

ENTOMOLOGY

Chairman: W. P. ALLYN, Indiana University

Edward Kintner, Manchester College, was elected chairman for 1949.

ABSTRACTS

Anax longpipes Hagen (Odonata; Aeshnidae), an Atlantic Coastal Species in Indiana. B. ELWOOD MONTGOMERY, Purdue University.—*Anax longpipes* is apparently common in the Atlantic coastal area from Massachusetts to Brazil, although relatively few specimens are ever captured. There are several records of this species in the region west of the Appalachian Mountains, chiefly from Ohio. However, all but one of these records are based upon sight identification of the insect in flight. The species was added to the Indiana list from such a record in Clark County. In early July, 1948, a specimen was taken at Scales Lake State Forest in Warrick County.

The Describers of Odonata. B. ELWOOD MONTGOMERY, Purdue University.—The authors of the names, proposed for species, sub-species and categories of lower rank in the Odonata have been compiled from the Williamson-Montgomery index to the literature of the Odonata.

Linnaeus described 22 species of Odonata in the 10th edition of the *Systema Naturae* in 1758. Since that time about 183 authors have described or otherwise proposed names for species and groups of lower rank in the Odonata. Of these, about 60 have named but one species, about 15 two species and about 20 three or four species. The "Father of Odonatology," Edmund de Selys-Longchamps, is the author of 1121 names, more than one-fifth of those in the index. Four of these authors were native to the state or did much of their work in Indiana.

Insecticidal Control of the Clover Root Borer

Hylastinus obscurus (Marsh.)¹

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One of the most serious insect pests of red clover in Ohio and Indiana is a small beetle called the clover root borer, *Hylastinus obscurus* (Marsh.), belonging to the family Scolytidae. The principal characteristic of clover infested by this insect is the failure of the second-year

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plants to recover after the first hay crop is removed in June. Second growth is weak, and blossoms are sparse and scattered. When infestations are heavy, many plants make no second growth and die.

The adult stage is reached in late July and August. Migration to new clover may occur in the fall and is usually completed in April and Early May of the following year. The females burrow into the crown of the clover plant and lay their eggs in the galleries late in April and in May. Upon hatching the larvae burrow and feed in the roots. Pupation occurs in these burrows in July.

Since this insect is inside the clover roots during the entire period of development, control is difficult. Plowing severely infested fields in July or after second harvest in August to destroy the larvae and pupae does not permit the growing of a seed crop. Chemical control of the insect in the roots is difficult, as tunnel openings are small and chemicals sufficiently toxic to destroy the insects are liable to be injurious to the clover plant also. Experiments are underway to test various organic insecticides mixed with the soil before the clover is planted, but no data of significant value have yet been obtained. The possible use of any of these insecticides for soil treatments, particularly benzene hexachloride, may be limited by their effect on plant growth or flavor of crops grown in the treated soil, as determined by further investigations.

During 1947 some preliminary experiments were conducted at Croton, Ohio, to prevent infestation of newly seeded red clover by the use of organic insecticides having residual toxicity. Three insecticides—DDT, chlordane, and benzene hexachloride—were applied to the plants and soil surface with a 36-inch hand fertilizer applicator. DDT and chlordane were applied as 1% dusts at the rate of 5 pounds of active ingredient per acre, and benzene hexachloride as a 0.25% gamma dust at 1.25 pounds of the gamma isomer per acre. Examinations by dissection of 15 to 17 roots per plot from each of the four replications gave the results from the May 7, 1948 application as follows: 3.6 borers per root in the untreated plots, 2.5 borers per root in the plots treated with DDT, 0.2 borers per root in the plots treated with chlordane, and no borers per root in the plots treated with benzene hexachloride.