have denied this, because in many cases, and especially in cases of insanity, no hypnotic effect is brought about. Nevertheless this point is by no means settled. We know very little about the products of cerebral activity; and even if lactic acid *alone* fails as a hypnotic in many cases, we yet cannot say that it would have no hypnotic action when combined with other fatigue-products. It is highly probable that creatin is a hypnotic; but we must await other experiments before this first inference can be fairly criticised. The second inference that withdrawal of oxygen from the brain should cause sleep, is verified by many experiments in which the want of oxygen produces hypnotic effects. Observations conducted in Professor Preyer's laboratory have proved the great affinity of the grey substance of the brain for the oxygen of the blood-corpuscles; and have shown that, by slowly diminishing the quantity of oxygen in the air breathed by animals, somnolence is invariably induced. Other observers have reached a similar conclusion by a different way. Nevertheless, it is not proved that common sleep is identical with the condition which is the effect of continued and slow withdrawal of oxygen. In fact, the word sleep is applied to many different states of repose of the mind of various characters but closely linked together. Thus, somnolence, drowsiness, reverie, on the one hand; and coma, lethargy, asphyxia, hybernation, syncope, alcoholism, narcotic intoxication of different degrees, on the other, may show identical symptoms in depression of mobility and sensibility, and cessation of the intellectual faculties, without the same changes in the brain being the cause in each case. Even common sleep is of variable intensity; and children, who sleep deeper and longer than grown-up people, are individually of a widely varying inclination to sleep and dream. With men also, individual differences in this respect are of daily occurrence. Now, if natural sleep have the same etiology for all men and all animals, then such individual differences must all be accounted for on one principle. The theory proposed does, in Professor Preyer's opinion account for them, *assuming the quantity of oxygen which is necessary for activity to vary greatly according to the mode of life and hereditary or acquired qualities of the individual.* This is proved by experiments on animals; and Professor Preyer believes that the different capacity of individuals to support the want of oxygen, is also a fact of great importance for understanding the genesis of artificial sleep, and especially hypnotism. But the first who investigated the matter in a scientific way, and who deserves more honour than he has yet received, was an Englishman, James Braid, a Manchester surgeon. At first a sceptic, holding that the whole of the so-called magnetic phenomena were the results of illusion, delusion, or excited imagination, he found in 1841 that one, at least, of the characteristic symptoms could not be accounted for in this manner: viz., the fact that many of the mesmerised individuals are quite unable to open their eyes. Braid was much puzzled by this discovery, until he found that the "magnetic trance" could be induced, with many of its marvellous symptoms of catalepsy, aphasia, exaltation and depression of the sensory functions, by merely concentrating the patient's attention on one object or one idea, and preventing all interruption or distraction whatever. But in the state thus produced, none of the so-called higher phenomena of the mesmerists, such as the reading of sealed and hidden letters, the contents of which were unknown to the mesmerised person, could ever be brought about. To the well defined assemblage of symptoms which Braid observed in patients who had steadily gazed for eight or twelve minutes with attention concentrated upon a small bright object, and which were different from those of the so-called magnetic trance, Braid gave the name of *Hypnotism* in 1843. This was in his book bearing the un-

fortuate title of *Neurypnology*, a name which doubtless went far to gain for the book the unmerited oblivion which has been its fate. In addition to *Neurypnology*, Braid published in 1846 an interesting paper on *The Power of the Mind over the Body*, which conclusively showed how erroneous is the view that anything passes over from the operator to the patient in the course of these experiments. In his paper on the so-called *Phenomena of Electro-Biology*, printed in 1851, his views are again and more explicitly proved by experiments. *Hypnotism* is a condition or series of conditions which may be induced in a person by rigorously concentrating attention on some one point, even when no other person is present, and when the patient is wholly ignorant of mesmerism and the like. Although thirty-seven years have elapsed since Braid published his numerous experiments, his works are very little known. In Germany and France many of his discoveries have been re-discovered; as for example, by M. Ch. Richet, of Paris, in 1875, and by Professor Heidenhain in Breslau, during the present year; while Professor Arthur Gamgee's careful and judicious account of Charcot's wonderful hystero-epileptics, published in 1878 in the "British Medical Journal," goes far to make us think that these cases also resemble exactly cases of hypnotism. It is hard to withstand the suspicion that Braid over-rated the curative powers of hypnotism; but, in respect of his statements on this head, nobody has, as yet, publicly proved him to have been careless or uncritical like the mesmerists. Are the main symptoms of hypnotism well established? From the results of his own experiments, Professor Preyer could admit no doubt whatever that they are. The only objection which has been urged against them, and which has not been entirely removed, is the possibility that the operator might be deceiving, or might himself be deceived. To meet such an objection, as far as possible, Professor Preyer was careful, when experimenting on men, to make use of such only as might reasonably be supposed to be trustworthy; and, further, to extend his experiments wherever it was practicable to the lower animals. In the latter case, he found that two different states of *abulia* (want of will?) can be artificially obtained; one by suddenly and strongly irritating or frightening the animals, the other by a slow, continuous, uniform irritation. The latter is the hypnotic state; the former, Professor Preyer proposed to call *cataplexy*. So far as we know—and thousands of experiments have been performed—hypnotism is entirely harmless, at least if not practised to excess; and whether or not any beneficial curative results are obtained from its practice in nervous affections, at least the physician can collect and group the facts for the physiologist. Assuming, then, that the hypnotic phenomena are admitted to be beyond doubt established as facts, the question arises: Is hypnotism merely a species of the genus sleep, or is it something totally distinct? Cataplexy is undoubtedly very different from sleep. At first sight, hypnotism also seems to belong to another category; but a closer inspection and comparison of the two conditions discovers so many points of analogy, that it becomes difficult, if not impossible, to say where exactly the distinction lies. Physiological researches on common sleep have been so neglected in our day, that we are not able to mention the particular changes in the brain during sleep; nor has the natural normal sleep of those who may be readily hypnotised been accurately observed or controlled. Professor Preyer had himself seen cases of persons who answered questions in their sleep exactly as hypnotised persons will do; and on the other hand, he had, amongst the students hypnotised in his laboratory this year, some who, after having steadily fixed their eyes on a glass bottle, placed about four inches in front of the forehead, appeared to be in every respect asleep, and not hypnotised. Certainly some of the phenomena of hypnotism—*e.g.*, catalepsy—are not phenomena of common sleep; but who can say whether these inconstant symptoms may not be found to make their appearance during the natural sleep of the hypnotised? Somnambulism may be said to be natural hypnotism. The only specific dif-

ference which exists between hypnotism and sleep seems to be the curative power of the former. But such curative power is altogether doubtful; and the so-called hypnotic cures, where they do exist, may possibly have to be ascribed to some emotional or psychical cause rather than to the artificial sleep. This influence is the most intricate problem of all relating to hypnotism and sleep, the limit of physiological inquiry being here drawn by the impossibility of ascertaining the physiological conditions of the brain when attention is directed to one point and when it is not. Professor Preyer found that a concentrated attention is the only *conditio sine quâ non* in order to hypnotise an individual. If the attention is to be the least distorted or distracted, hypnotism becomes impossible. If, by strong and sudden stimulation, attention be forcibly concentrated on one impression, as in fright, then cataplexy is the consequence in both man and in animals. If the will direct consciousness to a certain point without any excitement, it will in many cases lose its power, and hypnotism is the consequence—*abulia*. Possibly, this occurs because the oxygen of the arterial blood in the brain has so quickly been used up, that there is not enough left to keep the grey matter of the hemispheres awake. The nervous cells are separated from each other by inactive regions, and, as in natural sleep, only certain centres remain active—for example, the respiratory and other co-ordinating centres. Here, then, is the *terra incognita*, ready to be explored.

The following gentlemen took part in the discussion: Dr. Brown-Séquard, Mr. Braid (a son of the late Mr. James Braid), Dr. Bowditch, Dr. Glaister, Dr. Beard (New York), Dr. A. Gamgee, Dr. Harvey, Mr. Langley, Dr. Norris, Dr. Gerald Yeo, and Dr. Hack Tuke. Professor Preyer replied on the whole debate, and the discussion was brought to a close.

THE EASTERN COUNTIES ASYLUM FOR IDIOTS.

The July meeting, 1880, of this institution was held at Norwich, under the presidency of the DUKE OF NORFOLK, who, in his speech, observed that one might say that the instinct of self preservation made us find homes for the insane; whereas it was the divine angel of charity which urged us to procure homes for the idiot.

Dr. BATEMAN, the consulting physician, who endeavoured to remove certain misconceptions about idiocy, of frequent occurrence, held that one of the most fruitful causes of idiocy is the abuse, not the proper use, of alcoholic drinks. Dr. Bateman made an earnest appeal to his audience for their merciful aid.

Mr. MILLARD, the well known and estimable superintendent, wished that the number in the asylum (99) could be doubled. He pointed out that at the Hospital for Incurable Children in London, idiots were no longer received on account of their injurious influence on the other inmates. He said that in France there were 230 cretins and idiots to 100 lunatics, and not 60 to 100 as stated in the 1872 census; hence he inferred that in England there were many more idiots than the returns of the census showed. The asylum needed a large increase of annual subscriptions.

The MAYOR, the DEAN OF NORWICH, the SHERIFF, Mr. CADGE, and others addressed the meeting, which appears to have been very successful, £400 being promised on the spot.

"AFTER CARE."

A meeting of the "After Care" Association was held, on the 1st July, at the house of Dr. Bucknill, 39, Wimpole street. There were present Dr. Bucknill, President; Dr. D. Hack Tuke, Dr. Savage, Rev. H. G. Henderson, Mr. W. G. Marshall, Rev. H. Hawkins, Secretary; Lady Frederick Cavendish, Miss