

describe briefly the attempt to reach their observing station at Kiev (Russia); they only got so far as Riga, and had to return. According to the *Morning Post* (September 7) the Russian astronomers were disappointed at the fact that Major Hills and Prof. Fowler when at Riga did not communicate with Prof. Backlund, because a Russian eclipse expedition went to Riga prepared to assist them in every way. As it happened, the weather at Riga was much finer than at most of the eclipse stations. The *Morning Post* gives further information about the German astronomers, who were invited to Russia to observe the eclipse. It seems that the German parties were warned in time to return, and some did so. Those who hesitated were arrested and sent to Odessa. It is then stated, "The American party packed up the German instruments and sent them also to Odessa, but nothing has been heard of them since, and the German astronomers have been vainly appealing to Prof. Backlund, who is naturally helpless and cannot interfere personally."

VERTICAL CIRCLE OBSERVATIONS AT THE U.S. NAVAL OBSERVATORY.—Vol. viii. (second series) of the publication of the United States Naval Observatory contains the vertical circle observations made with the 5-in altazimuth instrument for the period 1898 to 1907. The observations were made by Messrs. F. B. Littell, G. A. Hill, and H. B. Evans, and were reduced by the first-named. The volume is subdivided into introduction, observations and reductions, individual results of observations and catalogue. The introduction contains an account of the instrument, which was built by Messrs. Warner and Swasey, under the supervision of Prof. William Harkness; it was completed and housed at the end of 1897, and first used in February, 1898. The aperture of the telescope is 5.02 in., and the focal length is 50 in. Two sections and a photograph of the instrument *in situ* illustrate the general arrangements. Pp. 1-389 show the observations and reductions; pp. 393-445 are devoted to the individual results of the observations; and pp. 447-65 give the catalogue. In the last-mentioned the magnitudes are those of the Revised Harvard Catalogue. The declinations are derived from the means of the individual results by the application of the corrections for flexure and latitude; they are for the epoch given in the column headed "Mean Date," and for the mean equator 1900.0. The precessions and secular variations are based on Newcomb's constants.

PARALLAXES OF THE BRIGHTER GALACTIC HELIUM STARS.—No. 82 of the Contributions from the Mount Wilson Solar Observatory, reprinted from the *Astrophysical Journal*, vol. xl., 1914, July, contains an extensive and important research by Prof. J. C. Kapteyn, entitled "On the individual parallaxes of the brighter galactic helium stars in the southern hemisphere together with considerations of the parallax of stars in general." The communication covers eighty-six pages, and is divided into twenty sections, the first being composed of an introduction and a summary. The stars chosen are the helium stars brighter than the 6th magnitude for the part of the sky lying between galactic latitudes  $\pm 30^\circ$ , and galactic longitudes  $216^\circ$ - $360^\circ$ . In a subsequent paper or papers, he hopes to deal with the helium stars in the other parts of the sky. For the brighter stars of other spectral classes he has not attempted to derive individual parallaxes, but has discussed the prospects of the successful treatment of such an investigation. The reader must be referred to the paper itself for the details and results of the investigation, but attention may be directed here to the very interesting charts dealing with the distribution of the helium stars as regards galactic positions illustrating

the apparent tendency of these stars to clustering. The most extensive of these clusters is between longitudes  $200^\circ$  and  $340^\circ$ , and this group forms the main subject of the present paper. Another chart gives the arrangement of the helium stars in space. Prof. Kapteyn directs particular attention to three fairly strong condensations with different parallaxes, and he says: "Of course, we may see in the arrangement of these condensations the indication of a spiral structure. I shall not lay much stress on this, unless we find the same thing repeated in other parts of the sky."

#### PAPERS ON INVERTEBRATES.

THE anatomy of the blind prawn of the Sea of Galilee (Lake of Tiberias), described by Dr. Calman in 1909 as the representative of a peculiar genus, under the name of *Typhlocaris galilea*, is discussed by Mr. Ghosh in vol. ix., No. 6, of the *Journal and Proceedings of the Asiatic Society of Bengal*. In another article in the same issue Messrs. Annandale and Kemp point out that, so far as known, the Sea of Galilee is the home of only three species of decapod crustaceans, of which the aforesaid *Typhlocaris* is noticeable on account of its marked structural differences from all other members of the group, as well as for its apparent modification for subterranean existence. As a matter of fact, it is known from a single open and well-lighted pool near the marge of the lake, and the authors suggest that earth-movements may have been the cause of this departure from its apparently proper habitat.

In the April number of the *Records of the Indian Museum*, Mr. Kemp continues his notes on the decapod crustaceans in the Indian Museum, dealing in this instance with the family Hippolytidae, a group notable on account of the great generic variation in bodily form and in secondary sexual characters. Several species and two genera are described as new.

New and other African scorpions, spiders, etc., form the subject of an article by Mr. J. Hewitt in vol. iii., part 1, of *Records of the Albany Museum*. It is noteworthy that a two-lunged spider, *Cydrela friedlanderi*, of the family Zodariidae, resembles the members of a totally different group in closing the entrance to its burrow by means of a trap-door. In the two-lunged trap-door species the females are bright-coloured like their allies, which do not protect themselves in the same manner; in other trap-door spiders, on the contrary, the females lack bright colours.

Two infusorians of the family Cothurnidae found in moss during Dr. Charcot's Antarctic expedition led Mr. E. Penard to undertake a re-investigation of moss-dwelling rhizopods and infusorians, the first result of which is an elaborate article on the Cothurnidae communicated by that naturalist to the *Mém. Soc. Phys. et Hist. Nat. Genève* (vol. xxxviii., fasc. 1). These organisms form an important feature of the invertebrate life of the polar regions, where moss and lichens constitute the chief vegetation; they are, however, by no means restricted to high latitudes, and the author has devoted much attention to the question whether in warmer zones they may not pass part of their time in open water. His answer is that while some are exclusively moss-dwellers, others appear to spend weeks, if not months, periodically in water.

Among the contents of the first *livraison* of vol. xlv. of *Trav. Soc. Imp. Nat., St. Pétersbourg.*, is an article on the anatomy and physiology of the synaptid holothurians, to which a brief abstract in French is appended.

We have been favoured with copies of three papers contributed by Mr. E. W. Adair to the *Bull. Soc. Entom. d'Egypte* for 1912 and 1913, published 1914. In the first (1912) of two relating to the life-histories of the insects of the family Mantidae it is pointed out that the supposed additional metamorphic stage recorded by Pagenstecher in the case of *Mantis religiosa* was due to the newly emancipated imago being enveloped in the amnion of the ovum. In the third paper the author records "jumping seeds" of *Tamarix nilotica*, the movements of which were produced by imprisoned larvæ of a small weevil, *Nanophyes maculatus*. Hitherto similar movements have been known only in the case of the Mexican so-called "jumping beans," of which the moving power are the larvæ of certain tortricid moths, especially *Carposapsa saltitans*.

In an article contributed to vol. iv. (new series), part i., of the Transactions of the Natural History Society of Northumberland, Durham, and Newcastle-upon-Tyne, Mr. R. S. Bagnall states that whereas a few years ago only a single representative of the centipedes of the group Symphyla was known from the British Isles, he had been enabled to raise the number to no fewer than twelve species and one subspecies, five of the former, of which three are described as new, belonging to the genus *Scutigerebella*, and the remaining seven, of which six are new, together with the subspecies (also new) to *Scolopendra*. In a supplemental article published near the end of the same issue he describes a seventh new species of *Scolopendra*, from Cheshire, and raises the aforesaid subspecies to specific rank, thus recording a total of fourteen British species, of which, however, one *Scutigerebella* has hitherto been detected only in hot-houses.

In No. 1 of vol. v. of the Entomological Series of the Memoirs of the Department of Agriculture, Mr. C. C. Ghosh continues his life-histories of Indian insects, dealing in this instance with eleven species of butterflies, inclusive of the common British cabbage-white. The account of the rice-leaf caterpillar, and its butterfly, so injurious to rice-crops all over the Old World and Australia, is from MS. left by Mr. Maxwell-Lefroy, when Government entomologist. The nine coloured plates are admirably executed.

Fuller acquaintance with the insect-fauna of the eastern and north-eastern districts of the Transvaal and southern Rhodesia has enabled Dr. L. Péringuey to add considerably to the list of South African representatives of the hymenopterous family Mutillidae. His first article on the subject was contributed to vol. i. of the *Annals of the S. African Museum* (1898): his latest forms part 15 of vol. x. of the same serial (1914).

Beetles of various families, inclusive of the Tenebrionidae, Cetoniidae, and Buprestidae, collected during the Duke of Mecklenburg's travels, form the subject of articles by various specialists in Lief. 3 of the first volume of the Zoological section of *Ergebnisse der Zweiten-Deutschen Zentral-Afrika-Expedition, 1910-1911*. Many new species are named, and it may be well to note that the name of the Ubangi Valley has been adopted as a generic designation, "Ubangia."

An extensive collection of brittle-stars, or ophiurids, from the Caribbean Sea in the U.S. National Museum has enabled Prof. René Koeler not only to describe a number of new species, but, what is more important, to rectify the definition of previously known species and groups. His monograph, illustrated by eighteen beautifully executed plates in black and white, forms Bulletin No. 84 (173 4to pp.) of the U.S. National Museum.

R. L.

OFFICIAL FISHERY PUBLICATIONS.<sup>1</sup>

IN its annual report for the year 1912, the fisheries branch of the Board of Agriculture and Fisheries made a marked change in the manner of reporting the results of their administration, and we are glad to note that this change is still more apparent in the report for last year. For the first time we are now presented with an account of the progress of the English sea fisheries, which is characterised by close insight into the conditions of the industry, and by a very attentive study of those tendencies that are making for the modification, in many ways, of the fisheries of England and Wales.

Part i. of the report is a document of great interest even to the ordinary reader interested in public affairs. It deals clearly and concisely with the industry in general, emphasising various matters of special importance arising during 1913. The remarkable herring fishery of the last two years; the great development, during this time, of the fishery for herring by means of the trawl net; the utilisation of by-products; the development of the internal combustion engine as a means of propulsion of fishing vessels; the application of wireless telegraphy in the deep-sea fisheries; the economics of the French sardine industry; the rapid development of scientific research by the Board: these and other matters, together with a good review of the year's fisheries and the administrative work of the Board, make up this interesting volume. Part ii. is a document for the specialist. It consists of statistical tables and synoptic charts, and those concerned with fisheries inquiries will welcome the increasing amount of detail exhibited in this representation of the year's fisheries. Still greater detail in relation to the less important fisheries is desirable, but it is apparent that, for this purpose, a much greater development of local administration by the Board may be necessary.

These reports are a contribution, though in a greatly modified and much more valuable form, of the former fisheries reports of the department. The third paper before us begins a new series of publications containing the results of scientific researches carried out by the officers of the Board. It is a statistical account of the English haddock fishery in the North Sea. The species is one which is most abundant in the northern parts of the North Sea, less abundant to the west of Great Britain, and practically absent, or capricious in its distribution and abundance, in the Irish Sea and the English Channel. Commercial statistics are utilised by Mr. Russell to give a picture of the distribution of the fish, and of its seasonal abundance, and the variations of abundance from year to year. These statistical summaries are most valuable; they indicate irresistibly those periodic fluctuations which are plainly to be correlated with periodic physical changes in the sea, or even with periodic cosmic changes. Measurements of length, of samples of fish taken at the great ports, are also summarised by Mr. Russell, and are so treated as to supplement the commercial statistics. In this way more than two and a half millions of fish have been dealt with. Biological observations have also been made, but a discussion of these is reserved for a future report.

Numerous determinations of average weight of the fishes landed are also summarised, with the object of throwing light on the variations in nutrition according to age and season. The author shows that the well-known length-weight formula now used in fishery

<sup>1</sup> Board of Agriculture and Fisheries. Annual Report on the Sea Fisheries for the Year 1913. Part i., Report; Part ii., Tables and Charts. [Cd. 7448-9] (1914.)

Fishery Investigations. Series ii., vol. i., part i., Report on Market Measurements in Relation to the English Haddock Fishery during the Years 1909-11. By E. S. Russell. (1914.)