

of the long-period variables of large light-range, since visual estimates of light-difference are sufficient in these, while the Cepheids and eclipse-variables call for more refined methods and more highly trained observers. The use of charts for identifying the variable and comparison stars is explained, also the "fraction" and "step" methods of estimating light-intervals, the drawing of the light-curve, and the deduction of the epochs of maximum and minimum. The amateur who contemplates extensive work in this field is wisely recommended to join the variable star section of the British Astronomical Association; its director makes a selection of the stars needing observation, and divides the work among its members.

The physical explanation of variation lies outside the scope of the little book, but something is said about the resemblance between light-curves and the curve of sun-spot activity.

It may be noted that the author, though he writes in French, has been resident in England for many years, and is a lecturer at the Woolwich Polytechnic.

*Military Psychiatry in Peace and War.* By Dr. C. Stanford Read. Pp. vii+168. (London: H. K. Lewis and Co., Ltd., 1920.) Price 10s. 6d. net.

THIS very interesting and valuable work deals with the mental disorders encountered in the Army in peace and war. The author was, until the time of the armistice, in charge of D block at Netley, a clearing hospital through which passed practically all the mental cases arising in the various theatres of war. He has made every use of his very exceptional opportunities, not only carrying out careful observations and records of the 3000 cases which passed through his hands, but also following up the later history of these cases after their transfer from Netley to other hospitals.

Detailed descriptions of the various forms of mental disorder are given, together with statistical facts and charts illustrating their frequency and incidence; and the military organisation developed during the war to deal with the sufferers from mental disease is interestingly described. The author belongs to the school which believes that mental disorders are essentially biogenetic, and that they are the result of a failure on the part of the organism to adapt itself to the environment in which it has to live. In this failure of adaptation an essential part is played by psychological factors, and throughout the book emphasis is laid upon their importance. A preliminary chapter on the psychology of the soldier deals with the various mental forces the action and interaction of which may lead to the outbreak of disorder.

The book is essentially a medical work, and can scarcely be recommended to those without technical knowledge of the subject, but it should prove of the utmost value to the psychiatrist, and constitutes a noteworthy addition to the medical library of the war.

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*Wasp Studies Afield.* By P. Rau and Nellie Rau. Pp. xv+372. (Princeton: University Press; London: Oxford University Press, 1918.) Price 8s. 6d. net.

To those surveying the boundary between instinct and reason there is no more fruitful field than the fossorial wasps, with which this book is chiefly concerned. The greater part of Mr. and Mrs. Rau's illuminating volume is descriptive of the actions of individuals; but the last chapter is an impartial judicial summary, from which we extract the following items:—(1) There are very definite and ironclad instincts. (2) Despite these instincts, which are constant in each species, there is much variation in the behaviour of the individuals. (3) There is a display of the expression of emotions. (4) There is much aptitude for learning, display of memory, profiting by experience, and what seems to us rational conduct. No reader of these pages can deny that these conclusions are abundantly justified by the facts narrated.

The most complete portion of the present work is the careful series of experiments on the "homing" of the social wasp *Polistes pallipes*. These prove beyond question that "homing" is no special faculty, but depends entirely upon experience and associative memory of surrounding objects.

A few misprints, e.g. "most" for "moist," p. 347, "fililng" for "filling," p. 363, and the omission of a whole line after l. 8, p. 365, require attention if further editions of this otherwise admirable work are contemplated. O. H. L.

*Internal-Combustion Engines: Their Principles and Application to Automobile, Aircraft, and Marine Purposes.* By Lieut.-Commr. Wallace L. Lind, U.S.N. Pp. v+225. (Boston and London: Ginn and Co., 1920.) Price 10s. net.

COMMANDER LIND addresses his preface from the United States Naval Academy at Annapolis, and the book doubtless represents the instruction there given on the subject of the internal-combustion engine. For such a purpose the book is very well suited: the theoretical work is sufficiently elementary, and the sections describing practice, although apparently slight, are just such as young cadets can grasp and appreciate, whilst realising how much there is behind to be worked at if they should think of preparing themselves for specialist courses. Such books are *sui generis*—they make little appeal to trained engineers and are too vague for university courses, but for their own special purposes they are excellent. They enable an officer to have enough general knowledge to give adequate directions to the ratings under him.

The sections devoted to motor fuels and carburettors are much fuller than the rest of the book, and are evidently written by one who has given special attention to these topics. The point of view is American, and the illustrations mainly relate to trans-Atlantic models, though reference is made to some of the more important European types—quaintly mentioned in one place as those of the "belligerent nations of Europe."