the experiment, tests with barley seedlings (percentage germination, and weight of sprouts) showed that the toxic effect of 2,4-dichlorophenoxyacetic acid had been completely abolished by both bacteria, and that of 2-methyl-4-chlorophenoxyacetic acid also by Bacterium No. 2. Cultures of both bacteria, when freshly isolated, also detoxified the former in solid (2 per cent) agar medium with ammonium phosphate as a source of nitrogen (see Table 1).

Table 1. INCUBATION 28 DAYS AT 25° C.

Medium	Percentage germination of barley	Fresh weight per 100 sprouts of barley (gm.)
Agar + 0·005 *M* DCPA, sterile	9	0·22
„ inoculated with *F. aquatile*	98	6·28
„ inoculated with Bacterium No. 2	98	5·03
Sterile agar without DCPA.	99	6·63

Unlike Audus[1,2], we observed no significant detoxication by either organism in semi-solid (0·2 per cent) agar medium, or in soil extract.

After several transfers, *F. aquatile* grew very feebly on 2,4-dichlorophenoxyacetic acid but was still able to decompose this substance in sterile soil, like Bacterium No. 2, which also decomposed 2-methyl-4-chlorophenoxyacetic acid.

Table 2. GARDEN SOIL STERILIZED BY AUTOCLAVING AND INCUBATED AT 25° C. FOR FIFTEEN DAYS (WITH 2,4-DICHLOROPHENOXYACETIC ACID) OR FOR FOURTEEN DAYS (WITH 2-METHYL-4-CHLOROPHENOXYACETIC ACID)

Treatment	Percentage germination of barley	Fresh weight per 100 sprouts of barley (gm.)
Soil without addition, sterile	96	4·30
Soil + 0·01 per cent DCPA (sodium salt), sterile	47	0·79
„ inoculated with *F. aquatile*	98	4·31
„ inoculated with Bacterium No. 2	95	4·49
Soil without addition, sterile	96	4·86
Soil + 0·01 per cent MCPA, sterile	43	0·95
„ inoculated with Bacterium No. 2	95	4·64

In other experiments we obtained complete detoxication of 0·01 per cent 2,4-dichlorophenoxyacetic acid by *F. aquatile* in five days, but this organism was not active towards 2-methyl-4-chlorophenoxyacetic acid.

Two entirely different species of bacteria, one of which may be related to Audus's organism, are thus able to detoxify 2,4-dichlorophenoxyacetic acid, and one of them also 2-methyl-4-γ-chlorophenoxyacetic acid. The very feeble growth of the latter organism in all media except those containing the two herbicides suggests that it may be an induced mutant of some other soil bacterium which has become specialized in the utilization of a few cyclic compounds.

The results of our experiments will be published in detail elsewhere.

H. L. JENSEN
State Laboratory of Plant Culture,
Department of Bacteriology,
Lyngby, Denmark.

H. INGV. PETERSEN
State Weed Research Department,
Lyngby, Denmark.
Jan. 24.

[1] Audus, L. J., *Nature*, **166**, 356 (1950).
[2] Audus, L. J., *Plant and Soil*, **3**, 170 (1951).
[3] Bergey, D. H., "Manual of Determinative Bacteriology" (Baillière, Tindall and Cox, London; 6th edit., 1948).

Root Parasites in Loranthaceæ

THE plant family Loranthaceæ (mistletoes, etc.) contains several hundred species, almost all partial parasitic shrubs growing on the branches of trees. The following species are terrestrial shrubs or trees: *Nuytsia floribunda* R.Br., of Western Australia, several South American species of *Gaiadendron* G. Don, and *Atkinsonia ligustrina* (A. Cunn. ex F. Muell.) F. Muell., which is known only from the Blue Mountains of New South Wales, where it occurs sporadically on dry rocky ridges. This small group of terrestrial species is stated by various authors (for example, Macgregor Skene[1]; Moore and Betche[2]) to be non-parasitic; but Herbert[3] has shown that *Nuytsia floribunda* is a root parasite, as was indeed conjectured by Harvey[4] in 1854. It attacks a wide range of hosts, including both native and introduced species. *Atkinsonia ligustrina* has now been investigated at Woodford, N.S.W., and shown to form haustoria attached to the roots of several host species, including *Acacia intertexta* Sieb., *Platysace linearifolia* (Cav.) Norman (syn. *Trachymene linearis* Spreng.) and the narrow-leaved form of *Leptospermum attenuatum* Sm. Thus, of the terrestrial Loranthaceæ, only the species of *Gaiadendron* (with which *Atkinsonia ligustrina* was associated systematically by Bentham and Hooker[5] and by Engler[6]) are not known to be parasitic. It would not be surprising if they too should prove to be root parasites.

It is hoped to publish elsewhere some details of the relations between *Atkinsonia* and its host plants.

H. S. MCKEE
Commonwealth Scientific and
Industrial Research Organization,
Homebush,
New South Wales.
Jan. 14.

[1] Skene, M., "The Biology of the Flowering Plants" (Sedgwick and Jackson, London, 1924).
[2] Moore, C., and Betche, E., "Handbook of the Flora of New South Wales" (Government Printer, Sydney, 1893).
[3] Herbert, D. A., *J. and Proc. Roy. Soc. W. Aust.*, **5**, 72 (1918–19).
[4] Anonymous, "Memoir of W. H. Harvey, M.D., F.R.S." (Bell and Daldy, London, 1869).
[5] Bentham, G., and Hooker, J. D., "Genera Plantarum", **3**, 212 (Reeve, London, 1883).
[6] Engler, A., "Die natürlichen Pflanzenfamilien", Teil 3, **1**, 178 (Engelmann, Leipzig, 1894).

Observation of Egg-laying under Water of the Aerial Insect *Hydropsyche angustipennis* (Curtis) (Trichoptera)

DOUBT has existed about the mode of egg-laying in certain caddis flies, especially those the eggs of which are found under water in flat sheets cemented to the lower surface of stones. Accounts for most of these species are based on indirect evidence and incomplete observation. Consequently the following direct observation on the entry of *Hydropsyche angustipennis* into a watery medium may be of interest.

Unlike many Trichoptera, this caddis fly is not crepuscular, and on a sunny June afternoon an imago was observed alighting on a stone projecting above the water surface in an upland stream at Craigton, near Glasgow. She remained there for some moments with her antennæ bending over so that the tips were in the water, then suddenly flew up two or three feet, zig-zagged rapidly over the stream for a few yards and dived vertically down into the water. Air carried down on the hairy, folded