

Regarding Curran's argument that the absence of males is significant, no males have been found in Hawaii, although the females seem to be locally abundant. Also, males of *L. furcata* were unknown to Lundbeck in 1916, and de Meijere (7, p. 75) notes that males are "ausserordentlich selten." He believed (p. 49) that this species propagates mainly by parthenogenesis, and he supports this opinion by noting that the spermatheca is short and devoid of spermatozoa. Only about six males of *L. furcata* were known in 1916.

It is the writer's belief that *Lonchoptera furcata* (Fallen) is an exceedingly variable species of wide distribution, and that it includes specimens from Europe, various parts of the United States and Canada, South America, and Hawaii. This species already has a long list of synonyms in Europe, because of its great variation, and unless there are some more distinctive characters for Curran's *L. dubia* than have been pointed out, that name also must be added to the list.

In the Hawaiian Islands this species has now been collected on Kauai, Molokai, Maui, and Hawaii; even making itself apparently at home near the summit of the highest peak between California and New Guinea. It is such a distinctive species that had it been present in any numbers it could scarcely have been overlooked by Dr. R. C. L. Perkins in Hawaii, 1892-1912. It is therefore thought to have immigrated after the beginning of the 20th century, and to have spread throughout the main islands of the group with considerable rapidity, in order to have become so widely distributed in our high native forests.

Insects of Samoa—Concluded

REVIEW BY E. H. BRYAN, JR.

(Presented at the meeting of September 5, 1935)

A masterly "Summary" by Dr. P. A. Buxton brings to a close the valuable series of publications on "Insects of Samoa and other Samoan terrestrial Arthropoda," which has been printed by the British Museum (Natural History), London, April, 1927, to

June, 1935. The 34 fascicles containing 68 contributions by 58 specialists are arranged systematically by insect groups in nine parts. Part I, Orthoptera and Dermaptera, 2 fascicles; part II, Hemiptera, 5 fascicles; part III, Lepidoptera, 4 fascicles; part IV, Coleoptera, 5 fascicles; part V, Hymenoptera, 1 fascicle; part VI, Diptera, 9 fascicles; part VII, other orders of insects, 4 fascicles; part VIII, Terrestrial Arthropoda other than insects, 2 fascicles; and Part IX, Summary and index, 2 fascicles. Only the index remains to be issued.†

In 1930 the writer presented a review* of the parts which had been issued at that time, together with a numerical summary of the species which had been enumerated. The following is given to complete the list of fascicles to date.

Part II. Hemiptera.

Fasc. 4. pp. 163-192, 15 text figures, Jan. 27, 1934.

Herbert Osborn, Cicadellidae (Jassidae).

Fasc. 5. pp. 193-228, 9 text figures, Feb. 23, 1935.

Harry H. Knight, Miridae and Anthocoridae.

Part III. Lepidoptera.

Fasc. 4. pp. 169-290, 13 plates, 12 text figures, Feb. 23, 1935.

W. H. T. Tams, Heterocera.

Part IV. Coleoptera.

Fasc. 5. pp. 249-346, 31 text figures, April 25, 1931.

Sir Guy Marshall, Curculionidae.

Part VI. Diptera.

Fasc. 6. pp. 239-251, 3 text figures, Nov. 22, 1930.

J. R. Malloch, Lonchaeidae, Chloropidae and Piophilidae.

Fasc. 7, pp. 253-256, 1 text figure, Nov. 28, 1931.

J. R. Malloch, Trypetidae.

Fasc. 8, pp. 267-328, 16 text figures, June 23, 1934.

† Part IX, Fasc. 3, pp. 105-159. Addenda et Corrigenda and Index. Issued Dec. 20, 1935.

* Proceedings, Hawaiian Entomological Society, VII, No. 3, pp. 445-451, 1931.

J. R. Malloch, Drosophilidae, Ephydriidae, Sphaeroceridae and Milichiidae.

Fasc. 9, pp. 329-366, 15 text figures, Feb. 23, 1935.

J. R. Malloch, Phoridae, Agromyzidae, Micropezidae, Tachinidae and Sarcophagidae.

Part VII. Other orders of insects.

Fasc. 4, pp. 117-129, 8 text figures, Feb. 27, 1932.

H. H. Karny, Psocoptera.

Part IX. Summary and index.

Fasc. 1, pp. 1-31, 6 plates, 2 text figures, Nov. 22, 1930.

P. A. Buxton, Description of the environment.

Fasc. 2, pp. 33-104, June 8, 1935.

P. A. Buxton, Summary.

DR. BUXTON'S SUMMARY

Dr. Buxton points out that 1,603 described species of insects are now known in Samoa, of which 669 species, and also 80 genera, were described as new in the series of publications. Of terrestrial Arthropoda other than insects, 113 species have been dealt with, 52 being apparently endemic, and 15 described as new. Of the insects, 49% of those in Samoa are considered endemic, as compared with 81% of the 4,620 species in Hawaii, and 65% of 2,090 species in the Seychelles.

Dr. Buxton shows that the Samoan insect fauna is "oceanic" in nature, with its relationship essentially Indo-Malayan. He notes that at no point between is there any sudden impoverishment of the fauna, rather a gradual change, the fauna becoming poorer with the passage of each area of sea from west to east. Some slight relationship with Australia is indicated, but very little with America. Affinities with Tonga and Fiji are pointed out.

The characteristics of the Samoan insect fauna are discussed in some detail: the effect of seasons, altitude, and wind; migrant insects, insects of special environments, parasitic species, and introductions by man. A tabulation is given of the number of species, endemic and total, in each order; notes are given on endemic

complexes, certain anomalous genera, and distribution throughout the Samoan group. As in Hawaii, whole orders, such as Protura, Plecoptera, and Mecoptera are entirely absent, while other orders and families are disproportionately represented. Numerous comparisons are made with the insect faunas of Hawaii and the Marquesas, the only other areas in Oceania which have been extensively studied to date.

Book Review

BY E. H. BRYAN, JR.

(Presented at the meeting of November 7, 1935)

Charles H. T. Townsend, *Manual of Myiology, Part II*, Sao Paulo, Brazil, 289 pp., 9 pls., 1935.

This second part of a series of twelve on Muscoid Diptera discusses their classification and habits. It begins with an essay on nomenclature, showing how the whole classification of muscoid flies was changed by the decision of the International Commission on Zoological Nomenclature that *Musca domestica* was the type of the genus *Musca*, and hence of the family Muscidae, rather than *vomitoria* Linné. Proof is offered that the latter should be the type, and the consequent different classification noted. The principle of priority and the designation of genotypes is discussed.

A list of abbreviations is given for the names of authors who have described flies. In discussing the history and principles of taxonomy, emphasis is laid on generic concepts and the typic-atypic system, which is further elaborated in the section on classification. A section on terminology contains a long alphabetical list of approved terms.

The balance of the book is devoted to a detailed discussion of the classification of muscoid Diptera, with keys to superfamilies, families, tribes and genera. For each tribe there is a discussion of habits as well as morphological diagnoses and keys to genera. A list of muscoid synonymy and a full index to genera make this part of the book readily usable.