

was a strong absorption line or band which was estimated to be in the position of sodium D. There was possibly a bright fringe on the red side of this absorption line. Between D and C there were two fairly conspicuous bright lines, which were estimated to be in the neighbourhood of λ 615 and λ 630. The star was brighter than Altair, and was of a reddish-yellow colour.

A. FOWLER.

INSECT BEHAVIOUR.¹

IT was on a *Harmas* (an untilled, pebbly bit of land) in Provence that Fabre, after heroic struggles, opened his "laboratory of living entomology," where, undisturbed, he might "pry into life." "Never, in my insect-hunting memories have I seen so large a population at a single

back of the butterfly's neck; the beautifully finished cupolas made by *Eumenes* wasps out of minute pebbles and mortar, and stored with half-paralysed caterpillars, the food for the grub which hatches out of the egg cleverly suspended from the roof; the way the glow-worm deals with snails, first chloroforming them and then drinking them, for the flesh has to be liquefied into a broth before it can be used. Fabre's words suggest that the liquid passes up the hollow mandibles to the mouth, but there seems some doubt on this point, as may be seen by comparing the recent observations of Miss Kathleen Haddon with those of Prof. Bugnion.

Apart from the sheer delight afforded by Fabre's intimate descriptions, the chief value of the essays before us lies in their evidence of the limitations of instinct, which gives a basis for the conviction,

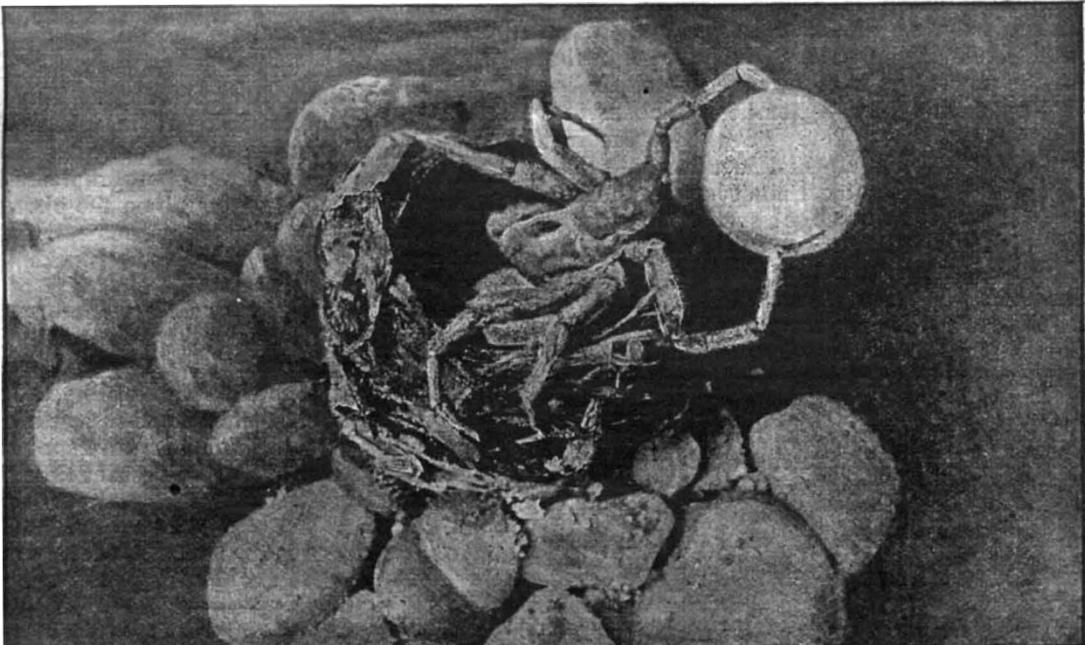


FIG. 1.—The *Lycosa* lying head downwards on the edge of her pit, holding in her hind legs her white bag of eggs, and lifting them toward the sun, to assist the hatching. From "The Wonders of Instinct."

spot; all the occupations have made it their rallying-point. Here come hunters of every kind of game, builders in clay, weavers of cotton goods, collectors of pieces cut from a leaf or the petals of a flower, architects in pasteboard, plasterers mixing mortar, carpenters boring wood, miners digging underground galleries, artificers handling goldbeaters' skin, and many more." What a place for studying those inborn capacities for effective behaviour which we label instinctive! What disclosures this inimitable observer gives us—the sounds of the midsummer night from the tinkling of toads to the death-wail of the surprised cicada, the green grasshopper's strange banquet off her fertilising capsule, the quick and fatal bite which the "devilkin" or *Empusa* gives on the

from which the author never departed, that instinctive behaviour is not in the same category as intelligent behaviour. On one hand we see extraordinarily perfect instinctive behaviour like that of the Capricorn grub boring in the depths of the oak-tree for three years on end, yet coming at the appropriate time to the surface and preparing down to minute details an exit for the future beetle. It behaves as if it had perfect prescience. On the other hand, the burying beetles, though persisting in trying all their bag of tricks when their undertaking is difficult, will allow themselves to be baffled by a hitch which the least spice of intelligence would remove, and will submit to incarceration in a prison which to expert tunnellers like *Necrophori* has practically an open door. Similarly, Fabre's procession caterpillars persisted for a week in a futile circumambulation of the margin of a vase in the garden. Instinctive

¹ "The Wonders of Instinct. Chapters in the Psychology of Insects." By J. H. Fabre. Translated by A. T. de Mattos and Bernard Miall. Pp. 320. (London: T. Fisher Unwin, Ltd., 1918.) Price 10s. 6d. net.

behaviour depends on inborn, ready-made capacity; it is not reflective. But why did Fabre think that "transformism" was compelled to rank instinct in a line with reason?

Fabre was a very great naturalist, but not, of course, invariably wise. Thus, once in a way it may have been useful to deplore the fact, or supposed fact, that "natural history, youth's glorious study, has, by dint of cellular improvements [*sic*], become a hateful and repulsive thing," but it was unwise to reiterate contempt for the labours of the analytic zoologist who follows the nerve-fibres of a Cirripede, or counts the joints of a Crustacean's antenna, or puzzles over the architecture of an Annelid's egg. Fabre had no sympathy with this sort of study, and he did not understand it. The same must be said in regard to the great naturalist's attitude to "transformism" or evolution-theory.

The translation continues to be clear and spirited, but the right word has not always been found. More care should have been taken with the little notes; thus the word "species" is misused with tiresome reiteration; not every Annelid is a red-blooded worm; it is unhappy to say that "zoophytes are plant-like sea-animals, including star-fishes, jelly-fishes, sea-anemones, and sponges"; and surely the cicada is not "akin to the grasshopper." But these and their like do not affect the general success of the translators' work. We do not think that the British public could find reading much more wholesome than these essays by one of the greatest of observers, but we are in its name obliged to express to the publishers our surprise that this fascinating volume should contain several essays which we have read in book form before. We read "The Harms" and "The Bluebottle" in "The Life of the Fly"; we read "The Processionary Caterpillar" and "The Cabbage Caterpillar" in "The Life of the Caterpillar." But can we have too much of a good thing?

PROF. P. BLASERNA.

OF the life and work of Prof. Pietro Blaserna, who died at Rome on February 26, an interesting account is now contributed by Prof. Cantone to the *Atti dei Lincei*, xxvii., (1) 7. Prof. Blaserna was born on February 29, 1836, at Aquileja, near Gorizia, and attended school at the latter place, afterwards proceeding to Vienna, where, after he had completed his degree course, he assisted in the physical department. Being thus a native of the scene of recent conflicts between Italy and Austria, he was entirely Italian in his sympathies, and, after studying in Paris under Regnault, he obtained a chair of physics, first at Palermo, and then at Rome. Here he devoted his main efforts to teaching and organisation, and succeeded in building up a school of physicists of which Italy has every reason to be proud. Instead of giving most of his time to researches, which might have necessitated his maintaining an attitude of exclusiveness towards elementary students, Prof. Blaserna endeavoured to make his classes popular, and thus to

disseminate a scientific spirit in Italy. At Rome the laboratory of practical physics was originally in a church building, but was removed in 1881 to the Istituto di Panisperma. A weekly colloquium was instituted at an early stage, and the names of Alfonso Sella, Eugenio Beltrami, and Vito Volterra are among those who derived inspiration from him.

To physicists outside Italy Prof. Blaserna's name will be familiar in connection with the Accademia dei Lincei, of which he was president for twelve years, up to December, 1916. Although his duties left scanty time for research, Prof. Blaserna made important contributions to science connected with electromagnetic induction, determination of refractive indices, tangent galvanometers, and the polarisation of the light of the corona in the eclipse of 1870. Of practical problems, that of the design of the best form of amphitheatre was solved by him and applied to the construction of his classroom; this problem also led to a study of certain properties of Z and Gamma functions. Much work of national importance was also entrusted to Prof. Blaserna, who figured prominently in many proceedings of the Second Chamber. He was keenly interested in music, which he studied from the acoustical point of view, and he was instrumental in standardising the concert pitch for Italy, besides writing a popular treatise on sound and music.

G. H. B.

NOTES.

IN a long list of promotions in, and appointments to, the Order of the British Empire, made on the occasion of the King's birthday, we notice the following names of men who have been honoured for scientific services in connection with the war:—*Knights Commanders (K.B.E.)*: Col. H. E. F. Goold-Adams, late Controller, Munitions Inventions Department; Mr. Horace Darwin, F.R.S., chairman, Cambridge Scientific Instrument Co., Ltd., member of Munitions Inventions Department Panel; Lt.-Col. A. G. Hadcock, F.R.S., managing director, Sir W. G. Armstrong, Whitworth and Co., Ltd.; Dr. A. C. Houston, director of Water Examinations, Metropolitan Water Board; Mr. H. D. McGowan, managing director of Nobel's Explosive Co., Ltd.; Prof. T. H. Middleton, Deputy Director-General, Food Production Department, Board of Agriculture; Col. Sir Frederic L. Nathan, chairman, Standing Committee on the Causes of Explosions at Government and Controlled Factories, Ministry of Munitions, chairman Advisory Committee on Alcohol Supplies for War Purposes; Mr. A. Nimmo, president, Mining Association of Great Britain, chairman Board of Trade Committee on the Coal Trade after the War, member Central Coal and Coke Supplies Committee; Admiral Sir Richard H. Peirse, Naval Member of the Central Committee of the Board of Invention and Research, Mr. P. L. D. Perry, Director of Mechanical Warfare, Ministry of Munitions; Mr. J. W. Restler, chairman, Metropolitan Munitions Committee, chief engineer Metropolitan Water Board. *Commanders (C.B.E.)*. Prof. E. C. C. Baly, F.R.S., professor of chemistry, Liverpool University, Deputy Inspector of High Explosives, Liverpool Area; Dr. J. Barcroft, F.R.S., Superintendent of Physiological Investigations, Chemical Warfare Department, Ministry of Munitions; Mr. Conrad Beck, president, British Optical