

REVIEWS AND ABSTRACTS

COLLECTING, PREPARING AND PRESERVING INSECTS. By Bryan P. Beirne. Pub. 932, Science Service, Entomology Division, Canada Department of Agriculture, 133 pp., May, 1955. Price 50 cents. This publication was compiled by Dr. Beirne with the collaboration of other officers of the Systematic Entomology Unit and of other specialists. In a foreword G. P. Holland, Head, Systematic Entomology Unit, states that the publication was prepared for the use of amateur or professional entomologists.

Over a period of years numerous bulletins and pamphlets describing methods for the collection and preservation of insects have appeared. In addition similar material is presented in a number of textbooks. This latest publication was prepared with Canadian conditions in mind; the principles and techniques are, of course, of general application.

This reviewer finds that Dr. Beirne's contribution is excellent in all respects. It is certainly one of the most complete publications of its type. The material is divided into sections dealing with Equipment and Methods for Collecting, Equipment and Methods for Preserving and Mounting, Storage and Care of Collections, and Application of Methods. A section giving formulae and an index are included.

Mosquito workers will perhaps find the section on aquatic insects too brief while other groups are covered in much more detail. This unevenness is acknowledged in the foreword as being due to multiple authorship and emphasis on popular groups or groups of economic importance.

The inclusion of sections on arachnids and nematodes is justified quite apart from the stated reason that these groups are being studied by entomologists in Canada.

The only lacuna found by this reviewer, unless it was overlooked in a subsection, is the failure to mention the use of a plastic spray on certain pinned insects to reduce loss of delicate and brittle parts.

Specialists frequently are occasioned needless difficulty when improperly preserved material or material lacking essential host data is submitted for identification. The task of the specialist will be made easier if the amateur and professional entomologist alike pay closer attention to the correct methods of collecting, preparing and preserving insects.—A. S. West, Queen's University, Kingston, Ontario.

EGG PRODUCTION IN *Culex pipiens pallens* COQUILLETT. I. SEASONAL CHANGES. By Teruhiko Hosoi. Jap. J. Med. Sci. Biol. 7(1):57-73. 28 refs. 1954. In English. 1. In the vicinity of Tokyo, *Culex pipiens pallens* Coq. is prevalent from May to November throughout, with maximum house-frequency and blood feeding about

June and July. Female imagines over-winter usually in a state of complete hibernation and reappear from March to April.

2. There are extensive individual variations in biting activity and capacity for egg formation among wild females captured in any season of the year. In spite of the actual cessation of blood-sucking and oviposition during the winter, hibernating mosquitoes are capable of reproduction with greater or less ease under favorable conditions. This capacity decreases gradually from autumn to winter and rises rapidly in spring.

3. Wild larvae and pupae collected in the fall and bred in an unheated room give rise to females of reduced activity in a large proportion. When the breeding temperature was raised, the number of active females increased considerably.

4. An abrupt rise in temperature proved fatal to the majority of the hibernating females, although some individuals could be reactivated prematurely. Warming accompanied by illumination promoted termination of the diapause state in this mosquito.—Author's summary.

EGG PRODUCTION IN *Culex pipiens pallens* COQUILLETT. III. GROWTH AND DEGENERATION OF OVARIAN FOLLICLES. By Teruhiko Hosoi. Jap. J. Med. Sci. Biol. 7(2):111-127. 1954. 18 refs. In English. 1. Number of follicles developing or matured in the mosquito after one full feeding on human blood varies extensively even among individuals with equal wing length. There is found, however, a simple functional relationship between wing lengths and the means of these numbers.

2. When the mosquitoes are fed on human blood, degeneration occurs in a large number of follicles at the second stage of development. The ratio of these degenerating follicles is kept fairly constant among the mosquitoes with equal wing length, irrespective of the differences in the actual number of follicles produced or starting development in each individual.

3. Both the number of mature follicles and the rate of follicle development vary considerably, depending on the amount or kind of ingested blood. The results are not different from those obtained by previous workers with various species of mosquitoes.

4. Gonotrophic dissociation occurred not uncommonly among the mosquitoes fed on human blood in the laboratory. These mosquitoes, however, almost invariably matured eggs following the second meal, in a number larger than that which would be expected from the result of a single blood feeding.

5. Feeding on a 5 percent solution of casein promoted growth of the first-stage follicles, which developed to the second stage in some individuals; nevertheless only a small proportion of these follicles were able to develop beyond this stage.

Mosquitoes fed on hen's egg could develop a considerable number of follicles up to the final stage.

6. Blood corpuscles of chickens proved efficacious in promoting egg formation of the mosquitoes. Among various organs of chickens, the testis and the ovary were found to contain some growth factors, which could be utilized by the mosquitoes as supplements to casein in raising a large number of follicles to maturity.—Author's summary.

EGG PRODUCTION IN *Culex pipiens pallens* COQUILLET. V. RELATION TO FATTENING AND BITING ACTIVITY. By Teruhiko Hosoi. Jap. J. Med. Sci. Biol. 7(3):231-240. 1954. 19 refs. In English. 1. The desire of female mosquitoes for blood feeding is not derived simply from a state of hunger. With respect to the biting activity of active females, it was virtually immaterial whether the mosquitoes had previously been starved or fed on a concentrated solution of sugar. In hibernating females, however, fasting seems prerequisite to resumption of blood feeding.

2. Illumination promotes various kinds of physiological processes in imagines. It increases flying and biting activity, and also promotes the first-stage development of follicles as well as both enlargement and diminution of the fat body.

3. Experiments involving abdominal ligaturing and transplantation of the ovary revealed that, in spite of the apparent correlation between the biting activity and the capacity for egg formation, the biting activity did not relate directly to the state of the ovaries. No evidence of maternal control of the follicle development was found, at least after the mosquito had taken a meal of blood. The ovarian follicles seemed to be able to commence development according to their own activity, as soon as their nutritional requirements were satisfied.—Author's summary.

EGG PRODUCTION IN *Culex pipiens pallens* COQUILLET. II. INFLUENCE OF LIGHT AND TEMPERATURE ON ACTIVITY OF FEMALES. By Teruhiko Hosoi. Jap. J. Med. Sci. Biol. 7(1):75-81. 1954. 8 refs.

EGG PRODUCTION IN *Culex pipiens pallens* COQUILLET. IV. INFLUENCE OF BREEDING CONDITIONS ON WING LENGTH, BODY WEIGHT AND FOLLICLE PRODUCTION. By Teruhiko Hosoi. Jap. J. Med. Sci. Biol. 7(2):129-134. 1954. 8 refs. These two papers, as well as Parts I, III, and V, will be of interest to workers in the field; and I shall be pleased to lend them to AMCA members.—HLTD.

HORMONAL CONTROL OF OVARY DEVELOPMENT IN MOSQUITOES. By A. N. Clements. J. exper. Biol. 33(1):211-223. March 1956. 28 refs. A study was made of ovary development in *Culex pipiens* form *molestus* Forskål, an autogenous mosquito not needing food in the adult stage to develop its eggs, and in *C. pipiens pipiens* L. and other anaautogenous mosquitoes which require blood for ovary development. Comparison of the reserves of fully grown larvae of the autogenous and anaautogenous forms of *C. pipiens* showed that the autogenous form had a rather larger fat body, but that the anaautogenous form contained sufficient protein reserves to develop a number of eggs. It was considered that autogeny did not depend solely upon the ability to amass extensive reserves but also upon some other physiological mechanism.

Decapitation and ligation at the base of the abdomen prevented ovary development in *C. pipiens* form *molestus* when performed within a few hours of emergence, but when performed 7 or more hours after emergence it often failed to prevent ovary development. It is suggested that a gonadotrophic hormone is secreted during this time.

Ligation of the abdomen within an hour of feeding on blood appeared to prevent ovary development in *Anopheles stephensi* Liston. Ovary development occurred in a small proportion of females ligated 2 or more hours after feeding, and this proportion increased with time. Ligation of the abdomen immediately after blood feeding failed to prevent ovary development in *Culex pipiens* form *berbericus* Roubaud, *Aedes aegypti* (L.) and *Anopheles labranchiae atroparvus* van Thiel, even in some cases where the ligation was tied within 2-3 minutes of the start of feeding.—Author's summary.

NOTA SÔBRE UMA POSSÍVEL MODIFICAÇÃO DE HÁBITOS DE ANOFELINOS DO SUBGÊNERO *Kerteszia* EM ZONA SUBMETIDA A DEBETIZAÇÕES DOMICILIÁRIAS. By Mario O. Ferreira and Carlos E. A. Azambuja. Rev. Bras. Malariol. e Doenças Trop. 7(3):367-369. 1955. The authors report the results of preliminary observations showing that in areas submitted to domiciliary DDT spraying the *Kerteszia* adults that were mainly captured on the internal surface of walls are found in marked predominance on external surfaces of the walls after some applications of DDT are carried out. They state that they are not yet sure whether the change is due to a repellent or irritative effect of the insecticide or a true modification of the habits of the *Kerteszia*. The results of further observations will be repeated in the future.—Authors' summary.