SOME PAPERS ON INVERTEBRATES.

COMMENCING with entomology, mention may be made of a paper on new and little-known North American Tipulidæ, by Mr. C. W. Johnson, published in vol. xxxiv., pp. 115–33, of the Proceedings of the Boston Natural History Society. In addition to the description of a number of new species, the paper contains the diagnosis of the new genus Aeshnasoma, proposed for a large tipulid with antennæ of the type of those of Longurio, but with a wing-venation differing from both that genus and Tipula.

To the March number of *Spolia Zeylanica* Mr. T. B. Fletcher communicates the first part of a monograph of the plume-moths of Ceylon, dealing in this instance with the members of the family Pterophoridæ. There are, it will be remembered, two families of plume-moths, the one already mentioned and the Orneodidæ, or 24-plumed group. Both are regarded by the author as very ancient types, but there appears to be little or no near relationship between the two groups, so that their mutual resemblance may probably be attributed to convergence. Although nothing definite is known in regard to the advantage gained by the splitting of the wings in these moths, the author suggests that when pace is not essential, a light framework of wing supplemented by cilia will be superior to the ordinary lepidopterous wing, in that it gives an equal measure of support with less expenditure of muscular force. In the same issue Mr. P. Cameron describes certain new Ichneumonidæ and Braconidæ reared by Mr. Fletcher from Ceylonese plume-moths.

Part v. of the second volume of Records of the Indian Museum is devoted to the revision, by Mr. E. Brunetti, of two groups of Oriental insects, namely, the flies of the families Leptidæ and Bombyliidæ; the latter paper containing a list of the known Oriental species, of which some are described for the first time.

To the Proceedings of the South London Entomological and Natural History Society for 1908–9 Mr. H. S. Fremlin contributes a paper on the results of experiments to show the effect of physical and chemical agencies on butterfly pupæ. The species forming the subject of the experiments were *Vanessa urticae* and *Abraxas grossulariata*, the total number of specimens treated being just over two thousand. Water and high temperature were the agents for the influence of physical conditions, while the chemical agencies employed were nitric and hydrochloric acids, chloride of lime, sulphur, hydrogen sulphide, and carbon disulphide. In the case of *V. urticae*, the death-rate was excessive when the pupæ were exposed to continuous high temperature, hydrogen sulphide, and carbon disulphide. The pupæ of *A. grossulariata* were in great measure destroyed in the water-laden atmosphere, and in the continuous high temperature failed to develop; hydrogen sulphide, on the other hand, was less harmful than in the case of the other species, although it crippled such adults as developed. Chlorine had a marked effect on the red colour of *urticae*, but showed little result in the case of *grossulariata*.

To the June number of the *Entomologists' Monthly Magazine* Mr. R. S. Bagnall contributes an account of four species of Thysanoptera new to the British fauna, among which *Megathrips nobilis* is also new to science. That species, the largest European representative of the group, was first obtained by Dr. D. Sharp in Wicken Fen during 1896.

Leaving insects for arachnids, we find in the April issue of the Proceedings of the Philadelphia Academy Mr. N. Banks cataloguing a collection of spiders from Costa Rica, with descriptions of new species. The new forms are about seventy in number, in addition to which there are about a score of species not mentioned in "Biologia Centrali-Americana." Of the web-making species, a considerable number are common to the United States, but of the other groups few kinds range so far north.

To vol. xxxviii., part iv., of the *Travaux Soc. Imp. Nat. St. Pétersbourg*, Mr. E. K. Suworow contributes an elaborate account of the anatomy of *Ixodes reduvius*, a tick exhibiting sexual dimorphism in a strongly marked degree. The much smaller males are, for instance, distinguished from the females by a peculiar system of divisions in the external envelope of the body, while there are also histological differences in the hypodermis of the males as compared with that of the females, as well as distinctive features in the mouth-organs.

Three papers published by the U.S. National Museum—two in the Proceedings and one in the Bulletins—are devoted to crinoids. In the first of these (Proceedings, vol. xxxvi., pp. 391–410) Mr. A. H. Clark describes a second collection of these organisms obtained by the S.S. *Albatross*, of which fifteen species, together with four left over from the first collection, are regarded as new, and duly named, one of these forming the type of a new genus. *Eudoxocrinus alternicirrus*, hitherto known only by *Challenger* specimens, has been re-discovered, and its habitat definitely determined, but several other *Challenger* forms have not been met with.

In the second of these papers (Bulletin No. 64) Miss Elvira Wood, of Columbia University, gives a critical summary of Dr. Gerard Troost's unpublished monograph of the fossil crinoids of Tennessee. Dr. Troost, who was born in Holland in 1776, settled in Philadelphia in 1810, where he became one of the founders, and the first president, of the Academy of Sciences. In 1827 he removed to Tennessee, where he became professor of geology and mineralogy in Nashville University, holding that chair until his death in 1850. Only about a month before his death the manuscript of the monograph of Tennessee crinoids was sent to the Smithsonian Institution for publication. After passing through various hands for five years, this manuscript came into the possession of Prof. Hall, in whose custody it remained for upwards of forty years. The long period which has elapsed since it was written rendered re-writing practically imperative, but certain portions have been printed direct from the original MS. Many of the original illustrations have been replaced by photographs or new drawings.

In the third paper of this series (Proceedings, vol. xxxvi., pp. 179–90) Mr. Springer describes, under the name of *Isocrinus knighti*, a new crinoid from the Jurassic of Wyoming.

The molluscs collected on the north side of the Bay of Biscay by the *Huxley* in the summer of 1906 form the subject of an article by Mr. A. Reynell in vol. viii., No. 4, of the Journal of the Marine Biological Association. Out of the seventy-five species collected, sixty-two have been recorded from the British area.

In No. 1678 of the Proceedings of the U.S. National Museum (pp. 431–4) Miss H. Richardson describes and figures a specimen of the curious spiny woodlouse (*Acanthoniscus spiniger*) of Jamaica. Although this isopod is stated to be common in its native island, the type-specimen in the British Museum and the one described by Miss Richardson are believed to be the only examples in collections.

THE RESEARCH DEFENCE SOCIETY.

THE speeches at the annual general meeting on June 25 of the Research Defence Society illustrated the wide and manifold interests of its work. It is, indeed, a national society for telling the truth about a matter of national importance. It defends the good name, the honour, of science against reckless and unscrupulous opponents, and we are not surprised at the welcome that it received. The list of its 2500 members includes a very powerful and thoroughly representative collection of great names. The society has already formed a dozen branch societies, has given many lectures, and has distributed much wholesome and honest literature; it has also published a volume of essays, written with authority, and pleasantly free from all controversy. Thus it has begun well; and the report of its committee is justly satisfied with the work of the past year. We note here two of the points made by speakers at the annual meeting.

Sir James Dewar emphasised this fact, that Germany is far ahead of us in the equipment of great laboratories for research in the "borderland between physiology and chemistry." Money is spent lavishly over the investigation of organic chemical bodies, the discovery and the preparation of new organic drugs. The services of a hundred expert and highly qualified men of science are at the command of a single firm. They receive large salaries,

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