established in the south-western U.S. It has not yet appeared in B.C. nor is it likely to become established because the climate is unsuitable (Howe and Lindgren 1957).

Acarina are of economic importance at the coast, especially *Acarus siro* L. However, mites are not included in this list since they are seldom important away from the coast, and because they cannot be recognized on sight.

References

Follwell, J. H. Notes on some Ptinidae of British Columbia (Coleoptera). Proc. Ent. Soc. B.C. 48: 60-63. 1953.

Follwell, J. H. Stored product insects and their control in British Columbia. British Columbia Dept. of Agriculture Ent. Circ. No. 1. 1953.

Gray, H. E. Stored product insects in Canada in 1952. Can. Ins. Pest Rev. **31**: 119-120. 1953.

Gray, H. E. Stored product insects in Canada in 1953. Can. Ins. Pest Rev. **32**: 125-126. 1954.

Gray, H. E. Stored product insects in Canada in 1954. Can. Ins. Pest Rev. **33**: 129-130. 1955.

Gray, H. E. Stored product insects in Canada in 1955. Can. Ins. Pest Rev. **34**: 132-133. 1956.

Howe, R. W. and Lindgren, D. L. How much can the Khapra beetle spread in the U.S.A. J. Econ. Ent. 50: 374-375. 1957.

King, K. M. Insect pests of stored products and the household. Proc. VII Pac. Sci. Cong. **4**: 146-148. 1958.

Spencer, G. J. Insects and other arthropods in buildings in British Columbia. Proc. Ent. Soc. B.C. **39**: 23-29. 1942.

The Collection of Coleoptera in the Department of Zoology, University of British Columbia

When I arrived at this University in the Autumn of 1924, I set out to build three collections of insects: first, a systematic collection representing all Orders occurring in the province; second, a synoptic collection for teaching; and third, a demonstration collection of insects of economic importance. It soon became evident that the systematic collection was the first essential, so skeleton collections only were made for teaching and of economic insects, and I concentrated on taking every insect of nearly every Order that I came across every Saturday afternoon and Sunday during summer months or whenever else I found them throughout the year.

At that time there were available in the Province, for reference, the Hopping collection of Coleoptera and the Buckell collection of Orthoptera at Vernon, the Blackmore collection of Lepidoptera and the Downes collection of Hemiptera-Homoptera in Victoria and the Glendenning collection of aphids at Agassiz. So I took no Lepidoptera, but concentrated on the smaller Orders, collecting only those beetles and bugs that I happened to find without actually hunting for them.

The late Kenneth Auden, a student in his fourth year in 1924, was a very keen coleopterist and gave me what he called "trash", namely duplicates of a few common species of which he had large series and these constituted the beginning of the beetle collection.

In time I had accumulated some 26 Schmitt boxes of beetles so that when Mr. George Hopping was loaned to the University by the Federal Government in the winter of 1945-46 to lecture in forest entomology, he spent seven months arranging the beetles into two 18-drawer cabinets and one cabinet of duplicates. He also added some specimens from his father's collection to fill conspicuous gaps in the University collection, chiefly of representative species from outside this province.

Meanwhile I kept on collecting. In the post-Hopping years, much of the material was identified by Professor M. H. Hatch of the University of Washington, Seattle, and more latterly by Mr. Gordon Stace-Smith of Creston who probably has the most extensive collection of B.C. beetles extant.

To these three specialists I owe a great debt of gratitude and offer my sincerest thanks.

No one, however, has been a better entomological friend to our University than Hugh B. Leech, formerly of the Division of Forest Insects, Vernon, but now in charge of the immense collection of Coleoptera at the California Academy of Sciences, San

Francisco. Mr. Leech not only named any beetles I sent him, but ever since his student days at this University, has given me insects of many Orders for our collections. In the one year that he was a student here in 1956-57, Hugh's son Robin carried on in his father's beetling footsteps. We owe a great deal to this father and son team and acknowledge it with pleasure and gratitude.

Many students also, over the years, have given us specimens we lacked or those of which we had very small series.

On 11 March, 1952 the beetle collection was counted by five senior students in Entomology and again on 18 October, 1957 by Michael J. Daniels, a graduate student in Zoology: the totals are shown below.

	March 1952	October 1957
Number of families		80
Total specimens	24484	30616
Duplicates only	10084	10231
No. of B. C. species	1138	1538
Total species	1864*	2211

* Errors, omissions and additions excepted.

The gain in five and one half years is exactly 400 species and 6132 specimens, a pleasing total. There is still a long way to go to catch up to Mr. Gordon Stace-Smith who has over 2400 B.C. species and an unknown number of specimens. On the other hand, considering that there was not ONE SINGLE beetle here when I arrived, these totals are gratifying especially when one considers the other orders I have assembled, *e.g.*, some 6000 specimens each of Hymenoptera and Hemiptera, about 4000 Orthoptera, 12000 Diptera and minor Orders in proportion.

These figures emphasize what I have pointed out repeatedly, namely, that British Columbia is an entomologist's paradise.

—*G. J. Spencer, University of British Columbia, Vancouver.*

TRITHION AS AN ORCHARD INSECTICIDE[1]

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Trithion[3], formerly known as Compound R-1303, is the brand name of a material containing *O*, *O*-diethyl *S*-(*p*-chlorophenylthiomethyl) phosphorodithioate (Stauffer Chemical Company, 1956).

This paper is a summary of the main, or typical, findings of experiments that we carried out with Trithion in the Okanagan Valley of British Columbia from 1955 to 1957. Though otherwise excellent, this material has a shortcoming indicated herein, that precludes its recommendation for use in British Columbia orchards.

Trithion has been available as a 25 per cent (by weight) wettable powder and as a "flowable" material, an aqueous emulsion containing 4 pounds of the technical chemical per U.S. gallon. We do not know the nature of the so-called inert materials in either formulation.

The compound interested us as a general insecticide comparable with Diazinon [*O*, *O*-diethyl *O*-(2-isopropyl-6-methyl-4-pyrimidinyl) phosphorothioate] in having "wide-spectrum" effectiveness against several groups of orchard insects and mites (Pielou and Proverbs, 1958) and was compared directly with Diazinon in many of our orchard trials.

Method of Application and Deposits on Leaves

The material was applied in two ways. First, large blocks of trees were sprayed with a standard air-blast concentrate machine moving at one mile per hour and applying 75 gallons of liquid per acre. This amount, in a mature orchard, gives full foliar coverage with practically no leaf-drip. With this method the insecticide was usually applied at 8 pounds of 25 per cent wettable powder per acre (concentration of active ingredient in

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