Four Years in the Arctic Regions,' by Otto Sverdrup; translated into English, 2 vols., London, 1904). R. DEC. WARD.

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NOTES ON ENTOMOLOGY.

As if we did not have enough names for the orders of insects, Mr. A. E. Shipley generously gives us seven more.* These are presented for the sake of having the names of all the orders terminate in '-ptera.' The new names are Apontoptera for Collembola, Lipoptera for Mallophaga, Ellipoptera for Anoplura, Psocoptera for Psocidæ, Embioptera for Embiidæ, Ephemeroptera for Ephemeridæ, and Paraneuroptera for Odonata. He appears to have overlooked the fact that the mayflies already had two '-ptera' names in Plectoptera and Anisoptera (Steph.). His new term, Ephemeroptera, has already been used in the same sense some fourteen years ago. If the terms Aptera and Neuroptera, which in the past covered all sorts of creatures, can now be applied to one order, why can not Archiptera or Pseudoneuroptera be restricted to the Odonata, and Synaptera to the Collembola; these latter names have had a much more exclusive membership. Nothing is done by Mr. Shipley with the Hemiptera, although it is nearly as heterogeneous as the Neuroptera of Linné. However, there are '-ptera' names (from 1835) for the four principal groups.

Now if the '-oura,' '-gnatha' and '-poda' partizans extend their nomenclature to the various orders, the requirements of science may be met.

A recent book by Georges Guénaux is a useful compendium of European economic entomology.† It forms a volume, in G. Wery's 'Encyclopédie Agricole.' About 100 pages are devoted to worms, the remainder to entomology. One chapter is devoted to structure and classification, then follow chapters on insects injurious to all crops, to cereals, to beets and clovers, to garden crops, to fruit trees, to the vine, to forest trees, to horticulture, in houses, to domestic animals and man, beneficial insects, destruction of injurious species, and myriapods and arachnids. The economic treatment is given with each injurious species. A great many of their remedial measures have been but little tried in this country.

Professor C. B. Davenport has given us an instructive account of the habits of certain Poduridæ affecting the sea-beach.* Three species inhabit the beach between high- and low-water marks. At high tide they are in the sand to a depth of six or more inches; as the tide falls they come to the surface and sport about on the pebbles. He interprets their almost continual jumping movements as useful to increase respiration, and shows that they leap into the wind, and not before it. When the tide rises they bury themselves in the sand, and Professor Davenport thinks that they feed, while thus submerged, upon particles of organic matter in the sand.

The peculiar wavy motion of centipedes has long excited even poetic minds to the wonder of how they managed to utilize all their legs in such a harmonious way. E. Ray Lankester has investigated the matter and arrives at several interesting results.† The legs move in groups or waves. Each wave includes a certain definite number of legs, apparently constant for each species. In the forms studied each wave contained from eight (in *Peripatus*) to sixteen members (in the millipede). The number of waves in a species depends upon the number of legs and the number of legs in the wave. He shows that in millipedes the waves of each side are opposite or synchronous, that is each leg of a pair moves just as its fellow. While in the centipedes each leg of a pair is in an opposite position from its fellow, so that the waves are symmetrically alternate. In the millipedes the body does not aid in locomotion, but in the centipedes the motion is partially due to the undulations or wriggling of the body. This fact indicates the more complex nature of the centipede.

* 'The orders of insects,' *Zool. Anz.*, XXVII., 259–262.

† 'Entomologie et Parasitologie Agricole,' Paris, 1904, pp. 580, figs. 390.

* 'The collembola of Cold Spring Beach, with Special Reference to the Movements of the Poduridæ,' Cold Spring Harbor Monographs, II., pp. 30, 1 pl., 1903.

† 'On the Movements of the Parapodia of *Peripatus*, Millipedes and Centipedes,' *Quart. Journ. Micr. Science*, March, 1904, pp. 577–582, 1 plate.

Professor Aug. Lameere, the eminent Belgian coleopterist, who has for some time been engaged in the praiseworthy work of revising the Prionides of the world, has issued a considerable portion of his monograph.* Abandoning older customs he has examined all available material in the European museums, and is thus able to furnish much synonymic matter. Each species is fully described, sometimes with ethological notes, and there are tables to the species of each genus. After each genus he has a chapter on the relationships and geographic distribution of the species.

Mr. J. E. Guthrie has prepared an account of the Collembola of Minnesota.† Fifty-eight species are listed. There are synoptic tables to the genera and species. Under each species is placed the original description, together with notes by the author; full synonymy is given, and there is a bibliography of works consulted. The plates illustrate the essential details of structure. It will be a very useful book, especially for one beginning the study of this neglected order of tiny insects.

The fourth volume of Tutt's exhaustive work‡ on the British Lepidoptera finishes the Sphingidæ. The thoroughness with which the multitude of details has been arranged in this work will never cease to excite wonder. Two species occupy together over 130 pages. With this volume there is published a synopsis of the contents and general index to Volumes I. to IV. In the preface Mr. Tutt gives an excellent criticism of the rules of nomenclature used by Rothschild and Jordan in their recent revision of the Sphingidæ. It may be noted that he uses *Sesia* in place of *Macroglossum*.

The *Annales du Musée du Congo*, which for some time has been published by the Belgian authorities, has commenced to treat of the insect fauna of the Congo region. Two portions have been issued; one on the group Prionides of the longicorn beetles, is by Professor A. Lameere; the other on the family Scutelleridæ of the Heteroptera is by Dr. H. Schouteden. The work appears in fascicles of folio size, and, if continued, will soon be a rival of the *Biologia Centrali Americana*. The plates appear to be fully equal to the best in that work.

E. Lynch Arribalzaga has described a new species of bird-grasshopper,* *Schistocerca peruviana*, which does considerable damage to cultivated crops in parts of Peru. It is closely related to several of the other destructive species, such as *S. peregrina* and *S. paranensis*, and more intimately to the American bird-grasshopper of our eastern states, *S. americana*. Nothing has been done in the way of remedial treatment.

In the same journal,† J. Brethes has given a revision of the South American Vespidæ, and of the Eumenidæ of the La Plata basin. Synoptic tables are given, and there are descriptions of many new species. E. L. Homberg in the same journal (pp. 377–512) describes a great number of new bees and fossorial hymenoptera, principally from Argentine.

Nathan Banks.

* 'Revision des Prionides, Macrotomines,' *Mém. Soc. Ent. Belg.*, XI., pp. 216, 1904.

† 'The Collembola of Minnesota,' Geol. and Nat. Hist. Surv. of Minn., Zool. Series, IV., Minneapolis, 1903, pp. 103, 16 plates.

‡ 'A Natural History of the British Lepidoptera,' Vol. IV., London, April, 1904, pp. 535, 3 pls., by J. W. Tutt.

* 'La Langosta Voladora del Peru,' *Anales Mus. Nac. Buenos Aires* (3), Vol. II., pp. 1–5, 1904.

† *Ibid.*, pp. 15–39 and 231–320.

THE INTERNATIONAL ELECTRICAL CONGRESS.

We are informed that under the auspices of the Louisiana Purchase Exposition, an International Electrical Congress will be held in St. Louis during the week of September 12–17. The congress will be divided into two parts, namely:

(1) A Chamber of Government Delegates appointed by the various governments of the world, invitations to which were issued at the beginning of the year from the United States government. The transactions of the Chamber of Delegates will relate to matters affecting international questions of electrical units, standards, and the like.