

ance to communities of tropical countries, and, consequently, of our national commerce, to draw their own conclusions. Readers of this very valuable statement of work fulfilled and observations made by a keen and practical sanitarian will find no difficulty in recognising that the "marked rise of subsoil water," which coincided with the increased incidence of malarial fevers, was the "special influence" at work in Klang; that this occurred in an already malarious town in constant communication with surrounding malarious areas, with the result that transfer of infected inhabitants to the swamps of Port Swettenham found ready-made conditions for the continuance, if not aggravation, of epidemic malaria; and, consequently, the increased incidence was not due to the ephemeral effect of importation of ill-fed coolies, but primarily to local physical conditions remediable, and actually remedied, by judicious engineering operations.

This record shows that in Klang and Port Swettenham the abolition of pools by drainage (without the aid of quinine prophylaxis in the former case, even as a temporary measure) rapidly rendered possible commercial undertakings of great monetary value, which had been interrupted on account of disability of the available labour; that whilst there obviously is no desire on the part of the author to belittle the utility of quinine prophylaxis, he found that to secure maintenance of coolie labour upon estates the daily consumption of quinine necessary, under careful supervision of the subjects, was in quantities that a free Indian population could neither afford nor be persuaded to take; that the survivors of this temporising effort remained at the end of two and three years of daily administration of quinine the bearers of malaria parasites, and therefore were a danger to themselves and their neighbours; and that by effectual removal of surplus moisture of the soil, there is excluded fear of epidemic malaria following the introduction of malaria-parasite bearers—an "influence" which, in the absence of drainage, certainly cannot be ignored. Nor is it only in Klang and Swettenham that these results have been illustrated, but in several planting estates, where previously the loss by coolie labour paid for, but unavailable from sickness and death, was of grave moment; here also has been gathered valuable information as to the necessary radius of protective zones.

Seeing that, in accordance with the policy of the sanitary expert advisers of the Government of India, the Punjab Government has recently inaugurated an anti-malarial campaign by purchasing a ton of quinine, it is not likely that the amount of this drug found necessary by Dr. Malcolm Watson for the mitigation—not eradication—of malaria in a free population will surprise them. The Government of Eastern Bengal and Assam has, however, adopted a method more likely to be grasped by the people; whilst assigning drug prophylaxis to the millennium, it, in the meantime, asks its malaria-stricken populations to indulge in the so-called quinine "treatments" at three annas per head per attack—or a sum exceeding the total average annual taxation per head on account of district boards serving under it.<sup>1</sup> In this case, presuming two attacks per annum per head in a population of 15,421, there would be spent (in one sense) "unproductively" against a preventable disease sufficient to meet the sinking fund and interest, by annual instalments, of a loan for thirty years of one lakh of rupees. Yet the chances are that were a lakh sunk in any well-designed anti-malarial drainage scheme, there would be illustrated the truism that "prevention is better than cure"—both for commercial and humanitarian reasons.

W. G. KING.

#### SOME PAPERS ON INVERTEBRATES.

IN the report of the Government entomologist, issued by the U.S. Department of Agriculture, for 1910, will be found a full account of the work accomplished during the year under review, and a scheme for future work. Certain points connected with the life-history of the brown-tail and the gipsy moth engaged attention during the year, more especially the presence of isolated colonies of

<sup>1</sup> In Italy, under laws passed 1901-03, the poor and all workers have the right to receive quinine for treatment and prophylaxis gratuitously from the State.

the latter in woodland districts. As the result of these investigations, it was found that newly hatched caterpillars may be carried by wind to a distance of nearly 2000 feet. Of late years the Argentine ant has caused such damage to orange-plantations in Louisiana that several have been abandoned, but it is believed that a practical method of keeping this pest in check has now been discovered.

New species of artificially reared ichneumon-flies and new South American parasitic Hymenoptera form the subject of two articles, respectively by Mr. H. E. Viereck and Mr. J. C. Crawford, in the Proc. U.S. Nat. Mus. (Nos. 1789 and 1786).

It seems somewhat strange that it should be left to a Japanese naturalist to describe new cicadas from Europe and the Mediterranean countries. Nevertheless, such has been the case, and in the Journal of the College of Science of Tokio University, vol. xxvii., art. 18, Prof. S. Matsu-mura, who writes in German, concludes his paper on this subject, describing as new no fewer than forty-two species, together with two new genera.

In *Naturwissenschaftliche Wochenschrift* of February 5 Prof. J. Meisenheimer records the results of experiments for testing the power of regenerating their wings in insects, the moth *Lymantria dispar* being the subject of these experiments. The first traces of the wings occur as minute outgrowths from the sides of the last two limb-bearing segments of the caterpillar, and in the large series of specimens submitted to experiment these were cut away on one side. In a few instances the wings on the injured side were represented by mere knobs, but in most cases more or less well-developed wings were grown, although very generally smaller than the normal ones. Sometimes one wing on this side may be fairly well grown, and the other quite small. Details on this point, and also in regard to variation in the colour-pattern, are given in the paper.

The *Entomologist's Monthly Magazine* for March contains two papers—one, with a coloured plate, by Miss E. M. Alderson, and the other, by Mr. E. A. Atmore—on the beautiful little lace-wing fly, *Chrysopa dorsalis*, first added to the British list in 1900 on the evidence of specimens taken in Surrey, but subsequently found in Norfolk. The species, which frequents the needles of Scots fir, has been bred in confinement by Miss Alderson.

A synopsis of the true crabs inhabiting Monterey Bay, California, forms the subject of an article by Mr. F. M. Weymouth, issued as No. 4 of the Leland Stanford Junior University Publications. This communication, which is very fully illustrated, is to form one of a series of papers of similar scope dealing with the fauna of Monterey Bay for the purpose of rendering the local forms of invertebrates easily identifiable by the students at the Marine Biological Laboratory of the University.

The structural arrangements in the females of the decapod crustaceans of the family Peneidæ for receiving and storing the sperm are described and illustrated by Mr. E. A. Andrews in No. 1791 of the Proc. U.S. Nat. Mus. The females of this family present the comparatively rare feature of having special receptacles, or spermatheca, for this purpose on the ventral aspect of the body, and the different degrees of complexity of these structures in the various species and genera are illustrated by sections. The alleged existence of receptacles of the same type in the females of the deep-sea prawns of the group Eryonidea is considered by the author to be improbable.

North American parasitic copepods of the family Ergasilidæ form the subject of No. 1788 of the same serial. The family, according to Mr. C. B. Wilson, includes ten genera, three of which are described for the first time, while the definition of a fourth is revised. All its members live almost entirely on the gill-filaments or within the gill-cavities of fishes, but whereas adult females become more or less fixed, the males remain free-swimmers, and in the case of one genus do not appear to be parasitic at all. Hence males are much scarcer in collections than females, and after the breeding season can only be taken in the tow. The genera may be arranged in the three subfamilies, of which one is typically fresh water, while the other two are marine.

No. 1783 of the Proc. U.S. Nat. Mus. is devoted to the ninth portion of Mr. C. B. Wilson's memoir on North American parasitic copepods, the author dealing in this

instance with the family Lernæopodidæ. Special attention has been directed to the development of certain members of the family, the new facts being recorded in a summary at the end of the paper, which is too long and too technical for quotation in this place.

In No. 1785 of the serial just quoted, Mr. P. Bartsch describes several new species of molluscs of the family Vitrinellidæ from the Pacific coast of North and Central America, with illustrations of the shells.

The cyclostomatous polyzoans of the same coast are discussed by Miss A. Robertson in vol. vi., No. 12, of the University of California Zoological Publications, this communication being the third of the series. In addition to the description of new species, the author directs special attention to the ovicel, with particular reference to the investigations of Dr. S. F. Harmer.

A number of polyzoans ranging from the Ordovician to the Cretaceous, and common to Europe and North America, many of which have been included by previous writers in Stomatopora, are referred by Mr. R. S. Bassler in No. 1797 of the Proc. U.S. Nat. Mus. to a new genus under the name of Corynotrypha, for the distinctive characters of which those interested in the subject must consult the original paper.

In the Proceedings of the Royal Irish Academy, vol. xxix. (B), No. 3, Mr. A. W. Stelfox gives an annotated distributional list of the land and fresh-water molluscs of Ireland. The author acknowledges his indebtedness to Dr. Scharff in working out the fauna generally, and to Mr. B. B. Woodward for the discrimination of the species of Pisidium. Fourteen land and fifteen fresh-water species inhabiting Great Britain have not yet been recorded from Ireland, and since most of these belong to the central European fauna, there is considerable probability that they never reached the western island. On the other hand, a Hygromia which apparently belongs to the Cornish outlier of the Lusitanian fauna may turn up on the east coast of Ireland, while search for *Limax tenellus* should be made in the northern and north-western districts.

The slugs of Natal form the subject of a paper, by Mr. W. E. Collinge, published in the Annals of the Natal Museum, vol. ii., part ii. These are referable to fifteen species, arranged in six families, of which the Aperidæ, as represented by the exclusively South African genus *Apera*, is new. Of the five species of this remarkable genus, which has hitherto been included in the Testacellidæ, three are found in Natal. The genus is believed by the author to represent a very primitive type, such resemblances as it shows to the Testacellidæ being probably due to parallelism. It was originally described, in 1879, as *Chlamydephorus*, a name which clashes with the mammalian *Chlamydephorus*. The author states that the latter name was given by Agassiz in 1844, but it was really proposed in 1824 by Harlan, in the form of *Chlamydephorus*, and this difference in the original may give rise to the question whether it really preoccupies Binney's *Chlamydephorus*.

No. 5 of the fifth volume of *The Philippine Journal of Science* is devoted to a description, by Mr. L. E. Griffin, of a new species of the protozoan genus *Euplotes*, for which the name *Eu. worcesteri* is proposed. The type-specimen was found in 1909 in water brought to the Manila Laboratory from the neighbouring bay. The species, of which exquisite illustrations are given in the plates accompanying the memoir, is very closely related to *Eu. vannus*.

A new generic type of crinoid, *Thalassocrinus pontifer*, from the Philippines is described by Mr. A. H. Clark in No. 1793 of the Proc. U.S. Nat. Mus. It is a stalked form referable to the family Hyocrinidæ, with its nearest relationship, apparently, to *Gephyrocrinus*.

R. L.

#### PAPERS ON SYSTEMATIC BOTANY.

AN important feature in the revision prepared by Dr. C. B. Robinson of Philippine Urticaceæ, is the discussion of generic limits and relationships. A new genus, *Elatostematoides*, is proposed for certain species previously referred to *Elatostema* or *Pellionia*, and another genus, *Astrothalamus*, allied to *Maoutia*. Under *Laportea*, a

genus of notoriety on account of its stinging hairs, it is mentioned that the hairs are siliceous, and may contain formic and acetic acids; also that prompt relief is afforded by ammonia or carbonate of soda. Many new species are differentiated, notably nine for *Laportea* and twenty for *Elatostema*. The first part only of the article appears in the concluding number of the fifth botanical volume of *The Philippine Journal of Science*.

The second number of the current volume of *The Kew Bulletin* contains the diagnoses of thirty new African species, chiefly under the genera *Protea*, *Sorocephalus*, *Loranthus*, and *Erythrococca*, a note by Mr. G. Massee on a lilac disease, and an article on the beechwood industry of the Chilterns by Mr. W. Dallimore. The lilac disease caused by the hyphomycete, *Helminthosporium syringae*, shows first as a brown stain on either side of the leaf; the stained area extends and darkens, and olive-brown patches of fruit appear; later on, spores are formed in great abundance. Spraying with a solution of potassium sulphide in an early stage serves to check the disease. Mr. Dallimore deals more particularly with the chair-making industry centred in High Wycombe, and the brush-making industry of Chesham.

Recognising the difficulties of delineating the various species of *Castilla* (*Castilloa*), Mr. H. F. Pittier designates his careful and well-illustrated revision of the genus in the Contributions from the United States National Herbarium (vol. xiii., No. 7) a preliminary treatment, although his conclusions are based largely upon experience in the field. Ten species are distinguished, of which four from South America are placed in a separate group, while the second consists of Central American species, differing more or less from *Castilloa elastica*. The practical object of the publication is to make known the diversity of species that may be under cultivation as *C. elastica*. It is noted that *C. nicoyensis* is a good latex producer, and that *C. costaricana* is tapped by the native collectors.

A catalogue of non-herbaceous phanerogams cultivated in the Royal Botanic Garden, Calcutta, published as vol. v., No. 1, of the Records of the Botanical Survey of India, is not a mere list of species, but is designed to identify and locate every tree or shrub growing there. For this purpose the plan of the garden is divided into squares distinguished by letters and figures, and in addition each plant receives and is labelled with an individual number; thus one specimen of *Schleichera trijuga* is listed as O 10, 1641. At points corresponding to the intersection of lines posts are inserted in the garden to locate the squares. Further, a record of source and history is tabulated for each individual plant to be registered in a filed system, and special sheets have been designed for keeping note of seeds. The present index part will be supplemented by a systematic part furnishing the "stock account" of the garden.

#### REPORTS ON GLACIOLOGY.<sup>1</sup>

(1) STUDENTS of glaciology owe a debt of gratitude to M. Rabot, because information on this subject is scattered over a wide field and in unexpected places. To collect that contained in the present number of the *Revue* must have been a heavy task, and its value is increased by a careful classification. The earlier sections deal with matters such as precipitation, its form and relation to altitude, the rate at which snow melts, avalanches and their consequences, the formation of glaciers, their structures, their dates of movement, and their erosive effects, in regard to which last diverse opinions are quoted. If we can believe Prof. Hans Hess, a glacier deepens its bed by 1 metre in from thirty to fifty years, or, in other words, the erosive power of ice is at least ten times as great as that of running water. Figures are cited to support this conclusion, but a tolerable familiarity with glaciers and their works, for at least that time, leads us to suspect there is something wrong with the figures or the observations.

<sup>1</sup> (1) *Revue de Glaciologie*. No. 3 (avril 1903-1<sup>er</sup> janvier 1907). By Charles Rabot (Mémoires de la Société Fribourgeoise des Sciences Naturelles, vol. v., Band v., Géologie et Géographie). Pp. 344+30 figures. (Fribourg, Suisse, 1900.) Price 6 francs.

(2) *Les Variations périodiques des Glaciers*. XV<sup>me</sup> Rapport, 1909. Rédigé par Dr. E. Brückner et E. Muret. Extrait des Annales de Glaciologie, t. v. Janvier, 1911. Pp. 177-202. (Berlin: Borntraeger Frères, 1911.)