Zoological Results based on Material from New Britain, New Guinea, Loyalty Islands and elsewhere, collected during the years 1895, 1896 and 1897, by Arthur Willey. Cambridge, Eng., the University Press. 4to. Part V. December, 1900. Pp. 531–690; pls. LIV.–LXXIV.

The fifth installment of Dr. Willey's 'Zoological Results' contains six papers, one of which deals with cœlenterates, two with worms, two with crustaceans, and one with vertebrates. The first of these is by E. M. Pratt who describes the soft parts of the rare coral *Neohelia porcellana*. This species, which was previously known only from material obtained by the *Challenger*, belongs to the Oculinidæ, and as all its nearest relatives are fossils the importance of supplementing the earlier description of Moseley by a full account of its anatomy as given in the present paper is obvious.

The parasitic worms gathered by Dr. Willey were studied by A. E. Shipley who found that the collection contained seventeen species, nine of which were new. Two were trematodes and of these sufficient material was obtained of *Monostomum trigonocephalum* to enable Shipley to give a very full description of the anatomy of this form. Of the seven species of tapeworms six were new; two of minute size were taken from the intestine of a ray, one each from the digestive tract of a lizard, a snake, a fruit-eating pigeon and an albatross. Of the six species of round worms only one was new. Two specimens, however, were particularly interesting because of new light thrown on their geographical distribution. *Physaloptera obtusissima* had previously been recorded only from South American snakes, but apparently it also infests the native snakes of New Britain, and *P. retusa*, previously found only in Brazilian lizards, is now for the first time recorded from New Britain. A new species of *Gordius* and a new representative of the family Linguatulidæ are described.

The nemertines are reported upon by R. C. Punnett. Six of the twelve species collected were new. Five belong to the genus *Eupolia* whose headquarters seems to be the Malay archipelago. A new species, *Carinesta orientalis*, on the other hand, is the first Protonemertine to be recorded from regions outside the Atlantic and Mediterranean.

The extensive collection of lower crustaceans contains, according to T. R. R. Stebbing, forty-six species, of which twenty-three are new. Eight of these represent new genera. Of special interest is *Panaietis incamerata*, a semi-parasitic copepod occurring in the pallial chamber of gastropods, and *Anchicaligus nautili*, a parasitic copepod infesting the mantle chamber of *Nautilus pompilius* and certain slimy portions of the shell of *N. macromphalus*.

The young of the robber crab, *Birgus latro*, have been made the subject of a short but interesting report by L. A. Borradaile. The adult robber crabs are land animals living some distance from the coast and, according to report, have been supposed to bring forth young resembling the parent. Thus it has been surmised that their development was without the larval metamorphosis usually characteristic of other crustaceans. Direct evidence of this has been wanting, for accurate observers have not heretofore happened on the crabs in the breeding season. Dr. Willey, however, reports the capture close to the sea of females with large masses of brown eggs attached to their abdominal appendages. An examination of this material showed that the young hatched as in allied species, in the zoœa stage. When hatching begins the females presumably shake the young off in the water. The further development of *Birgus* is without doubt accompanied by a metamorphosis as in other hermit crabs.

G. A. Boulenger describes a new blind snake, *Typhlops willeyi*, from the island of Lifu. This is of interest since it is only the second species of land snake recorded from this island.

G. H. Parker.

Ergebnisse der neueren Sporozoenforschung. M. Lühe. Jena, Gustav Fischer. Price, 2 M. 80.

Lühe's summary of the results of more recent investigations on Sporozoa is practically a revised reprint of his articles which recently appeared in the *Centralblatt für Bakteriologie, Parasitenkunde und Infektionskrankheiten*, Volumes XXVII. and XXVIII., and represents a summary of the zoological data contained in nu-

merous zoological and medical articles published in different languages and in different parts of the world.

First he gives a discussion of the general life cycle of the coccidia. This is followed by a classification of the coccidia. Chapter II. discusses the life cycle of the malaria plasmodium, while Chapter III. is given up to a general discussion of the more recent results in the other groups of Sporozoa. Taken as a whole, the material is well digested, and makes an excellent summary for any one who wishes to inform himself quickly regarding the most recent results in investigations concerning Sporozoa.

The work contains 35 illustrations, which add to a proper understanding of the text. One of the great difficulties in following the articles of the present day on the Sporozoa is the fact that so many different authors have considered it necessary or advisable to introduce so many new terms designating the different stages of development. If, for instance, we compare Ross's articles of 1898 with those of 1899 or 1900, we find different terms used for the same stage. Ray Lankester in 1900 uses still other terms; Harvey Gibson an entirely different terminology; while Grassi has repeatedly changed his technical terms. One almost needs a separate dictionary to-day to understand the literature on the Sporozoa. Lühe has in the main followed the terminology adopted by Schaudinn, 1899, and he gives a table by which it is possible to follow the terminology adopted by most of the other authors.

So far as the coccidia are concerned, Lühe's discussion compares quite favorably with the recent summary given by Rafael Blanchard in the *Société zoologique de France*, but it certainly is not superior to Blanchard's work in either style or presentation; in fact, it would be very difficult to improve on Blanchard's article. Lühe's discussion of the malaria parasite compares very favorably with the discussion recently published by Blanchard, Laveran and others in the French Academy of Medicine, but in addition to the abstract discussion of the life cycle of the parasite, he gives a general historical introduction to the subject, with a review of recent literature, and makes an effort to establish the priority of certain discoveries. We are somewhat surprised to miss in this introduction all reference to the valuable contribution by Dr. King, of Washington, who was apparently the first author to give a scientific summary of the reasons in favor of the view of the transmission of malaria by mosquitoes.

Chapter III. assumes on the part of the reader a certain amount of knowledge of the groups discussed.

One point in connection with the work we can hardly leave unmentioned, and that is the antiquated method of citing literature. Each group has its own bibliography arranged alphabetically by authors. This results not only in unnecessary repetition, but also in confusion; for instance, Max Braun's treatise on animal parasites of man is No. 2 in the first bibliography, No. 12 in the second bibliography, and No. 2 in the third. The work would be greatly improved if the Harvard system of bibliography had been adopted.

C. W. STILES.

SCIENTIFIC JOURNALS AND ARTICLES.

THE May number of the *Bulletin of the American Mathematical Society* contains the following articles: 'Non-Oscillatory Linear Differential Equations of the Second Order,' by M. Bôcher; 'Concerning Real and Complex Continuous Groups,' by L. E. Dickson; 'On Holomorphisms and Primitive Roots,' by G. A. Miller; Reviews of Graf and Gubler's Bessel Functions II., by V. Snyder, and of Ricci's Theory of Surfaces, by H. S. White; 'Notes'; 'New Publications.' The June number contains reports of the April meeting of the Society, by E. Kasner, and of the April meeting of the Chicago Section, by T. F. Holgate; 'The Value of a Certain Integral,' by F. Morley; 'On the Algebraic Potential Curves,' by E. Kasner; Review of Steinmetz's Alternating Current Phenomena,' by J. B. Whitehead, Jr.; and of de Tannenberg's Applications of the Calculus to Geometry, by L. P. Eisenhart; 'Notes'; 'New Publications.' The July number, concluding Volume 7 of the *Bulletin*, contains: 'Surfaces whose First and Second Fundamental Forms are the Second and First Respectively