found in wood which had been entirely surrounded by concrete, for seven years. Now Balch found that full grown larvae are 30 mm. long and I found one, obviously only partly grown, that was only 13 mm. long. If damp conditions in an enclosed space induce protracted development of these larvae, how long could they remain under these conditions, without becoming beetles? Surely this constitutes a record in any beetle larvae, of delayed development, and provides material for long term experiments in physiology and metamorphosis to determine the factors that enable larvae to survive under these conditions.

THE 1945 STATUS OF DIGONOCHAETA SETIPENNIS, TACHINID PARASITE OF THE EUROPEAN EARWIG FORFICULA AURICULARIA LINN. IN WEST POINT GREY, VANCOUVER, B.C.

G. J. SPENCER
Department of Zoology, University of British Columbia, Vancouver, B.C.

For at least fifteen years I have collected earwigs every autumn around West Point Grey for student instruction and have maintained them alive in cages, taking them out as required. Up to 1943, there was no indication in this caged material of parasitism by *Digonochaeta setipennis* Fall., the tachinid fly that was introduced from Europe about fifteen years ago, to control this pest. However, in 1943, when making the usual autumn collection by placing sacking and rolled-up newspapers in the crotches of trees in the garden, one fly puparium was obtained, so in 1944 the catch was closely watched and four puparia were obtained. In early October, 1945, the usual catch of two nights' collecting was placed in a pint jar with leaves, dried grass and crumpled paper for the earwigs to hide in and in the process of collecting, sixteen fly puparia were obtained from the sacking and were placed with the earwigs in the jar.

In the next few weeks some 30 earwigs were used for class purposes and the rest, numbering 58, were stored in the jar in an unheated laboratory.

During the winter the earwigs died off at intervals, but a few were still alive by the end of January. Shortly afterwards all were dead and when the mass was counted on 16th February, 57 puparia were obtained; deducting the 16 obtained at time of collecting, 41 maggots had emerged during the winter from 58 earwigs, giving a parasitism of 70.7 per cent.

Unfortunately, the earwig collections of 1943 and 1944 were not counted, so the percentages are not available for those years. However, the sudden leap in infestation in 1945 was most conspicuous since, apart from those stored for observation, *setipennis* puparia occurred freely all over the garden wherever earwigs were sheltering, in bits of dahlia and lupin stalks, between boards and under trash where none had occurred in previous years.

The history of parasite release in Vancouver since 1936 was sent to me by W. Downes who was in charge of this work and I am greatly indebted to him for the following figures:

In May 1936, five thousand and nineteen *setipennis* puparia were placed out in five sub-equal lots in north and south Kitsilano. In July of the same year, 16,000 parasitized earwigs were released in thirteen locations all the way from Stanley Park, the West End and Kitsilano, to Central Park; of these, 1,000 were released at 8th Avenue and Tolmie, 1,000 at 10th Avenue near Sasamat Street and 1,000 at the University. These last three points are distant 666 yards, 900 yards and two miles, respectively, from where my collections were made. In August, 10,000 were released at ten locations throughout Vancouver, of which 1,000 were released near the

University, the nearest point to my collecting ground.

In August 1937, two thousand parasitized earwigs were released in two spots remote from my area and in July 1938, four thousand were released in four locations also far removed from my area.

In all, 37,019 prospective *D. setipennis* were released over a period of three years in the Greater Vancouver area.

Concerning the recovery of these parasites, seven years after 2,000 infested earwigs had been released in 1936 in my neighborhood, one puparium showed up in my garden; eight years afterwards, four puparia were found under similar collecting conditions, and nine years afterwards they had increased enormously, by October 1945 occurring freely everywhere and running up to 70.7 per cent in a given number of earwigs counted.

A second series, of 71 earwigs, collected in October 1945 in a garden at 20th Avenue and Dunbar, was maintained under similar conditions all winter and was finally counted at the same time as the above series. The collection point is 3,000 yards as the crow flies from my garden and the only *setipennis* liberations made at all near it in the past were the 1,000 parasitized earwigs released respectively at 10th and Sasamat and at 8th and Tolmie in July 1936. This second series yielded eleven puparia, giving 15.5 per cent parasitism.

DISCUSSION:—Taking as a centre, a spot halfway between the 1936 liberation points at 10th and Sasamat and at 8th and Tolmie, in just over nine years the tachinid fly *Digonochaeta setipennis* had spread south and uphill about 1.26 miles and yielded 15.5 per cent parasitism of the European earwig; north and downhill and about 0.45 miles away, it yielded 70.7 per cent parasitism. Subtracting these percentages from 100 and considering the distances proportionately, from the liberation centre, the 15.5 per cent obtained 1.26 miles away is only 3.4 per cent decrease per mile less than that obtained 0.45 miles away.

Thus radiating out from a common centre of liberation, the fly parasitized earwigs south and uphill, only 3.4 per cent mile less than it did north and downhill, in a fairly uniformly built-over area of the city of Vancouver.

THE STATUS OF ANOBIUM PUNCTATUM, THE DEATH WATCH BEETLE, IN THE LOWER FRASER VALLEY IN 1946.
(Coleoptera: Anobiidae)

G. J. SPENCER
Department of Zoology, University of British Columbia, Vancouver, B.C.

In 1925 a round stick, apparently of alder wood, was brought to me from a farm on Lulu Island with the report that it was a piece of an old handle found lying around the barn. The wood was thoroughly perforated by borings and yielded a copious amount of fine dust. Three dead specimens of *Anobium punctatum* Degeer, the European death watch beetle, were obtained from the wood, but since I was new to the Province I did not appreciate the significance of the incident.

In a paper on Insects and other Arthropods in buildings in British Columbia (Proc. Ent. Soc. Brit. Col., **39**: 23-29) I mentioned a record in New Westminster of an insect infesting a piano which had been brought around the Horn 50 years before. Specimens of the beetle were not obtained but the account sent in of the borings and the dust extruded, suggested an infestation of *A. punctatum*. Treatment with orthodichlorbenzene was recommended and was apparently successful because no further complaints were received.

Another record mentioned in that article concerned the 3-ply hardwood back of a china cabinet which had been so riddled by borers that it collapsed and the owner had torn it off and replaced it. The cabinet had been purchased at an auction and had possibly been imported from Europe.