

them. It was at the suggestion of R. C. Treherne in 1917 that I commenced a collection of Hemiptera since no one else at that time seemed willing to take up the study of that order. This collection now numbers about 14,000 specimens mostly from Vancouver Island. Nearly all species recorded from British Columbia are represented. Long series, however, cannot be kept for lack of space. About the year 1935 serious collecting had to be abandoned through lack of time to attend to systematic work, but lately has been resumed. A very imperfect list was published by me in 1927 and it is planned to produce a new list in the not too distant future.

Finally, in recent years, Mr. Llewellyn Jones of Cobble Hill created his fine collection of British Columbia Lepidoptera. In respect to the beautiful condition of the specimens Mr. Jones' collection rivals that made years ago by Mr. Day and is much larger. It forms the basis of a new list of British Columbia Macrolepidoptera which is just off the press. We understand that this fine collection will be presented to the University of British Columbia and together with the Blackmore collection the University should possess one of the finest collections of Lepidoptera in the West.

I would like to close this review of 50 years of entomology with a word of appreciation for the co-operation and help that has been received from the Provincial Department of Agriculture. About the time of Treherne's appointment an agreement was made between the Dominion and Provincial Governments that all entomological research in the Province would be conducted by the Dominion Government and the Province would provide laboratory space where no Federal building was available, as at Victoria and Vernon. Over the years, the entomologists at Victoria have had reason to be grateful for this arrangement, for the Provincial Department of Agriculture not only gave office space, but for 27 years provided a stenographer as well. In addition, the services of the Department's mechanics were always available when required and, in short, the Department did all in its power to supplement the meagre facilities of the laboratory. Towards the Entomological Society the Department has always extended a helping hand and it is principally due to this support that the Society has been enabled to print its Proceedings since the Government grant was withdrawn. With such a spirit of co-operation prevailing, the entomologists of British Columbia may look forward with confidence to the future.

REMINISCENCES OF FIFTY YEARS OF ENTOMOLOGY IN THE LOWER FRASER VALLEY OF BRITISH COLUMBIA

R. GLENDENNING

Agassiz, B.C.

These notes make no attempt to be a review of applied entomology; fifty years of such a subject compressed into one paper would be much too long. In addition, excellent accounts of early entomology in this province are available in our Proceedings. The chief of these are G. O. Day's presidential address, and an article by R. C. Treherne, both in No. 4 published in 1914, and a further review by Treherne in No. 13 published in 1921. These give a clear picture of the start

of entomology, both systematic and applied up to 1920; they make interesting and profitable reading. So, instead of a tabulation of workers and their problems, I will recount some reminiscences of persons and incidents that may help you to envisage the past. In re-reading the various reviews already published, many memories are revived and personalities re-born, and one realizes the remarkable developments of entomology in the past 50 years—from the limited

but enthusiastic observations and collections of the few early systematists (the Aurelians of British Columbia) to the present highly staffed organization of specialists, watched over by co-ordinators, helped by statisticians, chemists and biometricians, and assisted by researches seconded from other sciences. All this has happened in fifty years.

One thing that strikes with special emphasis in these early records is the dominance of R. C. Treherne in all planned entomology in British Columbia. As you know he resuscitated this Society in 1911, and led all entomological research here until he went to Ottawa in 1924. I knew little of those stalwarts, Harvey, Bush, Dashwood-Jones, Tom Wilson, Sherman and others who lived in Vancouver. They were all, primarily, systematists—with the exception of Tom Wilson, who doubtless, collected on the lower mainland for the most part, as automobile travel was not yet. In Quarterly Bulletin No. 3 is an account of a trip by Harvey and Sherman over the Hope trail to Princeton; it took eight days, and must have been quite a strenuous adventure. Now it can be made in eight hours, there and back.

My first meeting with any of the old brigade was in 1907 when I timidly approached Mr. Thomas Cunningham, then Inspector of Fruit Pests in Vancouver, for employment. I had recently arrived from England complete with letters of reference, but I did not impress him apparently. However, I was soon engaged in applied entomology, as in the following year I was employed in a Vancouver nursery painting "maidens" with coal-oil; a very effective but laborious method of checking woolly aphids. But labour was cheap then—I received 20 cents per hour. My next entomological employment was in 1915 when I first met Mr. Treherne as the result of a chance observation of the presence of the currant bud-mite at Duncan on Vancouver Island. Treherne had greater discernment of talent than Mr. Cunningham, as I was promptly

employed by the Provincial Department of Horticulture to survey and eradicate the infestation. I drove around the Cowichan valley in a hired and tired horse and buggy.

Referring again to Mr. Cunningham, I would like to quote part of a paragraph from Treherne's Review of Applied Entomology in No. 4 of our Proceedings, wherein he refers to the general freedom of the province from insect pests. He says:—"If it had not been for the Horticultural Regulations against the introductions of dangerous insect pests, British Columbia entomology up to the present would have been very different. Instead of applying quarantine measures, we would have been studying and controlling insect pests of the farmer far more serious than any we have at present, and the published record of entomology in British Columbia would have been very different." That was in 1914. As you know these Elysian conditions do not now obtain, and on the face of it you might be tempted to think that Mr. Cunningham's successors had been lax in their duties. Such, I assure you is not the case, and the foregoing was quoted only to lead up to the point that I wish to make next—that the large increase in insect pests in this region is due to the greatly changed and changing conditions, not only in agriculture but in every phase of activity. Especially is this change pronounced in the increase in volume and methods of travel, and in the vastly increased acreage and variety of crops grown. I feel sure that many of the injurious species were here for years before they were first recorded as pests, but they had been kept to insignificant and un-noticed numbers through scarcity of food when subsisting on wild hosts, and by greater vulnerability to parasites and predators under such conditions.

Turning now briefly to two other old timers that I knew well, Anderson and Hanham; Walter Anderson was an Inspector of Indian Orchards; he travelled the whole province on that excuse. The Indians were not

orchardists, but he made many new records, both plant and insect. He was full of Indian lore, and was a good companion as long as you agreed with him. I soon learned to do this; others did not. Mr. Hanham was a bank manager at Duncan on Vancouver Island—a more enthusiastic collector I never knew—unless it is the income tax man or our present president, G. J. Spencer. Not satisfied with a vast collection of beetles and “micros,” he also gathered stamps and molluscs, both fresh-water and marine. Even when well on in years he still had the energy and enthusiasm to collect, and I went up both Mount Cheam and Mount McLean with him. I can see him now leaping about on the high rock slides like a young antelope, chasing a small brown butterfly called *vidleri*. On the trip up Cheam Walter Anderson was also along, and Hanham committed the unpardonable sin of disturbing a wasps’ nest and of running away so that the wasps were left with Anderson. The tongue lashing he received was equal to the wasps’ invective.

Eric Hearle was one of the few specialists in the earlier days; he studied the mosquito problem in the lower Fraser valley for three years under the direction of the National Research Council, and in response to a request for a mosquito control programme by the municipalities on the lower mainland. He covered the valley from New Westminster to Hope by car, boat and airplane. His invaluable report stands like a bridge without approaches, because, when it came to providing funds to implement his recommendations, the municipalities decided that they had no mosquitoes. I went out with Eric Hearle once or twice; his keenness was most marked, and his arms a mass of bumps as he tested the virulence of the bites of the different species. He has gone, along with so many of the noble band of early days—Hewitt, Treherne, Dennys, Seymour Hadwen, Day, Hanham, Sherman, Anderson, Cunningham, Blackmore and Mar-mont, to mention only those personally known to me.

You will pardon me, I hope, if I become personal again in order to help you visualize the earlier days. I first went to Agassiz in 1919, assisting A. B. Baird who was then studying the natural control of the spruce budworm and tent caterpillars, and in 1921 I took over the Agassiz laboratory when Baird returned to the East. There were few entomologists in the province in those days; Treherne, Buckell, Ruhmann, Venables and Ralph Hopping in the Interior and Downes on Vancouver Island, so that I had the whole of the lower mainland including Vancouver for a field of work. The trend then was for a regional division of work rather than a crop-plant division as is now followed. Speaking medically, most of us were general practitioners rather than surgeons, obstetricians or psychiatrists; and from 1921 until quite recently I delved into every form of insect trouble—from shade tree pests on Vancouver streets to parasite collection and liberation around Lillooet; from grain pests in elevators, and ear-wigs and slugs in gardens to the wide open spaces where moles and clover seed midges roamed unchecked. I climbed to the tops of tall Douglas fir trees to find what was spoiling the seed-cone harvest, and flew over and waded through mosquito swamps to locate breeding pools. I tried out this and that for flea-beetles, hop aphids, root maggots and fruit flies. Undoubtedly I knew a little about a lot.

The expression—trying out this and that—brings me to my last theme—the ammunition that we had to work with for control measures. All the foregoing was in the pre-DDT era. It was so delightfully simple then. We had so few chemicals to worry about, and unless you drank them neat, they did not poison you. In the provincial bulletin “Diseases and Pests of Cultivated Plants” published in 1924, nine insecticides are listed—lead arsenate, mercury bi-chloride, paris green, hellebore, nicotine sulphate, kerosene emulsion, quassia, whale-oil soap and that great stand-by lime-sulphur. If

none of these proved effective, one had to concentrate on cultural operations, a procedure too often neglected these days. With the evolution of spraying and dusting machinery, and the introduction of dozens of new organic and other chemicals, each more devastating than the last, and with names even more fearful, the humble practitioner finds that he is required to be an engineer and a chemist as well as an entomologist; and in the past few years with the increase in personnel he has to be an accountant, mathematician and administrator in addition. It is all so new and untried with so many different angles to watch.

I have mentioned many workers who have gone to the happy collecting grounds, and should mention one or two of the acquisitions that entomology has made during this period. In 1924 a whirlwind appeared in the province in the person of our president, G. L. Spencer.

His energy and enthusiasm have done much to advance our Society and entomology in general here. From various sources and by devious means he has amassed a vast collection of insects of the province at the University of British Columbia, and his effective tutelage has provided fieldmen with well trained assistants, where before there were none. Finally, mention must be made of the invasion of prairie and eastern entomologists which occurred a few years ago. The outbreak caused no little concern at the time as no control was known, but I am glad to say none has been found necessary. They all turned out to be, not commensals or inquilines, but excellent examples of mutualism, and a perfect symbiosis with the older workers has developed that I am sure will be of benefit to entomology in the province in the coming fifty years.

FIFTY YEARS OF ENTOMOLOGY IN THE INTERIOR OF BRITISH COLUMBIA

E. P. VENABLES

Vernon, B.C.

When I was selected to present a paper dealing with the above subject I felt somewhat at a loss; but, when told that I should be working with Mr. E. R. Buckell, the problem was simplified to a great extent because Buckell and I had already worked together on many occasions. One might approach this subject from various angles, but as I was told that dry statistics were not required I have done my best to avoid them, and to give what may be a somewhat personal narrative dealing with certain characters whom I met and who were, at that time, the sole representatives of our science in the Okanagan Valley. I might deal with my own early struggles in the field of entomology and recount the difficulties which I had to overcome in order to gain a foothold on the ladder, which eventually landed

me among the "elite" or, so I should have thought, in 1897.

It was my good fortune to meet the late Dr. James Fletcher quite early in my entomological career, and it was due to his personal interest that I was able to have my material named. Dr Fletcher was an inspiring personality, a naturalist of the old school, who when addressing the public, always stressed the interesting points of insect behaviour, rather than their control, for, as he said, "if one is interested in the subject the artificial control measures are much more easily understood." Fletcher filled the dual roll of Dominion Entomologist and Botanist. I wonder how one of us would feel if landed in that position today. He had one assistant, Mr. Arthur Gibson, who later became Dominion Entomologist and had much