might seem compliant ("ohne Hasten ohne Rasten") they press forward the work of reform so much and so long needed. In a remarkably short space of time their influence has been generally felt, and felt to much purpose, and this is the most conclusive proof of their earnestness and usefulness. We wish them God speed in their labours, and we are sure that, however unpleasant their task may often be now, they will eventually enjoy the satisfaction of seeing an ample harvest for their toil.

Philosophische Studien, January. 1892.

The first number of the "Philosophische Studien" of 1892 brings an interesting paper from the pen of the first living representative of psycho-physics, Professor Wundt, on "Hypnotism and Suggestion." The article in question is the more remarkable, because in it a decisively forward step is taken in the explanation, and, above all, in the proper valuation of hypnotism. Although much has been done by Bernheim, Forel, and Moll to divest hypnotism of the mysteries in which it was enwrapped—voluntarily or involuntarily—by those who knew and practised it, Wundt goes still further than any of the authors mentioned, and, throwing aside anything not conformable with the well-known laws of nature, *i.e.*, all occult relations which make hypnotism so interesting, especially in the eyes of lay-people, puts hypnotism on a thoroughly scientific basis. We are well aware that there are still uninformed men, even in the medical profession, who doubt the phenomena of hypnotism; for such Wundt does not write. The phenomena in question are indisputable to him, as they are to everybody who has watched them with an unbiassed mind, and he therefore does not go into the description of the symptoms, but only mentions those which are of importance for the physiological and psychological explanation of hypnotism, as automatism, somnambulism, post-hypnotic suggestion, positive and negative hallucinations, the purely physiological effects as the production of blisters, etc. After having briefly touched upon these, Wundt treats in his second chapter of the physiology and psychology of hypnotism and suggestion, introducing at first and criticizing the various attempts of explanation—physiological and psychological — advanced by eminent observers. Heidenhain

thought the hypnotic condition to be due to an inhibition of the ganglionic cells of the cerebral cortex produced as a kind of reflex-inhibition by weak but constant irritation. A similar view was propounded by Charcot, who, in addition to the inhibition, assumes a stimulating effect on the motor and sensory centres (automatic movements and hallucinations). These theories, however, entirely neglect the influence of suggestion as a means of hypnotizing. In fact, Heidenhain himself was not satisfied with regard to his own hypothesis, since he found that the functional inhibition, produced in animals by ablation of the cortex, differed greatly from that observed in hypnotized individuals. Wundt also dismisses briefly Forel's* theory of the dissociation of customary associations and their being singly called into play by means of suggestion, and then goes on to criticize fully the physiological explanation advanced by Lehmann,† who founds his theory mainly on the vaso-motor effect of hypnosis and suggestion, generalizing this truly physiological phenomenon, and making it responsible for most phenomena of normal mental life, and especially for attention, this idea being based on the facts confirmed by Mosso, that during sleep the blood-supply to the brain is diminished. Therefore Lehmann concludes that if attention is very intense the blood-supply to the one special part which has been stimulated becomes more abundant. In the hypnotic condition attention is directed to one side only, this condition being produced by the monotonous stimulation or suggestion; hence, the very limited number of associations and the amnesia on returning to the normal state. Wundt's objection to this theory is that Lehmann, when explaining psychical conditions—normal or abnormal—does not apply his physiological vaso-motor theory, but explains all processes by association of ideas and limitation of attention, *i.e.*, purely psychical conditions. With regard to the methods of psychical explanation, there are two kinds, the one which looks upon hypnotism as quite a new phenomenon of an enormous psychological importance, calculated to throw fresh light on the human mind, and the other which builds up the explanation of hypnotism on psychical facts known and understood. The former method of making things which are not quite clear the basis of psychology, Wundt rejects at once as unscientific, and considers only the

* Forel, "Der Hypnotismus," Stuttgart, 1889.
† Lehmann, "Die Hypnose," etc., Leipzig, 1890.

latter kind of phenomena. There are two principal hypotheses, that of sympathy and that of double consciousness, the former represented by Dr. Hans Schmidkunz,* the latter by H. Taine,† Pierre Janet,‡ Max Dessoir,§ and to a certain extent by Moll.‖

Schmidkunz fares very badly at the hands of Wundt, who considers his book as very instructive how *not* to study psychology, whilst he finds the ideas of the other authors mentioned anticipated in the ecstatic and somnambulistic literature of former days, with one difference, however, viz., that formerly the abnormal consciousness was considered to be the highest, and to be gifted with extraordinary power, whilst it is now, generally speaking, regarded as a lower stratum of the human personality. On the whole, Wundt considers the hypothesis of double consciousness as an example of those imperfect explanations in which a new name only is introduced for the phenomenon to be explained, without making the matter any clearer to the critical inquirer. Self-observation during the hypnotic condition would be of great importance, but is, for obvious reasons, extremely difficult, if not quite impossible. Forel mentions in his book (p. 81) an interesting case of self-observation, and Wundt also relates at some length a similar experience of his own. When in 1855-56 a house-physician under Professor Hasse, at Heidelberg, he had for a time very heavy night-work to do, so that in the end he was over-fatigued, and when called he performed his duties in a mechanical manner, whilst only half-awake. One night he was called to a patient who was suffering from typhoid fever, and was very delirious. He went into the ward in a dream-like state, although talking quite reasonably to the nurse and several other patients. Suddenly he noticed in an open cupboard a bottle of tincture of iodine, and at the same moment the idea became predominant in his brain that iodine was the medicine required in this case; he ordered the nurse to fetch the bottle, and gave the patient one teaspoonful, a few drops of which were taken, but at once rejected, a circumstance which greatly surprised him at that time. It was customary in such cases to give a teaspoonful of *laudanum liquidum Sydenhami* (G.P.); the colour of the tincture of iodine

* Schmidkunz, "Psychologie der Suggestion," Stuttgart, 1892.
† Taine, "De l'intelligence," Vol. i. (préface).
‡ Pierre Janet, "Révue philosophique," Vol. xxii., p. 577.
§ Max Dessoir, "Das Doppel-Ich.," Berlin, 1889.
‖ Moll, "Der Hypnotismus," 2nd Ed., Berlin, 1890.

reminded him of laudanum, and in his condition at that time, which he considers to have been one of spontaneous somnambulism, he associated with the iodine the properties of laudanum as an anodyne, and was so perfectly convinced of the correctness of his idea that even the astonishment of the nurse could not make him change his mind. After having returned to his room he became perfectly awake, and then only became aware of the mistake he had made. He remarks that in the state mentioned objects seemed to be further away than usual, and words seemed to come from a greater distance, a condition which resembles that at the commencement of a fainting fit or a narcosis. Altogether there was a certain numbness of the sensorium. From this interesting experience Wundt concludes that his condition was one of "auto-suggestion;" the word "suggestion," however, not having yet found a psychological explanation. He defines it as "an association with complete limitation of consciousness to the ideas produced by this association;" hence, the diminished sensibility in the hypnotic condition, in consequence of which the phenomenon mentioned above with regard to vision and hearing is observed. This explains, to a certain extent, why a slight narcosis favours the hypnotic state, viz., by the insensibility produced towards outside stimuli. In order to explain certain processes of the normal condition, but especially the events of dreams and hypnosis, Wundt formulates a law "of functional compensation:" If a greater part of the central nerve-organ is in a condition of functional inactivity in consequence of inhibitory influences, the excitability of the part which remains in functional activity is increased towards any stimulus directed against it. It stands to reason that this increase is the greater, the less the energy previously expended from the amount stored up in a condition of latency in the central nervous organ in general. As the physiological basis of this law we may assume a twofold action—one neuro-dynamic, and the other vaso-motor. With regard to the former, it seems probable, considering the manifold connections which the nervous elements have with each other, that the excitability of a central nervous element depends not only on the condition in which it happens to be itself at the time of stimulation, but also on the state of the nervous elements with which it is connected, in such a manner that by stimulation of the neighbouring elements the excitability of the nervous element in question

is decreased, while if the neighbouring elements are at rest, the one element acts the more energetically. This we may consider proved by the fact that cerebral activity is the more energetic the more one-sided it is, and that the excitability of all other cerebral elements is diminished by energetic and one-sided activity of one area. The ganglionic cells, in addition to their nutritive function, must be considered places in which a constant accumulation of latent energy takes place, which under certain conditions is converted into actual energy and conducted along the nerve-fibre. The accumulation of energy takes place constantly, its conversion into actual energy, however, only at times under the influence of stimuli; during sleep, therefore, in consequence of the absence of stimuli, there is a general storing up of energy in all central nervous elements. We know from the degeneration following section of nerves, extirpation of ganglia, and section of the cord, that the nerve-fibres are not only paths of conduction, but also serve as channels for the nutrition of the nervous substance, by means of which the substances, which are the chemical equivalents of the latent energy, pervade the whole central nervous system, constantly keeping up an equilibrium of energy throughout in such a manner that energy used up at one point is at once supplied again from neighbouring points. If, therefore, a cerebral nervous element is stimulated during sleep, the excitement produced will be very great, partly on account of the great energy present in the element itself, and partly in consequence of the rapid supply from the other resting elements. The effect produced by this neuro-dynamic action is increased by vaso-motor compensation. According to the principle that the greater the function of a part the greater its blood supply, and *vice versâ*, the blood supply to the various parts of the brain is regulated in such a manner that one part, which is active, will receive more blood, while others necessarily will receive less; and, on the other hand, the less active some parts are the more their vessels will contract, thus allowing and even forcing more blood to flow into the part which is in functional activity. The neuro-dynamic and vaso-motor compensations go hand in hand—it is impossible to assume one without the other. Hypnosis is not, like sleep, the consequence of fatigue of the nervous system, but is produced by the neuro-dynamic and vaso-motor changes in the brain; the increase of function, therefore, is much more intense

than in sleep, even passing over to the motor-centres, thus causing the hypnotic condition to resemble the waking state. Hypnosis has its origin in suggestion, supported by other factors, which produce one-sided direction of the mind. Consequently, while in dreams the ideas and illusions fly from one thing to another, the hypnotized mind can only be influenced by stimuli connected with the suggestion, but by these it is very strongly affected. The conditions mentioned plain without difficulty the general phenomena of hypnotism.

Here we have reached the climax of a most interesting paper, and therefore we have given it more fully than perhaps a review requires. In the rest of his article Wundt treats of the value of suggestion, and comes to the conclusion that if it is of minor use for the advancement of psychology, judiciously used it may be of great value in therapeutics. He demands, however, that by law medical men only should be allowed to practise hypnotism on account of the dangers and disadvantages connected with its abuse.

We cannot conclude this review without expressing our pleasure that Wundt's paper is the protest of science against the occultism at present in fashion amongst us, which stands in the same relation to real psychology that astrology does to true astronomy.

French Hypnotic Literature.

Grand et Petit Hypnotisme. Par J. Babinski. Paris: E. Lecrosnier et Babé. 1889.

This monograph deals with the relations of hypnotism to hysteria, and, faithful to the traditions of the Salpêtrière school, M. Babinski, a pupil of Charcot, endeavours to prove that the views of Bernheim and the Nancy school are, if not erroneous, much exaggerated.

The objective signs of the hypnotic state—neuro-muscular hyperexcitability, cataleptic plasticity, musculo-cutaneous hyperexcitability—are discussed, and the characteristics distinguishing them from simulated phenomena emphasized. "Grand hypnotisme" includes those cases only which exhibit Charcot's three classical stages of lethargy, catalepsy, and somnambulism; "petit hypnotisme" includes those in which one or more of the stages is or are deficient, or in