

The actual text of the work must be passed over with the bare remark that "Rangin" appears to have acquired a considerable knowledge of equine anatomy, both normal and pathological.

R. L.

ANIMAL PSYCHOLOGY.

La Nouvelle Psychologie Animale. By G. Bohn. Pp. ii+200. (Paris: F. Alcan, 1911.) Price 2.50 francs.

Clever Hans (the Horse of Mr. Van Osten): a Contribution to Experimental Animal and Human Psychology. By Oskar Pfungst. With an introduction by Prof. C. Stumpf. Translated from the German by Carl L. Hahn. With a prefatory note by J. R. Angell. Pp. vii+274. (New York: H. Holt and Co., 1911.) Price 1.50 dollars net.

DR. BOHN'S book is, as he himself states in his preface, the sequel and complement of an earlier work, "La Naissance de l'Intelligence," already reviewed in the pages of this journal. Its aim is to present a concise account of the development of psychism in the comparatively high forms of life represented by the class of anthropods and vertebrates respectively. The vital activities of the lower organisms are not neglected, however, and in the opening pages of the book one finds an excellent summary of the forms of explanation in terms of physical chemistry which Prof. Loeb has made famous under the names "tropisms" and "differential sensibility."

Dr. Bohn is Loeb's most distinguished follower, and he has defined the above-mentioned terms and indicated exactly to what forms of behaviour they are applicable with a brilliance even superior to that of the master himself. There is little doubt that the terms have been used with great laxity by many writers, particularly by those psychologists who are inclined to reject Prof. Loeb's views, and Dr. Bohn has done a real service to science in rendering them precise. Moreover, no one unhampered by preconceived theories will find fault, on the score of method, with Dr. Bohn for endeavouring to apply the law of parsimony as rigidly as possible, and only appealing to psychical factors after all the possibilities of physical and chemical explanation have been exhausted. Yet the result may not be entirely convincing, for although the observation of lowly forms of life encourages a mechanical system of explanation which the man of science is then stimulated to develop with ever-increasing complexity until it seems to give an approximately accurate account of even the higher forms of conscious behaviour of highly developed organisms, an investigator starting from the other end of the scale and acquiring an intimate knowledge of the nature and significance of consciousness in the life of man and the higher animals is likely to come to a very different conclusion as to the nature of, say, even protozoan activity. It seems, indeed, inevitable that there should be at least two widely diverging schools of thought in animal psychology, out of the conflict of the views of which truth will ultimately emerge, and that both are therefore necessary to the science.

Dr. Bohn passes on to a clear statement of the

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meaning and sphere of influence of "associative memory," and after a full discussion of the principal instincts of "articulated" animals, in which he shows that the word "instinct" explains nothing, and that the so-called instincts are aggregates of diverse activities which are far from exhibiting the exact adjustment to one another and to the environment with which they have been hitherto credited, he describes the principal experimental methods employed in the investigation of the psychical activity of the vertebrates, together with the more important results of these investigations. The little book is crammed with the most valuable material, set out in the most concise and attractive style, and one is glad to note that it has been crowned by the Academy of Moral and Political Sciences. No psychologist should omit to read it and re-read it.

"Clever Hans" was a Russian trotting horse, who took German music-hall audiences by storm by his remarkable power of working simple arithmetical sums, and answering other questions requiring a similar kind of reasoning ability. The owner, an elementary-school master, had taken him when young and taught him the rules of arithmetic according to the ordinary approved methods, and was himself convinced of his *bona fides*. An unofficially appointed Commission of psychological experts eventually proved conclusively, by experiments with the animal, that no true reasoning processes were performed, but that the horse, who tapped out its answers with its right fore-leg, judged, by minimal muscular movements unconsciously performed by the questioner, when it had to stop. The questioner in asking the question was found to bend slightly forward, and then unconsciously straighten himself when the correct number of taps had been given. A slouch hat improved the "scores" by magnifying the amplitude of the movements, and when the questioner himself did not know the answer the horse was quite unable to give it. For further details of this most entrancing story, the reader is referred to the book itself.

WILLIAM BROWN.

OUR BOOK SHELF.

Vine-growing in England. By H. M. Tod. Pp. x+113. (London: Chatto and Windus, 1911.) Price 1s. net.

THE vision of the British householder sitting under his own vine seems capable of being realised from the perusal of Mr. Tod's interesting little treatise on vine-growing in England. The author examines the historical evidence connected with the vine in England and points out conclusively that its culture was once widespread not only in the country but also in and around London. Its decline no doubt was largely brought about by the dissolution of the monasteries, and it is also suggested that the enclosure of the land rendered many situations unsuitable for vineyards. The practical details for successful viticulture given in this book are admirable, and the author speaks with authority gained from a wide experience of vine growing in England, Europe, and South Africa.

Anyone anxious to start vines either in the open or against walls will find in the book before us almost every detail set out and every question answered. The site for the vineyard and the nature of the soil are