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effects alone are manifested, thereby inspiration is interrupted, and an expiration, a collapse of the lungs, follows. But since, with the cessation of pulmonary expansion, the given stimulus disappears, and the after-effect of the inhibiting fibres is of but short duration, the latent inspiratory impulses prevail, owing to their long after-effect, and cause an inspiration. This again establishes an expansion of the lung, and thereby an expiration, etc."—L. G.

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## ENTOMOLOGY.<sup>1</sup>

### **An Outlet for Memoirs, Monographs, and Faunal Lists.<sup>2</sup>—**

As a rule the opportunities for publication of the experiment station entomologists are limited to station bulletins, and entomological or general natural history journals. The former, with rare exceptions, are only available for the publication of investigations having an immediate practical import, and the latter can only be satisfactorily used for articles of moderate length. It is true that to a certain extent monographs and revisions can be published in the Transactions of the American Entomological Society and the publications of the National Museum, but these channels are not open to all, and as a rule are reserved for monographic works relating to our fauna as a whole, rather than that of any particular locality.

If the biological work of the experiment stations is established on a broad and comprehensive basis many results will be obtained that are not of immediate interest to the farming community, and which could not be published, except in a fragmentary way, in the existing journals. Among such results the following general classes may be mentioned :

(1) Bibliographical matter, including bibliographies of the insects affecting certain plants, bibliographies of certain groups, faunal bibliographies, etc.

(2) Catalogues, descriptive and annotated, of the organisms of a locality, county, or state.

(3) Memoirs on the biology of certain groups, the insects relating to certain plants, or the relations of various organisms or groups of organisms to each other and to their environment.

<sup>1</sup> Edited by Dr. C. M. Weed, Experiment Station, Columbus, O.

<sup>2</sup> Prepared for Entomological Section, American Association of Agricultural Colleges and Experiment Stations, November, 1890.

## (4) Monographic works.

It seems to me that there is a decided need of an outlet for these classes of results, and I have heard others among us express a similar sentiment. On this account I venture to bring the matter before you, in the hope that it will be fully discussed, and, if it seems desirable, some plan of action decided upon.

I anticipate that one of the first objections that will be raised is that it is difficult for existing entomological journals to find matter with which to fill their pages. If this is true, and to a certain extent no doubt it is, it ought not to be much longer, for when the entomologists of the stations get well established they should turn out an amount of work that will more than fill these journals with the short contributions for which they are especially fitted. But the suggested publication is not intended for this kind of matter, and ought to increase rather than decrease the number of contributions to existing journals.

It seems as though some coöperative plan might be carried out by which the opportunities for publication of the results of biological investigation would be greatly increased,—a fact which would also greatly stimulate the prosecution of such investigations.

Among the points that to my mind appear to be desirable to keep in view in carrying out such a project are the following :

(1) To exclude short papers that can easily go in existing journals.

(2) To make little or no attempt at reviews, notices of current events, editorial remarks, etc., reserving the pages entirely for contributed articles.

(3) To place the management in the hands of an editorial committee, by whom the acceptance or refusal of articles submitted for publication should be decided.

(4) To include papers in other departments of zoology, rather than to make it exclusively entomological.

(5) To issue it only as material accumulates, and, for the present at least, not oftener than quarterly.—CLARENCE M. WEED.

**The Apple Maggot.**—Professor F. L. Harvey, of the Maine State College, has lately published an elaborate article containing the results of investigations made during 1888-89 upon the Apple Maggot (*Trypeta pomonella* Walsh). It consists, as the title-page states, of “a consideration of the literature, history, transformations, life-history, and habits of this insect, also remedies;” and forms by far the best account of the species that has been published.

Professor Harvey has investigated the subject *de novo*, and besides adding a number of new facts to our knowledge of the insect, has corrected several points in its currently accepted life-history. In Maine the flies appear about July 1st, continuing to emerge all summer, and being found in abundance until October. Each female fly is capable of laying at least three or four hundred eggs, which are inserted from time to time, one in a place, by means of a sharp ovipositor through the skin of the apple. The full-grown larvæ leave the fruit after it falls, and pupate at or near the soil surface. The winter is passed in the pupa state, the flies appearing the following summer. The destruction of windfalls is considered the most promising remedial measure. Preventing the importation of infected fruit from other States by law is strongly recommended. The article closes with a critical review of the literature of the species, which leads to this pertinent paragraph: "The above review also suggests the importance of careful work on the part of entomologists that their writings be as free as possible from errors, and that great care should be taken, especially in quotations, to keep theories and surmises distinct from facts obtained by careful research."

The investigations thus recorded were evidently made as a part of the work of the Maine State College Experiment Station, but there is nothing upon the copy at hand to indicate when, where, or by whom it was published.<sup>3</sup>

**American Frit Fly.**—Professor H. Garman, of the Kentucky Experiment Station, in a recent bulletin (No. 30), describes the life-history of a new wheat fly, supposed to be *Oscinis variabilis* Loew, for which the above name is proposed, on account of its similarity to the European frit fly (*Oscinis frit* L.). The insect has been found infesting grain in Fayette county, Ky., although but little damage has yet been done. Careful descriptions, accompanied by good figures, of the larva, puparium, and adult are given. The destruction of volunteer grain and late planting are the preventive measures suggested.

**The Genus Agrotis.**—Bulletin No. 38 of the U. S. National Museum consists of a revision of the North American species of the genus *Agrotis* by Prof. J. B. Smith. Lepidopterists are to be congratulated upon the publication of this paper, for it treats in a clear and systematic way of a group which, as the author well says, was simply "a huge assemblage of species, through which no path was

<sup>3</sup> Since this was written we have learned that the memoir forms a part of the Maine Experiment Station Report for 1889.

visible, and in which identification to any but the specialist, or to one with a large collection, was all but impossible." Professor Smith has greatly restricted the genus *Agrotis*, leaving but eight species in it, and has proposed for the others a number of new genera, based on definite structural characters. He has also used seven existing generic names. The revision is based on a study of nearly all the important collections of the country, and covers nearly 250 pages.

In the introductory paragraphs we find this significant remark: "I had at one time the strong conviction that genera were natural assemblages, capable of strict limitation and definite in extent. The study of very large material since that time has convinced me that my first impression was erroneous, and that genera as such are mere artificial divisions of convenience, useful for the purpose of identification, and for the expression of relationship, and that they were useful for that purpose just in proportion as they expressed clear and definite associations of characters."

**The White Grub.**—In the June (1890) Crop Report of the Illinois State Board of Agriculture Prof. S. A. Forbes reports having demonstrated that "the current life-history of our common white grub is mistaken. All our most abundant species complete their growth as grubs in midsummer or early autumn, and form both pupa and adult beetles the same season, hibernating in the earth in this last stage, and coming out in May or June of the next year. Where these grubs are injurious in the fall they may be expected, as a rule, to be even more destructive in the same fields the following spring."

Professor Forbes also announces having obtained evidence that there may be four generations of the Hessian fly, which attack wheat with destructive effect,—two in spring and two in autumn.

**Nematodes in Australia.**—The August issue of the *Agricultural Gazette*, of New South Wales, is devoted to a discussion of Nematode injury to root crops by Professor N. A. Cobb. It is divided into three sections,—the first treating of the life-history of *Tylenchus arenarius*; the second describing twenty-four species of the genus *Tylenchus*, with which the author unites *Heterodera*; and the third discussing the disease and its remedies. This paper will be of great value to all engaged in studying these little creatures.

**Miss Ormerod's Manual.**—A new and greatly-enlarged edition of Miss Eleanor A. Ormerod's admirable Manual of Injurious Insects has lately been published. The new work forms a volume of over four hundred pages, the mechanical execution of which is altogether

excellent. The main portion of the book is divided into three parts, treating of the insects affecting food crops, forest trees, and fruit crops, respectively. To this is appended a list of the insects discussed, an introduction to entomology, and a glossary of entomological terms. Much has been added, in the author's usual careful and thorough-going style, to the accounts of the first edition, published in 1881. The work will doubtless prove of great value to British agriculturists, and Miss Ormerod is to be congratulated upon its appearance.—C. M. W.

**Beetle Parasites.**—The braconid parasite of *Lixus concavus*, mentioned on page 972 of last month's NATURALIST, has been identified by Dr. C. V. Riley as *Bracon rugator* Say. I am also indebted to the same authority for determining the parasite of *Tyloderma foveolatum*, mentioned in the same connection, as *Bracon xanthostigma* Cresson.—C. M. W.

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#### ARCHÆOLOGY AND ETHNOLOGY.

**Rigveda Studies.**—Sanskrit students who have had an insight into Vedic studies know perfectly well that we are only at the beginning as far as a real comprehension of the Rigveda is concerned. In recent years many ripe scholars have striven to render this work more accessible. The joint work of two Halle professors, R. Pischel and K. F. Geldner, entitled "Vedische Studien," marks a great advance in this direction,<sup>1</sup> and intends to refute many erroneous ideas still adhered to concerning that oldest Aryan monument. The treatment of the mythologic element was undertaken by Pischel, whereas linguistics and text-criticism fell to the share of his collaborator.

Both are of the opinion that it is entirely wrong to consider the period when the Vedas, especially the Rigveda, took their origin as a pastoral or nomadic one, undefiled by the civilization or corruption which are characteristic of later historical epochs. The people were then as eager to acquire worldly goods as they ever were in the time of the classical epics called Maha-Bhârata and Ramâyana. They prized artistic ornaments and fine dwellings, knew the art of writing, and were acquainted with the use of salt. The mention of village communities and of walled towns or cities proves that the nomadic

<sup>1</sup> Vedische Studien von Richard Pischel und Karl F. Geldner. I. Bd., Stuttgart, Kohlhammer, 1889, 8vo, 33 and 328 pages.