



**ENTOMOLOGISTS
OF
BRITISH COLUMBIA**



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FOREWORD

The American Pacific Northwest and the west coast of British Columbia was a bonanza for many who were interested in the flora and fauna of the New World. J.K. Lord of the International Boundary Commission (1858-1862) collected 148 species of insects that included specimens of many Orders. Many of the early clergy like Henry Matthews (1869) and J.H. Keen (1890) collected dozens of species of Lepidoptera and Coleoptera on Vancouver Island and in the Queen Charlotte Islands. Members of the Geological Survey of Canada, and especially A.R. Selwyn, greatly expanded our knowledge of the entomological fauna when they collected assiduously in the 1870s in Central B.C. and the Peace River country. This was a period of time when inventories were being made, not for the purposes of control or regulation, but because people simply wanted to know what was present in the Canadian territories.

Later, in the 1880s and 1890s, the naturalists of the province held sway. This was the period when the Rev. G.W. Taylor led the pack, especially after the Crown colony of Vancouver Island joined the mainland to form the colony of British Columbia (1866) and joined Canada as a province in 1871. Taylor was named the Honorary Provincial Entomologist (1881) thereby giving credence, recognition and authority to an energetic life science. Many were the naturalists that followed in his wake. These are recognized in the following pages as worthy contributors to entomology in the province of British Columbia.

By the turn of the century other aspects of entomology became apparent; it was given greater exposure and prominence in the formation of the Entomological Society of British Columbia, which R.V. Harvey organized as a society in 1902. Collections made by members of the Entomological Society formed the basis of the Royal British Columbia Museum's holdings. Insect pests had become well established by this time and economic entomologists were actively suppressing the ravages of insects in forests, fields and orchards. These included members of the B.C. Horticultural Board (Anderson, Cunningham, Palmer) and stalwarts of the federal Entomological Branch. The latter was a many faceted organization that placed informed entomologists in various laboratories and included: R.C. Treherne at Agassiz (1912) and Vernon (1915); R. Hopping at Vernon (1918); W. Downes at Victoria (1919); E.R. Buckell at Vernon (1922); G.R. Hopping at Vancouver (1925); and E. Hearle at Kamloops (1928). These individuals, together with their associates and successors, broadened the scope of entomological research while curbing the damage wrought by pests of forest, field crops, fruit trees, vegetables, and parasites of man and animals.

Entomology was an important aspect of the biological curriculum of the High Schools in British Columbia ever since the subject was introduced by R.V. Harvey in his Queen's School in Vancouver in 1900. At the University level, prior to 1919, instruction was given by various provincial and federal entomologists. Thereafter, C. McLean of the Zoology Department included insects in his courses. In 1924, with the arrival of G.J. Spencer, entomology blossomed and expanded over the next 30 years as a major science at U.B.C. Others followed in his pioneering wake, not only at U.B.C. but also at the other more recently established universities in the province.

These, and many others whose brief profiles are listed in the following pages, richly deserve the recognition given them. Their synoptic biographies and the resumes of work done reflect the sincerity, integrity, and enthusiasm given the science of entomology in British Columbia in the last one and one-half centuries. It is with a feeling of fellowship and great pride that we acknowledge their efforts and dedication to entomology in Canada.

ACKNOWLEDGEMENT

The compilation of these profiles was more than an effort by one individual. There are many to whom I am grateful for assistance, notably the following:

- the Governing Board of the Entomological Society of Canada for approving the project, encouraging participation in the compilation of biographies, and providing financial support.
- the many members of the Entomological Society of British Columbia who gave freely of their time by providing biographical details, personal photographs, constant encouragement, and bore some of the costs of publication.
- J.A. McLean, J.H. Myers, R.A. Ring, and G.G.E. Scudder for supplying information on graduate students and their theses; F.L. Banham, R.A. Cannings, Thelma Finlayson, and I.S. Otvos for their special efforts in expediting the receipt of biographical information and obtaining photographs of members.

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1 March 1991

III. Graduate Students in Entomology

The following is a list of former graduate students, the degree received, year of graduation, thesis title, and the name of the thesis research supervisor:

1. The University of British Columbia

a. The Faculty of Forestry

Carlson, J.A. – M.Sc., 1987. Repellent effects of pineoil on the Sitka spruce weevil, *Pissodes strobi* (Peck), and an evaluation of large scale aerial photographs for detecting weevil damage. Supervisor: J.A. McLean.

Cerezke, H.F. – Ph.D., 1969. The distribution and abundance of the root weevil, *Hylobius warreni* Wood, in relation to lodgepole pine stand conditions in Alberta. Supervisor: K. Graham.

Churcher, J.J. – M.Sc., 1984. Detection of spruce beetle (*Dendroctonus rufipennis*) infestations using aerial photographs. Supervisor: J.A. McLean.

Cozens, R. – M.F., 1985. Insect and disease risk factors in established interior spruce plantations. Supervisor: J.A. McLean.

Ebata, T. – M.Sc., 1986. Rearing studies of the Douglas-fir cone moth, *Barbara colfaxiana* (Kearfoot) (Lepidoptera: Tortricidae). Supervisor: J.A. McLean.

Francia, F.C. – Ph.D., 1965. Studies of some aspects of behaviour in the ambrosia beetle, *Trypodendron lineatum* (Olivier). Supervisor: K. Graham.

Hall, P.M. – M.Sc., 1981. Remote sensing of Douglas-fir trees newly infested by bark beetles. Supervisor: J.A. McLean.

Kovacs, E. – M.Sc., 1988. Terminal weevils of lodgepole pine and their parasitoid complex in British Columbia. Supervisor: J.A. McLean.

Kozak, A. – M.F., 1961. A study of some factors influencing the abundance of *Adelges cooleyi* (Gill) on Douglas-fir. Supervisor: K. Graham.

Kozak, A. – Ph.D., 1963. Analysis of some factors associated with distribution and intensity of attack by cone and seed insects in Douglas-fir. Supervisor: K. Graham.

Liu, Y. – M.Sc., 1987. Biology of *Gnathotrichus retusus* and behavioural responses of *G. retusus* and *G. sulcatus* to semiochemicals. Supervisor: J.A. McLean.

Maher, T. – M.F., 1982. The biology and impact of the lodgepole terminal weevil in the Cariboo Forest Region. Supervisor: J.A. McLean.

Majawa, A.O. – M.F., 1977. Phytoecological impacts and management implications of the Douglas-fir tussock moth near Kamloops, British Columbia. Supervisor: K. Graham.

Moody, B.H. – Ph.D., 1977. Design of a sampling system for the larch casebearer (*Coleophora laricella* Hbn.). Supervisor: K. Graham.

Safranyik, L. – M.F., 1963. Analysis of some factors influencing the distribution and abundance of the poplar and willow borer (*Sternochetus lapathi* (L.) on scouler willow (*Salix scouleriana* Bavratt.). Supervisor: K. Graham.

Safranyik, L. – Ph.D., 1969. Development of a technique for sampling mountain pine beetle populations in lodgepole pine. Supervisor: K. Graham.

Salom, S.M. – Ph.D., 1989. Dispersal and flight behaviour of *Trypodendron lineatum* (Olivier) (Coleoptera: Scolytidae) as influenced by semiochemical and environmental factors. Supervisor: J.A. McLean.

Shore, T.L. – Ph.D., 1982. A pheromone-mediated mass-trapping program for three species of ambrosia beetle in a commercial sawmill. Supervisor: J.A. McLean.

Stark, R.W. – Ph.D., 1958. Population dynamics of the lodgepole needle miner, *Recurvaria starkii* Free. (Lepidoptera: Gelechiidae) in Canadian Rocky Mountain Parks. Supervisor: K. Graham.

Sweeney, J.D. – Ph.D., 1987. Western spruce budworm: behaviour and monitoring with sex-pheromone traps. Supervisor: J.A. McLean.

Syed, A. – M.F., 1972. Chemical determinants of tree susceptibility to mountain pine beetle (*Dendroctonus ponderosae* Hopkins). Supervisor: K. Graham.

Turnbull, A.L. – M.F., 1953. Spider predators of the spruce budworm *Choristoneura fumiferana* Clem. at Lillooet, British Columbia. Supervisor: G.J. Spencer.

Walters, J. – M.F., 1955. A system of indirect control of the Douglas-fir beetle, *Dendroctonus pseudotsugae* Hopk. Supervisor: K. Graham.

Watts, S.B. – M.F., 1975. Blackflies (Diptera: Simuliidae): A problem review and evaluation. Supervisor: K. Graham.

Watts, S.B. – Ph.D., 1981. Characterization of the salivary gland proteins of the blood-sucking blackflies, *Simulium vittatum* and *Simulium decorum* (Diptera: Simuliidae). Supervisor: K. Graham.

Zanuncio, J. – Ph.D., 1981. Biology of *Gnathotrichus sulcatus* (LeConte, 1968) (Coleoptera: Scolytidae) with special emphasis on host colonization and brood production. Supervisor: J.A. McLean.

b. Department of Zoology

Anholt, B.R. – Ph.D., 1989. Sources of variation in larval survival, growth and development rates and their consequences for adult survival and reproductive success in *Enallagma boreale Selys* (Odonata: Coenagrionidae). Supervisor: W.E. Neill.

Atkins, M.D. – M.Sc., 1960. A study on the flight of Douglas-fir beetle, *Dendroctonus pseudotsugae* Hopk. (Scolytidae). Supervisor: K. Graham.

Balshine, M. – Ph.D., 1973. Absorption of amino acids in vitro by the rectum of the desert locust (*Schistocerca gregaria*). Supervisor: J.E. Phillips.

Bassett, M.C. – M.Sc., 1967. A cytotoxic study of the most common larval Chironomidae in a series of saline waters in the southern Interior of British Columbia. Supervisor: A.B. Acton.

Bernard, D.P. – M.Sc., 1985. Impact of stream acidification on invertebrates: drift response to in situ experiments augmenting aluminum ion concentrations. Supervisor: W.E. Neill.

Black, T. – M.Sc., 1984. Sodium transport across the locust rectum. Supervisor: J.E. Phillips.

Bradley, T.J. – Ph.D., 1976. The mechanism of hyperosmotic urine formation in the recta of saline-water mosquito larvae. Supervisor: J.E. Phillips.

Brock, J.A.K. – M.Sc., 1989. A genetic analysis of region 31 on chromosome 2 of *Drosophila melanogaster*. Supervisor: T.A. Grigliatti.

Brown, G.S. – M.Sc., 1951. Some factors influencing the populations of the hemlock sawfly, *Neodiprion tsugae* Midd. Supervisor: K. Graham.

Caira, J.N. – M.Sc., 1981. Parasitism of Trichoptera by *Bunodera mediovitellata* (Digenea: Allocreadiidae) and the encapsulation response. Supervisor: G.G.E. Scudder.

Campbell, D.K. – M.Sc., 1953. Ecological factors influencing diapause in the spruce budworm, *Choristoneura fumiferana* (Clem.) (Tortricidae). Supervisor: K. Graham.

Cannings, R.A. – M.Sc., 1973. An ecological study of some of the Chironomidae inhabiting a series of saline lakes in central British Columbia, with special reference to *Chironomus tentans* Fabricius. Supervisor: G.G.E. Scudder.

Cannings, S.G. – M.Sc., 1977. The influence of temperature and salinity on the cuticular permeability of some Corixidae. Supervisor: G.G.E. Scudder.

Carl, E.A. – Ph.D., 1970. The regulation of numbers in *Tribolium confusum* by means of selective migration. Supervisor: D.H. Chitty.

Carrow, J.R. – M.Sc., 1967. Some effects of host tree nutrition on establishment and survival of the balsam woolly aphid, *Adelges piceae* (Ratz.). Supervisor: K. Graham.

Chamberlin, M.E. – Ph.D., 1981. Metabolic studies on the locust rectum. Supervisor: J.E. Phillips.

Chan, V.B. – M.Sc., 1967. A study of some factors influencing the orientation behaviour of the ambrosia beetle, *Trypodendron lineatum* (Olivier) (Coleoptera: Scolytidae). Supervisor: K. Graham.

Chant, D.A. – M.Sc., 1952. Three species of orchard mites and their predators on apple trees in the southern Okanagan Valley of British Columbia, and the effects of three insecticides on this complex. Supervisor: G.J. Spencer.

Clark, W.C. – Ph.D., 1979. Spatial structure and population dynamics in an insect epidemic ecosystem. Supervisor: C.S. Holling.

Devlin, R.H. – M.Sc., 1985. Gene expression in and development of trisomies of *Drosophila melanogaster*. Supervisors: T.A. Grigliatti & D.G. Holm.

Duffey, S.S. – M.Sc., 1970. A plant (*Asclepias*) – insect (*Oncopeltus*) chemical relationship. Supervisor: G.G.E. Scudder.

Ellickson, P.J. – M.Sc., 1965. A study of the effects of toxaphene on the bottom fauna of Paul Lake, British Columbia. Supervisor: I.E. Efford & P.A. Larkin.

Emery, D.J. – M.Sc., 1983. Characterization of a reduced eye mutant of the grasshopper *Melanoplus sanguinipes*. Supervisor: J.D. Steeves.

Fedorenko, A.Y.R. – M.Sc., 1973. Predation interaction between zooplankton and two species of *Chaoborus* (Diptera, Chaoboridae) in a small coastal lake. Supervisor: T.G. Northcote.

Filmer, N.J. – M.Sc., 1964. A contribution to the Ephemeroptera of British Columbia. Supervisor: G.G.E. Scudder.

Finlayson, D.G. – M.Sc., 1950. The effects of certain insecticides on the biotic potential of *Epitrix tuberis* Gentner (Coleoptera: Chrysomelidae). Supervisor: G.J. Spencer.

Finnegan, R.J. – Ph.D., 1958. Ecological studies of *Hylobius radialis* Buch., *H. pales* (Hbst.) and *Pissodes approximatus* Hopk. (Coleoptera: Curculionidae) in southern Ontario. Supervisor: K. Graham.

Fitzpatrick, K.A. – M.Sc., 1985. The effect of chromatin structure on P element induced male recombination in *Drosophila melanogaster*. Supervisor: T.A. Grigliatti.

Freeman, J.D. – M.Sc., 1987. The cloning of *Polyhomeotic*, a complex *Drosophila* locus required for segment determination and cuticular differentiation. Supervisor: D.H. Brock.

Giguere, L. – M.Sc., 1973. An experimental test of Dodson's hypothesis that *Ambystoma* and *Chaoborus* have complimentary feeding niches. Supervisor: C.F. Wehrhahn.

Goh, S.L. – M.Sc., 1971. Mechanism of water and salt absorption in the *in vitro* locust rectum. Supervisor: J.E. Phillips.

Gossard, T.W. – M.Sc., 1973. An experimental component analysis of sexual reproduction. The egg production and egg fertilization process, with some consideration of the mating process for *Drosophila melanogaster*. Supervisor: C.S. Holling.

Griffiths, K.J. – Ph.D., 1966. The importance of coincidence in entomophagous insects with particular reference to certain parasites of *Neodiprion sertifer* (Geoff.) Supervisor: K. Graham.

Guppy, C.S. – M.Sc., 1985. Alpine melanism in the butterfly *Parnassius phoebus* F. (Lepidoptera: Papilionidae). Supervisor: G.G.E. Scudder.

Gupta, A.P. – M.Sc., 1961. Comparative morphology of Saldidae and Mesoveliidae (Heteroptera) and its bearing on classification. Supervisor: G.G.E. Scudder.

Hamilton, A.L. – Ph.D., 1965. An analysis of a freshwater benthic community with special reference to the Chironomidae. Supervisor: I.E. Efford.

Harris, C.R. – M.Sc., 1956. A method of bioassay for the residual contact toxicity of insecticides. Supervisor: K. Graham.

Henderson, D.S. – M.Sc., 1987. A genetic analysis of mutagen-sensitive mutations on the second chromosome of *Drosophila melanogaster*. Supervisor: T.A. Grigliatti.

Hewson, R.J. – M.Sc., 1969. A study of the role of the wings and their musculature in the flight of *Oncopeltus fasciatus* (Heteroptera). Supervisor: G.G.E. Scudder.

Higgins, C. – M.Sc., 1991. Spatial distribution and reproductive biology of western flower thrips (*Frankliniella occidentalis*) (Pergande) (Thysanoptera: Thripidae). Supervisor: J.H. Myers.

Holden, J.J. – Ph.D., 1973. Developmental studies in *Drosophila melanogaster*. Supervisor: D. Suzuki.

Holling, C.S. – Ph.D., 1957. The components of predation as revealed by a study of predation by small mammals of *Neodiprion sertifer* (Geoff.). Supervisor: K. Graham.

Idyll, C.P. – M.Sc., 1940. A contribution to the study of the bottom fauna of some portions of the Cowichan River, British Columbia. Supervisor: G.J. Spencer.

Irvine, H.B. – M.Sc., 1966. *In vitro* rectal transport and rectal ultrastructure in the Desert Locust (*Schistocerca gregaria*). Supervisor: J.E. Phillips.

Isman, M.B. – M.Sc., 1977. Aspects of the chemical ecology of Lygaeid bugs (*Oncopeltus fasciatus* and *Lygaeus kalmii*) feeding on milkweeds (*Asclepias* species) in central California. Supervisor: G.G.E. Scudder.

Jacob, J.K. – M.Sc., 1938. The termites of British Columbia, their structure, biometrics and intestinal fauna. Supervisor: G.J. Spencer.

Jamieson, G.S. Ph.D., 1973. Coexistence in the Gerridae. Supervisor: G.G.E. Scudder.

Jansson, A.R. – Ph.D., 1971. Stridulation and its significance in the waterbug genus *Cenocorixa*. Supervisor: G.G.E. Scudder.

Jarial, M.S. – M.Sc., 1964. Osmoregulation and respiration in two corixid species. Supervisor: G.G.E. Scudder.

Jarial, M.S. – Ph.D., 1967. Histophysiological and ultrastructural studies on the hindgut and brain of *Cenocorixa bigida* (Hemiptera: Insecta). Supervisor: G.G.E. Scudder.

Jones, J.W. – M.Sc., 1982. Reproductive dynamics of the parasitoid *Spalangia endius* (Walker) (Hymenoptera: Pteromalidae), with particular reference to host-searching and host-acceptance behaviour. Supervisor: W.G. Wellington.

Kamp, J.W. – Ph.D., 1973. Biosystematics of the Grylloblattodea. Supervisor: G.G.E. Scudder.

Kaufman, S.E. – Ph.D., 1971. Ion and water regulation during feeding in the female tick, *Ornithodoros moubata*. Supervisor: J.E. Phillips.

Kaufman, W.R. – Ph.D., 1971. The role of the salivary gland in ion and water regulation during feeding in the female tick, *Dermacentor andersoni*. Supervisor: J.E. Phillips.

Kiceniuk, J.M. – M.Sc., 1971. Magnesium regulation in *Aedes campestris* larvae. Supervisor: J.E. Phillips.

Lancaster, J. – M.Sc., 1985. Structure of arthropod communities in some saline lakes of central British Columbia. Supervisor: G.G.E. Scudder.

Lechleitner, R.A. – Ph.D., 1988. Properties of ion and fluid transport and control in the hindgut of the desert locust (*Schistocerca gregaria*). Supervisor: J.E. Phillip.

Lewis, S.A. – M.Sc., 1971. Change properties and ion selectivity by the rectal intima of the desert locust. Supervisor: J.E. Phillips.

Lo, S.E. – M.Sc., 1967. The ultrastructure of the rostral sensory organs of *Cenocorixa bifida*. Supervisor: A.B. Acton.

Marchant, G.E. – Ph.D., 1986. The genic analysis of the heterochromatin of chromosome 3 of *Drosophila melanogaster*. Supervisor: T.A. Grigliatti.

Maynard, K.J. – M.Sc., 1969. A population study of waterstriders (Gerridae: Hemiptera) in Marion Lake, B.C. Supervisor: D.H. Chitty.

McKone, D.W. – Ph.D., 1975. Quantitative studies of stream drift with particular reference to the McLay model. Supervisor: P.A. Larkin.

McNamee, P.J. – Ph.D., 1987. The equilibrium structure and behavior of defoliating insect systems. Supervisor: C.J. Walters.

Meredith, J. – M.Sc., 1971. An ultrastructural study of the anal papillae of *Aedes campestris* larvae and the hind gut of *Aedes aegypti* larvae. Supervisor: J.E. Phillips.

Miller, C.D.F. – M.Sc., 1951. The external morphology of *Aoplus gestus* (Cresson) (Hymenoptera: Ichneumonidae), a parasite of the oak looper and hemlock looper in British Columbia. Supervisor: G.J. Spencer.

Moeck, H.A. – M.Sc., 1967. Electron microscopic studies of antennal sensilla in the ambrosia beetle *Trypodendron lineatum* (Olivier) (Scolytidae). Supervisor: K. Graham.

Moore, L.M. – Ph.D., 1985. Some aspects of the sequestration of cardenolides in the large milkweed bug *Oncopeltus fasciatus* (Dallas) (Hemiptera: Lygaeidae). Supervisor: G.G.E. Scudder.

Morrison, P.D.S. – Ph.D., 1987. Host plant variation and population limitation of two introduced insects. Supervisor: J.H. Myers.

Mottus, R.C. – Ph.D., 1983. Position effect variegation in *Drosophila melanogaster*, chemical modification and mutational analysis. Supervisor: T.A. Grigliatti.

Needham, K.M. – M.Sc., 1990. Specific and seasonal variation in survival and sodium balance at low pH in five species of waterboatmen (Hemiptera: Corixidae). Supervisor: G.G.E. Scudder.

Ng, K.K. – M.Sc., 1985. Malpighian tubules of *Aedes dorsalis* mosquito larvae: general characteristics and mechanism of magnesium transport. Supervisor: J.E. Phillips.

Oloffs, P.C. – M.S.A., 1964. Permeability of the insect cuticle to water and the transition phenomenon. Supervisor: G.G.E. Scudder.

Pearlstone, P.S.M. – M.Sc., 1971. Observations of a natural population of damselfly larvae. Supervisor: I.E. Efford.

Pennell, J.T. – M.Sc., 1960. Crystal forms and availability of lindane residues to an ambrosia beetle. Supervisor: K. Graham.

Peterman, R.M. – Ph.D., 1974. Some aspects of the population dynamics of the mountain pine beetle, *Dendroctonus ponderosae*, in lodgepole pine forests of British Columbia. Supervisor: C.J. Walters.

Peterson, G.R. – M.Sc., 1966. The relationship of invertebrate drift abundance to the standing crop of benthic organisms in a small stream. Supervisor: J.T. McFadden.

Proctor, D.L.C. – M.Sc., 1971. The effect of temperature and photoperiod on the duration of larval development in three species of Odonata. Supervisor: I.E. Efford.

Reid, J.A.K. – M.Sc., 1974. An experimental investigation of autosomal translocations for insect pest control: fitness effects and marker-free isolation techniques. Supervisor: C.F. Wehrhahn.

Reid, R.W. – M.Sc., 1953. Some factors affecting colonization and distribution of bark-beetles within selectively logged areas. Supervisor: K. Graham.

Reynolds, J.D. – Ph.D., 1974. Aspects of the ecology of two species of *Cenocorixa* (Corixidae: Hemiptera) in allopatry and sympatry. Supervisor: G.G.E. Scudder.

Richards, L.J. – M.Sc., 1978. Maternal influences on size in the cinnabar moth. Supervisor: J.H. Myers.

Richards, L.J. – Ph.D., 1982. Foraging behaviour of the intertidal beetle, *Thinopinus pictus* (Staphylinidae). Supervisor: J.H. Myers.

Richardson, J.S. – Ph.D., 1989. Seasonal food limitation of detritivorous insects in a montane stream. Supervisor: W.E. Neill.

Richter, M.D. – M.Sc., 1986. Environmental and genetic influences on the life span of adult *Drosophila melanogaster*. Supervisor: T.A. Grigliatti.

Robinson, J.J. – M.Sc., 1985. A comparative study of two seed bugs, *Geocoris bullatus* (Say) and *G. discopterus* Stal. (Hemiptera: Lygaeidae) in the Yukon. Supervisor: G.G.E. Scudder.

Roland, J. – M.Sc., 1981. The adaptive value of melanism in alpine *Colias* butterflies (Lepidoptera: Pieridae). Supervisor: J.H. Myers.

Roland, J. – Ph.D., 1986. Success and failure of *Cyzenis albicans* in controlling its host the winter moth. Supervisor: J.H. Myers.

Sargent, R.W. – M.Sc., 1978. Salinity and the physiology of three chironomid species which inhabit saline lakes. Supervisor: G.G.E. Scudder.

Scherer, N.M. – M.Sc., 1977. The function of the anal papillae of saline-water mosquito larvae. Supervisor: J.E. Phillips.

Simpson, J.E. – M.Sc., 1968. The flight muscle polymorphism in *Cenocorixa bifida*. Supervisor: G.G.E. Scudder.

Simpson, W.W. – M.Sc., 1976. Morphological correlations to an electrical resistance barrier in the eye of the locust, *Schistocerca gregaria*. Supervisor: M. Shaw.

Smith, B.P. – M.Sc., 1977. Water mite parasitism of water boatmen (Hemiptera: Corixidae). Supervisor: G.G.E. Scudder.

Speight, J.D.I. – M.Sc., 1967. Acidification of rectal fluid in the locust, *Schistocerca gregaria*. Supervisor: J.E. Phillips.

Spence, J.R. – Ph.D., 1979. Microhabitat selection and regional coexistence in waterstriders (Heteroptera: Gerridae). Supervisor: G.G.E. Scudder.

Spring, J.H. – Ph.D., 1979. Studies on the hormonal regulation of ion resorption in *Schistocerca gregaria*. Supervisor: J.E. Phillips.

Steinhoff, G. – M.Sc., 1980. Daily and seasonal interactions between salmonberry (*Rubus spectabilis*) and bumblebees (*Bombus sitkensis*) in southwestern British Columbia. Supervisor: W.E. Neill.

Strange, K. – Ph.D., 1983. Cellular mechanism of bicarbonate regulation and excretion in an insect inhabiting extremes of alkalinity. Supervisor: J.E. Phillips.

Swift, M.C. – Ph.D., 1974. Energetics of vertical migration in *Chaoborus trivittatus* larvae. Supervisor: T.G. Northcote.

Szibbo, C.M. – M.Sc., 1977. Physiology of secretion of the segmented Malpighian tubules of *Cenocorixa bifida* (Hemiptera: Insecta). Supervisor: G.G.E. Scudder.

Teraguchi, M. – M.Sc., 1964. The effect of age and environmental factors on the vertical migration and distribution of *Chaoborus flavicens* (Meigen) larvae. Supervisor: T.G. Northcote.

Topping, M.S. – Ph.D., 1969. Giant chromosomes, ecology and adaptation. Supervisor: G.G.E. Scudder.

Wade, L.E. – M.Sc., 1954. The Collembola of the Vancouver region of British Columbia. Supervisor: G.J. Spencer.

Wennberg, R.A. – M.Sc., 1989. A novel requirement for the x-chromosome in P-M hybrid dysgenesis and the interaction of the garnet and enhancer of garnet loci in *Drosophila melanogaster*. Supervisor: T.A. Grigliatti.

Williams, D.C. – M.Sc., 1980. Amino acid requirements of *Schistocerca gregaria* (Forsk.) larvae. Supervisor: T.H. Carefoot.

Williams, D.L. – M.Sc., 1976. Ion transport and short circuit current in the rectum of the desert locust, *Schistocerca gregaria*. Supervisor: J.E. Phillips.

c) Department of Plant Science

Barnaby, Susan K. – M.Sc., 1984. Insects and rapeseed plants. Supervisor: W.G. Wellington.

Cambell, B.J. – M.Sc., 1975. Food plant spacing and the dispersal tendency of the Cinnabar moth larva. Supervisor: J.H. Myers.

Constant, Helene. – M.Sc., 1988. Modification of microclimate by the blueberry leaf-tier, *Cheimophila salicella* (Hbn.) (Lepidoptera: Oecophoridae). Supervisor: W.G. Wellington.

Edwards, Linda L. – M.Sc., 1986. The agricultural ecology of peachtree borer (*Synanthedon exitiosa* Say). Supervisor: J.H. Myers.

FitzPatrick, S.M. – M.Sc., 1981. Territorial aggression among males of three Syrphid species. Supervisor: W.G. Wellington.

Gadsby, M.C. – M.Sc., 1982. Dispersal of *Phytoseiulus persimilis* Athias-Henriot (Acarine: Phytoseiidae) and its importance to biological control programs. Supervisor: W.G. Wellington.

Goth, Georgia J. – Ph.D., 1977. A study of the variation due to maternal age in *Hylemya antiqua*. Supervisor: W.G. Wellington.

Henderson, Deborah E.H. – Ph.D., 1981. Response of some hoverflies to oviposition sites. Supervisor: W.G. Wellington.

Johnson, Daniel L. – M.Sc., 1980. Growth and regulation of springtail populations, with special reference to predation of pseudoscorpions. Supervisor: W.G. Wellington.

Johnson, Daniel L. – Ph.D., 1983. Predation, dispersal and weather in an orchard mite system. Supervisor: W.G. Wellington.

Lamb, Robert J. – Ph.D., 1974. Earwig travel in relation to habitat. Supervisor: W.G. Wellington.

Luczynski, Anna. – M.Sc., 1988. Chemical and morphological factors of resistance against the two-spotted spider mite (*Tetranychus urticae* Koch) in beach strawberry *Fragaria chiloensis* (L.) Duchesne. Supervisor: M.B. Isman.

Lyons, Donald, B. – Ph.D., 1988. Phenology and biometeorology of pine false webworm (Hymenoptera: Pamphiliidae) and its parasitoids in southern Ontario. Supervisor: W.G. Wellington.

MacKay, Patricia A. – Ph.D., 1974. Studies of maternal age as a source of variation in two insect species. Supervisor: W.G. Wellington.

Maynard, R.J. – M.Sc., 1972. Phytophagous insects on the Ashnola Bighorn Sheep range. Supervisor: V.C. Brink.

Nealis, Vincent G. – Ph.D., 1983. Development, diapause and seasonal ecology of the insect parasite, *Apanteles rubecula* (Hymenoptera: Braconidae). Supervisor: W.G. Wellington & B.D. Frazer.

Obadafin, A.A. – M.Sc., 1976. The efficiency of *Bembidion lampros* (Herbst) (Coleoptera: Carabidae) as a predator of *Hylemya brassicae* (Bouche) (Diptera: Anthomyiidae) eggs and the effects of several insecticides on the beetle. Supervisor: W.G. Wellington & D.G. Finlayson.

Powell, Robert D. – Ph.D., 1988. Diffuse knapweed (*Centaurea diffusa*) reproductive thresholds, population ecology and responses to the introduction of the Buprestid beetle (*Sphenoptera jugoslavica*) Supervisor: J.H. Myers.

Raworth, David A. – Ph.D. 1982. Population dynamics of the cabbage aphid, *Brevicoryne brassicae* (L.) (Homoptera: Aphididae) in Vancouver, British Columbia: a quantitative study and synthesis of ecological relationships. Supervisor: W.G. Wellington & B.D. Frazer.

Roitberg, Bernard D. – M.Sc., 1977. Studies on the dispersal behaviour of apterous pea aphids, *Acyrtosiphon pisum* (Harris). Supervisor: J.H. Myers.

Rollo, C. David. – Ph.D., 1978. The behavioural ecology of terrestrial slugs. Supervisor: W.G. Wellington.

Salloum, Greg. – M.Sc., 1987. Insect growth inhibitors from Asteraceous plant extracts. Supervisor: M.B. Isman.

Smith, R.B. – M.Sc., 1984. Aspects of the feeding ecology of the garden cross-spider, *Araneus diadematus* Clerck. Supervisor: W.G. Wellington.

Therrien, Pierre. – Ph.D., 1986. Behavioural ecology of the leaf-cutting ant, *Acromyrmex octospinosus* (Reich), in Guadeloupe, F.F.I. Supervisor: W.G. Wellington.

Woodgate, R.C. nee Norman. – M.Sc., 1978. The population dynamics of the aphids, *Macrosiphum avenae*, *Metopolophium dirhodum*, and *Rhopalosiphum padi* on oats, *Avena sativa* cv *Fraser*. Supervisor: W.G. Wellington & B.D. Frazer.

3. University of Victoria

de Leeuw, Adrianus Dionys. – M.Sc., 1981. The effects of logging on benthic invertebrate stream drift and trout growth rates in two small west coast Vancouver Island streams. Supervisor: R.A. Ring.

Hale, M. Angela. – M.Sc., 1989. Factors affecting the distribution and survival of an endemic and an introduced species of *Operophtera* (Lepidoptera: Geometridae). Supervisor: R.A. Ring.

Humble, Leland Medley. – Ph.D., 1987. Life histories and overwintering strategies of some arctic sawflies and their hymenopterous parasitoids. Supervisor: R.A. Ring.

Kathman, R. Deedee. – Ph.D., 1989. Studies on the Tartigrada of Vancouver Island, British Columbia. Supervisor: R.A. Ring.

Lawrence, Joanne Marilyn. – M.Sc., 1986. Soil faunal recolonization of high elevation coal mine spoils in the Canadian Rockies. Supervisor: M.A.M. Bell.

MacRae, Ian Vance. – M.Sc., 1988. Evaluation of *Cricotopus myriophylli* Oliver (Diptera: Chironomidae) as a potential biocontrol agent for Eurasian water milfoil, *Myriophyllum spicatum*. Supervisor: R.A. Ring.

Morewood, Dean. – M.Sc., 1991. Physiological and applied aspects of cold hardiness in *Phytoseiulus persimilis* and *Amblyseius cucumeris* (Acarina: Phytoseiidae). Supervisor: R.A. Ring.

Morley, Richard Lorne. – M.Sc., 1971. Intertidal Chironomidae of the British Columbia coast. Supervisor: R.A. Ring.

Parkinson, Dorothy Anne. – M.Sc., 1980. Aspects of the ecology and physiology of a marine chironomid larva, *Paraclunio alaskensis* Coquillet. Supervisor: R.A. Ring.

Strongman, Douglas Blair. – M.Sc., 1982. The relationship of some associated fungi with cold-hardiness of the mountain pine beetle, *Dendroctonus ponderosae* Hopk. Supervisor: R.A. Ring.

Winchester, Neville Norman. – M.Sc., 1984. Life histories and post-glacial origins of tundra caddisflies (Trichoptera) from the Tuktoyaktuk Peninsula. Supervisor: R.A. Ring.

2. Simon Fraser University

a. Department of Biological Sciences Centre for Pest Management

Alfaro, R.I. – Ph.D., 1980. Host selection by *Pissodes strobi* Peck: chemical interaction with the host plant. Supervisor: J.H. Borden.

Angerilli, N. – Ph.D., 1978. Some influences of aquatic plants on the development and survival of mosquito populations. Supervisor: B.P. Beirne.

Bennett, L.J. – Ph.D., 1978. The spectral response of Scolytids (Coleoptera: Scolytidae) to visible light: a morphological, behavioral and electrophysiological study. Supervisor: J.H. Borden.

Bennett, R.B. – M.Sc. 1971. Scolytid flight response to olfactory stimuli, with special reference to *Dendroctonus pseudotsugae* Hopkins (Coleoptera: Scolytidae). Supervisor: J.H. Borden.

Brooks, J. – M.Sc., 1985. Resistance by Sitka spruce to the white pine weevil: chemotyping resistant trees. Supervisor: J.H. Borden.

Campbell, A. – Ph.D., 1974. Seasonal changes in abundance of the pea aphid and its associated parasites in the southern interior of British Columbia. Supervisor: M. Mackauer.

Chorney, R.J. – M.Sc., 1979. Paralysis by the hymenopterous parasite, *Aphelinus asychis* as a mortality factor of two aphid species. Supervisor: M. Mackauer.

Chow, A. – M.Sc., 1989. Host selection and switching by hymenopterous parasitoids (Aphidiidae) of alfalfa and pea aphid (Aphididae). Supervisor: M. Mackauer.

Cloutier, C.F. – Ph.D., 1978. A study of the host-parasite association between the pea aphid, *Acyrtosiphon pisum* (Hemiptera: Aphididae), and some of its hymenopterous parasites: growth and food utilization during parasitism. Supervisor: M. Mackauer.

Cohen, M. – M.Sc., 1985. Biology and ecology of *Ephedrus californicus* Baker (Hymenoptera: Aphidiidae). Supervisor: M. Mackauer.

Conn, J.E. – M.Sc., 1981. Pheromone production and control mechanisms in *Dendroctonus ponderosae* Hopkins. Supervisor: J.H. Borden.

Costello, R.A. – Ph.D., 1974. Effects of environmental and physiological factors on the acoustic behavior of *Aedes aegypti* (L.) (Diptera: Culicidae). Supervisor: P. Belton.

Ellis, R.A. – M.Sc., 1969. Studies of *Notonecta undulata* Say (Hemiptera: Notonectidae) as a predator of mosquito larvae. Supervisor: P.C. Oloffs.

Fankboner, M.E.P. – M.Sc., 1978. A study of age-related changes in the anterior midgut caecum epithelium of adult male *Schistocerca gregaria* (Forsk.) Supervisor: K.K. Nair.

Fields, G.L. – M.Sc., 1971. Coexistence of three species of *Anthocoris* (Hemiptera: Anthocoridae) in pear orchards in the Okanagan Valley of British Columbia. Supervisor: B.P. Beirne.

Fockler, C.E. – M.Sc., 1972. Some aspects of the behaviour and physiology of sexual activity in *Trypodendron lineatum* Olivier (Coleoptera: Scolytidae). Supervisor: J.H. Borden.

Footitt, R.G. – M.Sc., 1979. Morphometric variation within and between populations of the balsam woolly aphid, *Adelges piceae* (Ratzeburg 1844) (Homoptera: Adelgidae), in North America. Supervisor: M. Mackauer.

Footitt, R.G. – Ph.D., 1988. Morphometric analysis of character variation and taxonomic discrimination among a complex of species of the genus *Cinara* (Homoptera: Aphidoidea: Lachnidae). Supervisor: M. Mackauer.

Furnell, A.D. – M.Sc., 1986. Taxonomic revision of the *Aedes* (*Ochlerotatus*) *puncator* subgroup based on specimens collected in British Columbia. Supervisor: P. Belton.

Gilgan, G.W. – M.Sc., 1971. The influence of physiological and physical factors on the radiosensitivity of the codling moth, *Laspeyresia pomonella* (L.). Supervisor: K.K. Nair.

Gillespie, B.I. – M.Sc., 1978. The effects of water temperature on oviposition and other aspects of the life history of *Aedes aegypti* (L.) and *Culex pipiens* (L.). Supervisor: P. Belton.

Gillespie, D.R. – M.Sc., 1979. Classification of final instar larvae of the Ichneumoninae (Hymenoptera: Ichneumonidae). Supervisor: T. Finlayson.

Gillespie, D.R. – Ph.D., 1982. Introduced and native leafrollers (Lepidoptera: Tortricidae) on berry crops in the lower Fraser Valley, B.C. Supervisor: B.P. Beirne.

Hardman, J.M. – Ph.D., 1973. The hunting tactics of an unspecialized predator *Pardosa vancouveri* (Araneae: Lycosidae) with reference to spatial heterogeneity and the components of the functional response. Supervisor: A.L. Turnbull.

Henkelman, D. – M.Sc., 1979. A study of weight variation in *Aphidius smithi* (Hymenoptera: Aphidiidae), a parasite of the pea aphid, *Acyrtosiphon pisum* (Homoptera: Aphididae). Supervisor: M. Mackauer.

Holmberg, R.G. – Ph.D., 1979. Selective predation in a polyphagous invertebrate predator, *Pardosa vancouveri* (Arachnida, Araneae). Supervisor: A.L. Turnbull.

Hudson, W.B. – M.Sc., 1970. Control of orchard mites with overtree sprinkler irrigation systems. Supervisor: B.P. Beirne.

Hunt, D.W.A. – Ph.D., 1987. Production and regulation of oxygenated terpene pheromones in the bark beetles *Dendroctonus ponderosae* Hopkins and *Ips paraconfusus* Lanier. Supervisor: J.H. Borden.

Hunter, D.M. – M.Sc., 1973. The biology of the botfly, *Cuterebra grisea*, (Diptera: Cuterebridae) infesting deer mice (*Peromyscus maniculatus*). Supervisor: J.M. Webster.

Hussain, M. – Ph.D., 1979. Studies on incipient and delayed neurotoxic effects of some organophosphorus insecticides. Supervisor: P.C. Oloffs.

Judd, G.J.R. – Ph.D., 1987. Integration of visual and olfactory host-finding mechanisms in the onion maggot, *Delia antiqua* (Meigen) (Diptera: Anthomyiidae). Supervisor: J.H. Borden.

Kambhampati, S. – Ph.D., 1988. Inter- and intraspecific variation in introduced and native parasites (Hymenoptera: Aphidiidae) of the pea aphid in North America: life history traits, thermal coefficients and morphology. Supervisor: M. Mackauer.

Kearns, D.R. – M.Sc., 1970. Physiological effects of an alkylating agent, tepa, on the desert locust *Schistocerca gregaria* Forskal. Supervisor: K.K. Nair.

Kooman, C.J. – M.Sc., 1980. Polyploidization in the fat body cells of the desert locust, *Schistocerca gregaria*. Supervisor: K.K. Nair.

Lam, A.B.O. – M.Sc., 1971. Effect of some nematodes and microorganisms on the leatherjacket *Tipula paludosa* Meig. larvae, and their potential use as biological control agents. Supervisor: J.M. Webster.

Lee, P.C. – M.Sc., 1985. Reproductive and growth patterns of temperate-evolved honey bees (*Apis mellifera* L.). Supervisor: M.L. Winston.

Lindgren, S.B. – Ph.D., 1982. Pheromone-based management of ambrosia beetles in timber processing areas on Vancouver Island. Supervisor: J.H. Borden.

Mahon, D.C. – M.Sc., 1974. Stoichiometry of the Aldehyde Fuchsin staining reaction, and a comparison of staining the neurosecretory material in *Oncopeltus* with Aldehyde Fuchsin and Alcian Blue 8 GX. Supervisor: K.K. Nair.

Mayer, D.F. – M.Sc., 1973. Leaf roller (Lepidoptera: Tortricidae) host plant and parasite relationships in the Okanagan Valley. Supervisor: B.P. Beirne.

MacQueen, A. – Ph.D., 1973. Horn fly breeding, nitrogen loss and nutrient immobilization associated with cattle dung in the southern interior of British Columbia. Supervisor: B.P. Beirne.

McKenzie, L.M. – M.Sc., 1973. The grape leafhopper *Erythroneura ziczac* (Homoptera: Cicadellidae) and the mymarid (Hymenoptera) egg-parasite in the Okanagan Valley, British Columbia. Supervisor: B.P. Beirne.

McLean, J.A. – Ph.D., 1976. Primary and secondary attraction in *Gnathotrichus sulcatus* (LeConte) (Coleoptera: Scolytidae) and their application in pest management. Supervisor: J.H. Borden.

Miller, G.E. – M.Sc., 1976. Native parasites of *Coleophora laricella* (Lepidoptera: Coleophoridae) in British Columbia. Supervisor: T. Finlayson.

Miller, G.E. – Ph.D., 1983. Biology, sampling and control of the Douglas-fir cone gall midge, *Contarinia oregonensis* Foote (Diptera: Cecidomyiidae), in Douglas fir seed orchards in British Columbia. Supervisor: J.H. Borden.

Mohamad, R.B. – Ph.D., 1983. Studies on the activity and metabolism of the insecticide, acephate, in a pest insect, *Choristoneura occidentalis*, and in other non-target organisms. Supervisor: P.C. Oloffs.

Muthigani, P. – M.Sc., 1972. Insect defoliation studies on red alder (*Alnus rubra* Bong) on Burnaby Mountain, B.C. Supervisor: A.L. Turnbull.

Nelson, J.M. – M.Sc., 1989. Foraging for hosts: host discrimination and patch exit decisions by the leafminer parasitoid, *Opius dimidiatus*. Supervisor: B.D. Roitberg.

Ostaff, D.P. – M.Sc., 1973. Sex attraction and reproductive biology of *Lambdina fiscellaria lugubrosa* (Lepidoptera: Geometridae). Supervisors: J.H. Borden and R.F. Shepherd.

Panar, L.C. – M.Sc., 1974. Cytochemistry of the differentiating flight muscles of the desert locust *Schistocerca gregaria* Forskal. Supervisor: K.K. Nair.

Panno, J.P. – M.Sc., 1984. Computer analysis of age-related chromatin condensation in the somatic cells of the housefly *Musca domestica*. Supervisor: K.K. Nair.

Penner, K.R. – M.Sc., 1970. Metabolism of fatty acids in *Ips paraconfusus* Lanier (Coleoptera: Scolytidae): *in vivo* synthesis of fatty acids from acetate-1-¹⁴C in freshly emerged females. Supervisor: J.S. Barlow.

Punnett, E. – M.Sc., 1986. The feasibility of producing spring packages and nuclei of honey bees (*Apis mellifera* L.) in the Fraser Valley area of southwestern British Columbia. Supervisor: M.L. Winston.

Richerson, J.V. – Ph.D., 1972. Host finding mechanisms of *Coeloides brunneri* Viereck (Hymenoptera: Braconidae). Supervisor: J.H. Borden.

Rutherford, T.A. – Ph.D., 1977. Nutrition of *Mermis nigrescens* (Nematoda: Mermithidae) and its effects on the host *Schistocerca gregaria* (Orthoptera: Acrididae). Supervisor: J.M. Webster.

Scott, C.D. – Ph.D., 1986. Biology and management of wild bee and domesticated honey bee pollinators for tree fruit pollination. Supervisor: M.L. Winston.

Smirle, M.J. – Ph.D., 1989. Insecticide resistance mechanisms in the honey bee, *Apis mellifera* L. Supervisor: M.L. Winston.

Stock, A.J. – M.Sc., 1982. The western balsam bark beetle, *Dryocoetes confusus* Swaine: secondary attraction and biological notes. Supervisor: J.H. Borden.

Strong, W.B. – M.Sc., 1989. The commercial implementation of, and evaluation of environmental effects on, *Amblyseius cucumeris* Oudemans as a biological control agent of *Frankliniella occidentalis* Pergande. Supervisor: J.H. Borden.

Thistlewood, H.M.A. – Ph.D., 1986. The bionomics and monitoring of *Campylomma verbasci* (Meyer) on apple in the Okanagan Valley, British Columbia. Supervisor: J.H. Borden.

Thompson, S.N. – M.Sc., 1970. Aspects of fatty acid metabolism in *Galleria melonella* (L.) (Lepidoptera: Pyralidae): isolation of the elongation system, with calculated fractional turnover rates of octadecanoic and 9-octadecanoic acids. Supervisor: J.S. Barlow.

Thompson, S.N. – Ph.D., 1972. Aspects of fatty acid metabolism in ichneumonid parasitoids and their hosts. Supervisor: J.S. Barlow.

Thong, C.H.S. – Ph.D., 1974. Bark beetle nematodes in British Columbia with emphasis on the biology and host parasite relationship of *Contortylenchus reversus*. Supervisor: J.M. Webster.

Vakenti, J.M. – M.Sc., 1977. Utilization of synthetic codling moth pheromone in apple pest management systems. Supervisor: J.H. Borden.

Vandersar, T.J.D. – Ph.D., 1977. Aspects of host selection behaviour in *Pissodes strobi* Peck (Coleoptera: Curculionidae). Supervisor: J.H. Borden.

Vernon, R.S. – Ph.D., 1979. Visual and olfactory aspects of food and oviposition host selection in *Hylemya antiqua* (Meigen) (Diptera: Anthomyiidae). Supervisor: J.H. Borden.

Vlug, H. – M.Sc., 1972. The effects of logging and slash burning on soil acari and collembola in a coniferous forest near Maple Ridge, British Columbia. Supervisor: J.H. Borden.

Wardle, A.R. – Ph.D., 1989. Learning and its effect on host-finding by *Exeristes robotator* (F.) (Hymenoptera: Ichneumonidae). Supervisor: J.H. Borden.

Wiens, N.M. – M.Sc., 1979. Evaluation of phytoalexins and other plant natural products as protective fungicides and insect repellents. Supervisor: J.E. Rahe.

Each of the following students presented a "Professional Paper" in partial fulfillment of the degree of **Master of Pest Management**

Akinnigbagbe, Julius A.A. – M.P.M., 1978. Some insect pests of stored rice and rice products – their biology and control. Supervisor: H.R. MacCarthy.

Akpoboua, K. Albert – M.P.M., 1977. Chemical control of blackflies (Diptera: Simuliidae): an evaluation of control practices, with discussion of the relevance of Canadian methods for controlling the vectors of onchocerciasis in Africa. Supervisor: B.P. Beirne.

Alexander, Norman E. – M.P.M., 1976. A pest management study of a mountain pine beetle outbreak in Tree Farm License No. 9. Supervisor: J.H. Borden.

Alfaro, Rene I. – M.P.M., 1977. The hazard of mountain pine beetle outbreak in lodgepole pine forests. Supervisor: B.P. Beirne.

Anderson, Gail S. – M.P.M., 1986. A review of sweet itch (*Culicoides* hypersensitivity) on horses, and a survey for the disease in southwestern British Columbia. Supervisor: P. Belton.

Banfield, Michael G. – M.P.M., 1979. An assessment of supervised control of Diptera in poultry barns in southwest British Columbia. Supervisor: B.P. Beirne.

Bergvinson, David J. – M.P.M., 1989. Enhanced development and biological control of the mountain pine beetle, *Dendroctonus ponderosae* Hopkins, in lodgepole pine treated with glyphosate. Supervisor: J.H. Borden.

Boieie, William O. – M.P.M., 1984. Control of yellow jackets (Hymenoptera: Vespidae) in British Columbia. Supervisor: P. Belton.

Bryan, James M. – M.P.M., 1976. Mortality of adult grain beetles in sample delivery systems used in grain. Supervisor: K.K. Nair.

Butterfield, Anne. – M.P.M., 1984. Pheromone production and control mechanisms in *Dendroctonus pseudotsugae* Hopkins. Supervisor: J.H. Borden.

Chen, Ningmei. – M.P.M., 1986. Effect of a juvenile hormone analogue, fenoxycarb, on pheromone production and reproduction in the California five-spined ips, *Ips paraconfusus* Lanier. Supervisor: J.H. Borden.

Chenier, Robert J.V. – M.P.M., 1983. Variables affecting insect population monitoring in pest management programs. Supervisor: J.H. Borden.

Clark, Kerry. – M.P.M., 1985. Mites (Acari) associated with the honey bee, *Apis mellifera* (Hymenoptera: Apidae), with emphasis on British Columbia. Supervisor: M.L. Winston.

Colletti, Dominic M. – M.P.M., 1980. Horse flies and deer flies (Diptera: Tabanidae) in Canada: assessment of pest status and control. Supervisor: A.L. Turnbull.

Corcoran, Robert C. – M.P.M., 1980. The role of the vector *Daubulus maidis* in the epidemiology of corn stunt in North America. Supervisor: B.P. Beirne.

Costello, Donna M. – M.P.M., 1986. Potential for nonchemical control of garden pests in British Columbia. Supervisor: T. Finlayson.

Cusson, Michel. – M.P.M., 1985. 'Edge effects' in infestation patterns of insects on crops: a review and a field study with special reference to the tuber flea beetle (*Epitrix tuberis* Gent.). Supervisor: B.D. Roitberg.

Daur, Phille P. – M.P.M., 1987. The Papuan plantation termite, *Coptotermes elisae* (Isoptera: Rhinotermitidae): a little known pest of forest trees and structural timber in Papua New Guinea. Supervisor: J.H. Borden.

Diarrassouba, Soumana. – M.P.M., 1978. Parasites and predators of mosquitoes (Diptera: Culicidae) and black flies (Diptera: Simuliidae). An assessment of the possibility of using natural enemies in biting fly control programmes. Supervisor: B.P. Beirne.

Doliner, Laura H. – M.P.M., 1983. The political-technical interface in pest management: a historical analysis of the proposed 1977 Fraser Canyon budworm spray program. Supervisor: J.H. Borden.

Dolinski, Michael G. – M.P.M., 1980. The cabbage seedpod weevil, *Ceutorhynchus assimilis* (Payk.) (Coleoptera: Curculionidae), as a potential pest to rape production in Canada. Supervisor: B.P. Beirne.

Dolstad, Karen D. – M.P.M., 1985. Biology and control of the codling moth in the Pacific northwest. Supervisor: J.E. Rahe.

Duckitt, Gerry S. – M.P.M., 1986. *Bacillus thuringiensis* var. *israelensis*: the bacterium, its use in black fly control and effects on non-target organisms. Supervisor: P. Belton.

Fenn, Michael G.P. – M.P.M., 1984. Evaluation of diatomite-based pyrethrin insecticides. Supervisor: P.C. Oloffs.

Fortier, Thomas E. – M.P.M., 1981. The status of pest management on apples in the Northeastern and Appalachian states, with emphasis on Pennsylvania, New York and New Jersey. Supervisor: B.P. Beirne.

Frederickson, Christian E. – M.P.M., 1979. A review of the feasibility of using mermithids (Nematoda: Mermithidae) in the biological control of mosquitoes (Diptera: Culicidae). Supervisor: J.M. Webster.

Giles, Kevin I. – M.P.M., 1987. Estimation of an economic threshold for the tuber flea beetle, *Epitrix tuberis* Gentner (Coleoptera: Chrysomelidae), on potato in British Columbia. Supervisor: M. Mackauer.

Graham, Margaret B. – M.P.M., 1986. Survey for *Xiphinema occiduum* (Nematoda: Longidoridae) in vineyards of the Okanagan and Similkameen Valleys, British Columbia. Supervisor: J.M. Webster.

Gray, David R. – M.P.M., 1985. Ambrosia beetles in a Vancouver Island dryland sort: their damage and proposed control. Supervisor: J.H. Borden.

Guite, Arthur A. – M.P.M., 1980. An instructor's guide for a course to train pest control technicians to control pests in the food-service industry. Supervisor: P. Belton.

Haley, Sue. – M.P.M., 1976. Apple pest management in the North Okanagan Valley, British Columbia: a feasibility study. Supervisor: B.P. Beirne.

Heath, Richard H. – M.P.M., 1981. The efficacy of pheromone-baited trap trees for scolytid control in North America. Supervisor: J.H. Borden.

Henigman, John F. – M.P.M., 1975. The bionomics, economics and pest management of neotropical stingless bees (Apidae: Melliponini). Supervisor: J.H. Borden.

Hodgkinson, Robert S. – M.P.M., 1980. Combinations of agents for the control of lepidopterous pests, with particular attention to forest defoliators. Supervisor: J.H. Borden.

Howpage, Dayarathne. – M.P.M., 1988. A study of swarming in relation to honey bee (*Apis mellifera* L.) management practices. Supervisor: M.L. Winston.

Hubscher, Tamila L. – M.P.M., 1988. An investigation into the relationship between western flower thrips damage and orchard floor management in British Columbia apple orchards. Supervisor: J.E. Rahe.

Hunt, David W.A. – M.P.M., 1983. Factors affecting germination of the white muscardine fungus, *Beauveria bassiana* (Bals.) Vuill., on the cuticle of the mountain pine beetle, *Dendroctonus ponderosae* Hopkins. Supervisor: J.H. Borden.

Ibrahim, Bin Ali Wan. – M.P.M., 1979. Insect pest management in cocoa in Malaysia. Supervisor: J.H. Borden.

James, Peter J. – M.P.M., 1985. Repellents for insect ectoparasites of sheep. Supervisor: P. Belton.

Jongejan, Keith. – M.P.M., 1986. Some aspects of pest management in interior landscapes. Supervisor: M. Mackauer.

Joplin, Carl E. – M.P.M., 1975. Pulse crop production of the world and their important insect pests. Supervisor: J.M. Webster.

Judd, Gary. – M.P.M., 1983. Development and implementation of a pest management program for carrot production in the lower Fraser Valley. Supervisor: J.H. Borden.

Kambhampati, Srinivas. – M.P.M., 1981. An evaluation of precocenes as insecticidal agents. Supervisor: M. Mackauer.

Khazaie, Sirous. – M.P.M., 1983. Viral insecticides: their use, safety, production and potential. Supervisor: J.H. Borden.

King, Janet E. – M.P.M., 1981. A curriculum for an adult education course in household pest management. Supervisor: P.C. Oloffs.

Kluge, Anthony. – M.P.M., 1979. Management of the head louse, *Pediculus humanus capitis* de Geer (Anoplura: Pediculidae) – an integrated approach. Supervisor: P.C. Oloffs.

Kusters, Peter M. – M.P.M., 1986. Biology and control of the face fly, *Musca autumnalis* De Geer (Diptera: Muscidae) in North America. Supervisor: J.H. Borden.

Lindgren, B. Staffan. – M.P.M., 1980. Pests of lodgepole pine, with particular reference to potential impact in Sweden. Supervisor: J.H. Borden.

Louie, Coral L. – M.P.M., 1983. Pesticidal activity of some fatty acid compounds. Supervisor: H.R. MacCarthy.

Lowenberger, Carl A. – M.P.M., 1988. Control of mosquitoes in rural Columbia using *Romanomermis culicivorax* (Nematoda: Mermithidae). Supervisor: J.M. Webster.

Lucy, Robert N. – M.P.M., 1979. Pests and diseases of cucurbits and their control in Canada. Supervisor: B.P. Beirne.

MacDonald, Donald N. – M.P.M., 1978. Diseases of the honey bee, *Apis mellifera* (Hymenoptera: Apidae), in British Columbia with special emphasis on *Nosema* disease, *Nosema apis* (Sporozoa: Nosematidae), in the lower Fraser Valley. Supervisor: T. Finlayson.

McGregor, Robert R. – M.P.M., 1987. Integration of biological and chemical control in arthropod pest management. Supervisor: M. Mackauer.

McIntosh, Steven. – M.P.M., 1982. Integrated pest management of ornamental trees and shrubs for home gardeners in southwestern British Columbia: a review and critique. Supervisor: H.R. MacCarthy.

MacKenzie, John R. – M.P.M., 1986. Improved insect pest management for crisp-head lettuce grown in S.W. British Columbia. Supervisor: H.R. MacCarthy.

MacKenzie, Kenna E. – M.P.M., 1986. The effect of sublethal pesticide exposure on temporal division of labour and longevity in the honey bee (*Apis mellifera* L.). Supervisor: M.L. Winston.

MacLauchlan, Lorraine E. – M.P.M., 1985. Distribution of arsenic and associated fungal invaders in MSMA-treated lodgepole pines, and their relationship to mortality of the mountain pine beetle, *Dendroctonus ponderosae* Hopkins. Supervisor: J.H. Borden.

Marchant, Kenneth R. – M.P.M., 1976. Worldwide introduction and establishment of bark and timber beetles (Coleoptera: Scolytidae and Platypodidae). Supervisor: J.H. Borden.

Menzies, Geoffrey W. – M.P.M., 1984. The potential of *Vitis vinifera* pest management in Washington. Supervisor: H.R. MacCarthy.

Millen, Bruce D. – M.P.M., 1986. A strategy for personal and community protection against the vectors of malaria in Papua New Guinea with emphasis on the evaluation of bednets impregnated with permethrin. Supervisor: P. Belton.

Miller, Daniel R. – M.P.M., 1984. The life-history and biology of the bark beetle *Ips latidens* (LeConte) (Coleoptera: Scolytidae). Supervisor: J.H. Borden.

Miller, Gordon E. – M.P.M., 1979. Pest management in Douglas-fir seed orchards in British Columbia: a problem analysis. Supervisor: A.L. Turnbull.

Milligan, Bruce. – M.P.M., 1985. Integrated management of German cockroaches in rental housing. Supervisor: P. Belton.

Murray, Alan C. – M.P.M., 1985. The integrated management of root pests of strawberry in the Pacific Northwest. Supervisor: H.R. MacCarthy.

Nash, William T. – M.P.M., 1977. Insect eradication attempts in Canada. Supervisor: A.L. Turnbull.

Naumann, Kenneth. – M.P.M., 1988. The effects of swarming and package production on caste polyethism in the honey bee, *Apis mellifera* L. Supervisor: M.L. Winston.

Nelson, John A. – M.P.M., 1977. Mosquito control in the Yukon Territory, Canada, 1972 and 1973. Supervisor: P.C. Oloffs.

Okuda, Michi. – M.P.M., 1980. Management of insect pests of alfalfa seed in southern Alberta. Supervisor: J.E. Rahe.

Osborn, Walter P.L. – M.P.M., 1987. Toxicity of sporophores of the Indian paint fungus and wood from western hemlock to yellowfever mosquitoes. Supervisor: J.H. Borden.

Poirier, Lisa M. – M.P.M., 1989. Some effects of population density on the life history of the oblique-banded leafroller. Supervisor: J.H. Borden.

Quiring, Donald J.M. – M.P.M., 1986. Early detection, monitoring and control of greenhouse whiteflies on cucumber using yellow sticky traps and *Encarsia formosa*. Supervisor: T. Finlayson.

Rankin, Leo J. – M.P.M., 1988. Competitive interactions between the mountain pine beetle and the pine engraver in lodgepole pine. Supervisor: J.H. Borden.

Roddick, Rene G. – M.P.M., 1980. The feasibility of red raspberry pest management in the Fraser Valley. Supervisor: J.S. Barlow.

Scott, Cynthia D. – M.P.M., 1983. The biology and pheromone-based monitoring of the bumble bee wax moth (*Vitula edmandsae*). Supervisor: M.L. Winston.

Scott, Lynn. – M.P.M., 1986. The biology and control of European canker of apples caused by *Nectria galligena* Bresadola. Supervisor: J.E. Rahe.

Seehra, Baldev S. – M.P.M., 1988. Evaluation of the status of pesticide use and pest management by East Indian berry and cole crop producers in the Fraser Valley, British Columbia. Supervisor: J.E. Rahe.

Sequeira, Richard V. – M.P.M., 1986. Host-instar preference of *Praon pequodorum* Viereck (Hymenoptera: Aphidiidae) and effect of parasitism on the reproductive potential of the host, *Acyrtosiphon pisum* (Harris) (Homoptera: Aphididae). Supervisor: M. Mackauer.

Shanmugam, Vijaysegaran. – M.P.M., 1979. Radiofrequency disinfestation: application to stored rice in West Malaysia. Supervisor: P. Belton.

Shrimpton, Gwendolyn M. – M.P.M., 1984. Biology and control of some insect pests in B.C. Forest Service seedling nurseries. Supervisor: J.H. Borden.

Smirle, Michael J. – M.P.M., 1983. Development of a sensitive bioassay for evaluating sublethal pesticide effects on the honey bee (*Apis mellifera* L.). Supervisor: M.L. Winston.

Stewart, Alan J. – M.P.M., 1984. Spruce beetle management: a synthesis. Supervisor: J.H. Borden.

Summers, Don. – M.P.M., 1983. The use of baits to control ants in buildings. Supervisor: J.H. Borden.

Tee, Sze-Peng. – M.P.M., 1979. The rice weevil, *Sitophilus oryzae* (L.) (Coleoptera: Curculionidae) on stored rice in Malaysia. Supervisor: P.C. Oloffs.

Tessier, Michel. – M.P.M., 1985. Toxicity of carbaryl and dimethoate to the pea aphid, *Acyrtosiphon pisum* (Homoptera: Aphididae), and its associated parasite, *Aphidius smithi* (Hymenoptera: Aphidiidae). Supervisor: M. Mackauer.

Thistlewood, Howard M.A. – M.P.M., 1979. A review of the economics of pest management. Supervisor: A.L. Turnbull.

Thomson, Donald R. – M.P.M., 1988. Host and mate search by tuber flea beetle *Epitrix tuberis* Gent.: development of a technique to quantify search parameters. Supervisor: B.D. Roitberg.

Tourigny, Guy. – M.P.M., 1985. A general and dynamic stochastic discrete-event simulation model of the foraging behaviour of true fruit flies (Tephritidae), with special reference to apple maggot, *Rhagoletis pomonella* (Walsh). Supervisor: B.D. Roitberg.

Vernon, Robert S. – M.P.M., 1979. Population monitoring and management of *Hylemya antiqua* and *Thrips tabaci* in British Columbia onion fields, with observations on other root maggot populations. Supervisor: J.H. Borden.

Ward, Thomas S. – M.P.M., 1980. Some aspects of silviculture forest pest management. Supervisor: J.H. Borden.

Wardle, Aileen R. M.P.M., 1984. Age-dependent associative learning by *Exeristes roborator* (F.) (Hymenoptera: Ichneumonidae). Supervisor: J.H. Borden.

Wise, Ian L. – M.P.M., 1980. Management of greenhouse tomato and cucumber pests. Supervisor: J.H. Borden.

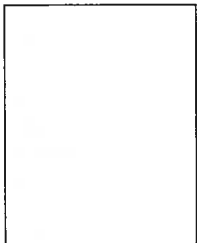
Yalpani, Nasser. – M.P.M., 1979. An analysis of methods of pest management in B.C. Forest Service tree nurseries. Supervisor: J.H. Borden.

IV. COLLECTORS AND NATURALISTS

ANDERSON, E.M.: was a collector and technician employed by the British Columbia Provincial Museum during the period 1903 to 1916. He collected extensively in various parts of the province including the Atlin district in the far north. Anderson was a charter member of the Entomological Society of British Columbia at its inception in 1902. He produced an early catalogue of the Lepidoptera of British Columbia in 1904; it consisted of 1128 species. This was later (1906) up-dated and corrected (1061 species) and published by the Entomological Society of British Columbia.



BLACKMORE, Ernest Henry (1882-1929): born in Ludlow, Shropshire, England in 1882. He emigrated to Canada at the age of 22 and lived in Stratford Ontario for two years. In 1906 he moved to Calgary, Alberta where he was occupied in the insurance business until 1908. In that year he accepted employment with the Money Order Department of the federal Postal Service and was transferred to Victoria, B.C. Here he remained until he retired, having been promoted to Head of the Victoria Branch in 1921. Blackmore had always been interested in insects, even as a boy in England. He collected Lepidoptera (primarily the Geometridae) and after coming to Victoria he specialized in the micro-Lepidoptera of British Columbia. He prepared a catalogue of B.C. Lepidoptera, published by the Provincial Museum in 1917. His collection of 8,000 specimens included 1,500 species obtained from all parts of the province. He was active in entomological circles and President of the Entomological Society of British Columbia in 1916-1917. Both, the Spencer Entomological Museum at the University of British Columbia, and the Royal B.C. Museum contain many of the specimens he collected. E.H. Blackmore died on 2 March 1929.



BUSH, Arthur H.: was an Inspector working for the federal Division of Entomology doing inspection of imported nursery stock and fumigation of materials in the Vancouver port of entry. He occupied the same offices on Broadway in Vancouver as his co-workers, R.C. Treherne and Tom Wilson. He was one of the original members of the E.S.B.C. when it was formed in 1902 and was elected Vice President in 1907 and 1908. Bush was a great proponent of the value of systematics as a necessity for good economic entomological work. Bush was a great collector of Lepidoptera; he climbed Mt. Cheam in 1911 to collect rare alpine species present above 7000 feet. Here he found many species of *Pieris*, *Erebia*, *Parnassius*, *Papilio* and *Oeneis*. Bush did the same collecting in 1912 and described how the high alpine species fold their wings and keep them parallel to the ground when at rest, apparently to compensate for the high winds that might blow them away if they retained their wings in an upright position, as they do when at lower altitudes. He also collected beetles and compiled lists of 108 species he collected in B.C. between 1902 and 1910. When World War I broke out, Arthur enlisted to serve with the Pioneer Battery of the Canadian Expeditionary Force. He was killed in action in France in August 1916.



CANE, Harry (1860-1935): was born on 30 September 1860 in Slinfold, Yorkshire, England, the son of Henry and Louisa Cane. Being a direct descendant of Sir Christopher Wren, both he and his father emulated their distinguished ancestor and followed the same profession. Cane moved to India in 1877 with his parents; his father supervised the building of a palace for the Maharajah of Cooch Behar. Young Cane studied architecture and assisted his father. They returned to England in 1888 but Harry left home to settle in Oregon in 1892, later joining a firm of architects in Nelson, British Columbia. Most of his spare time was devoted to an assiduous program of butterfly collecting. His estimable collection of butterflies, made during his stay in India, and several paintings were given to a friend upon his return to England. Cane's handsome collection of 600 specimens, representing 220 species, were all taken from the garden of his home. His love of nature, artistic capabilities as a sketch and water-colour artist, and his cheerful disposition were qualities that endeared him to his friends and enhanced his stature as an avid and dedicated amateur entomologist.

CARCASSON, Robert Herbert (1918-1982): was born in Cheltenham, England in 1918. His interest in natural history began at an early age and insect collecting became a hobby at age eight. He became a friend and collaborator to Roger Verity, the author of the classical work (4 vols.) on Italian butterflies. In 1938 he received his diploma in tropical agriculture from the University of Florence, Italy. After considerable travel throughout India, Ceylon, and south-east Asia in 1939, Carcasson joined Her Majesty's Forces in Rhodesia and served in armoured cars and anti-tank artillery units in Ethiopia, Somalia, N. Africa, and Italy (1940-1946). After the war, under the ex-serviceman's land settlement scheme, he farmed in Rhodesia from 1946 to 1955. Under the direction of Louis S.B. Leakey, Bob served as Senior Entomologist (1955-1961) and as Director (1961-1968) in the National Museum of Kenya, at Nairobi. In 1968 he received his doctorate from the University of East Africa for researches into the Sphinx moths. Also, during that time he travelled extensively, collected insects in various parts of Africa, and studied curated specimens in a number of museums. Bob came to Canada in 1969 and became Chief Curator at the Centennial Museum in Vancouver; he stayed until 1971. He then travelled once more, this time he visited Trinidad, Guyana, Brazil, Polynesia, Melanesia, Africa, India, and Seychelles. He accepted an appointment as Curator of Entomology at the British Columbia Provincial Museum, Victoria, in 1979, a position he held for the next six years. His best known works are "*The Swallowtail Butterflies of East Africa*", "*A Revised Catalogue of the African Sphingidae with descriptions of the East African Species*", "*A Field Guide to the Coral Reef Fishes of the Indian and west Pacific Oceans*", and "*A Handguide to the Butterflies of Africa*". He suffered from cancer for several years and died in Victoria, B.C. on 28 September 1982.



CLARK, Marianne E. (Hipplesley) (1880-1962): was born Marianne Parker of Cornish parents in Leeds, Yorkshire, England on 2 April 1880. She inherited a consuming interest in biology, and especially conchology, from her father. Being a delicate child she was educated at home until the family emigrated to the Dauphin district of Manitoba in 1891. Here she collected shells and Lepidoptera. They moved to Terrace, British Columbia, engaged in ranching and lumbering and by 1941, the then Mrs. Hipplesley, had lost her right arm in a gun accident. She collected only Coleoptera, published lists of the beetles in the *Canadian Entomologist* and in the *Proceedings of the Entomological Society of British Columbia*. Her collection of 659 species of beetles from the Terrace area, exceeds that of any other collector. Although she willed her collection to the University of British Columbia only a few boxes of specimens, including 20 new records for British Columbia, were salvaged out of a myriad damaged by mould and

dermestids. Marianne was widely read in natural history; also collected shells, minerals, and mosses. Marianne Clark died on 26 September 1962 in the Mission district of British Columbia and is buried in the cemetery at Hatzic, B.C.

COCKLE, J. William: was a resident of Kaslo, B.C. and a correspondent for J. Fletcher to keep the latter informed of insect conditions in the area. He reported all manner of economic insects to the Dominion Entomologist, such as outbreaks of redbacked cutworms, leaf miners, and pear blister mites (this in 1906). Cockle published in the Proc. E.S.B.C. from 1906 to 1920. He was an unusually keen observer of nature and never failed to make his observations known. He reported on the activities of *Boreus*, the snow fleas, lepidopteran inquilines of honey bees and collected many Lepidoptera including some new species. Cockle made some excellent life history studies of Lepidoptera and determined how to rear them. He also reported on many aspects of their behaviour. Some of his most notable contributions to entomology were made in the field of acarology; observations made on ticks in the Kootenays. He was the centre of controversy (about 1915) when he suggested that the disease which had been diagnosed as spinal meningitis by the medical fraternity was nothing more than 'tick paralysis'. He proved it in several instances by simply removing an embedded tick from a patient, thereby inducing complete recovery in a very short period of time. The eastern Canadian doctors thought that it could not be so, and censored him severely but he stuck to his guns, got the backing of J. Fletcher and finally had it verified by Hadwen and others. His observations on ticks, tick biology and behaviour have served as a basis of much of the work that followed.



CUNNINGHAM, Thomas H. (1838-1916): Cunningham's contribution to entomology was in the capacity of an "Inspector of Fruit Pests" for the Board of Horticulture of the British Columbia Department of Agriculture. From the time he first embarked upon his crusade of orchard sanitation and plant quarantine, until his retirement, he did so with wholehearted enthusiasm and unwavering zeal. Two orchard insect pests: the codling moth and the San Jose Scale, were prime targets for annihilation and exclusion. Thomas Cunningham died on 16 February 1916 in Vancouver, at the age of 78.

DANBY, W.H.: came to Victoria from New York in 1888. He helped C. de Blois Green establish an entomological collection in the Provincial Museum. He died in 1920.



DASHWOOD-JONES, William Arthur (1858-1928): was born in Kinson, Dorset, England, on 25 March 1858, the son of a Royal Artillery Captain. His kaleidoscopic life was compacted into 70 years of energetic living. He spent his childhood years under the guardianship of his uncle at Upton House, Poole, Kent, and included private tutors as well as a stint at University College school in preparation for entrance to Cambridge University. Then his finances collapsed. He left England in 1876, arrived in Maine, then went on to San Francisco and by boat to Victoria. From there he went to reside with his uncle, the

Archdeacon Mason at Nanaimo; ranched on Lasqueti Island and at Duncan, managed a cannery on the Skeena River, then worked with the railway during its construction at Yale, Drynock, and Spences Bridge. After a period as express manager for the Canadian Pacific Railway at Port Moody, he left in 1888 to start his own business in New Westminster. In 1894 he joined the Land Registry Office of the Provincial Government as Deputy Assessor and Collector and remained with them until he retired in 1914. Always an avid collector – be it bird's nests, flowers,

or insects – his large collection of Lepidoptera burned in the Court House in New Westminster. He collected for Lord Rothschild and the Tring Museum where his captures of *Lepisesia ulalume* hold an honourable place. He corresponded widely and sent specimens world wide. W.A. Dashwood-Jones died on 8 October 1928.



DAY, George O. (1854-1942): was born in England in 1854. He received his education there, including in-depth studies in science and private lessons in botany from the Rev. Charles Kingsley. Day became a banker; rose to a manager's position of Parr's Bank at Knutsford, Cheshire. He was granted the honour of being a Freeman of the City of Chester for his outstanding public service, and was elected a Fellow of the Royal Entomological Society of London for meritorious work in entomology. Upon retirement in 1905 he came to Canada and resided at Duncan, British Columbia, joining the E.S.B.C. on 19 April 1906. As an avid lepidopterist he collected almost all species in Britain as well as on Vancouver Island. His whole collection was bequeathed to the Shawnigan Lake boys school at Shawnigan, British Columbia. Day was a genial, courteous, and friendly man, always interested in collecting and willing to help beginners. He had devised a method of holding the wings of butterflies in position on a spreading board, by weighting them down with pieces of glass hinged to the mounting board. His specimens were, therefore, always precisely mounted and beautifully displayed. He was President of the Entomological Society of British Columbia from 1913-1915, and published at least 12 papers in the *Proceedings of the Entomological Society of British Columbia* (1911-1929), most of these on the biology and life history of Lepidoptera. G.O. Day died on 5 February 1942.



de BLOIS GREEN, Charles (1863-1929): was born in England on 29 May 1863 the son of Rev. James Wastie Green of Cambridgeshire. He was educated in England, learned the profession of land surveyor, and came to the West Kootenay district of British Columbia with his wife and infant daughter in 1888. He later moved to the Okanagan and settled at Okanagan Landing. From here he traversed the mountains, surveying mining claims for prospectors. In the mountains and surrounding districts he collected birds and butterflies. He loved hunting but was a keen conservationist, paying bounties out of his own pocket on the predators of game animals. His entomological preference was given the Lepidoptera; he published the first list of these insects found in the interior of British Columbia. During the period 1910-1914 he collected many birds eggs, identified many new species of birds, and solved some of the unknowns concerning nesting habits and distribution of birds on the west coast of British Columbia. Being too old to get into the army in 1914, he paid his own way to France to join the French Red Cross, working in front line positions and winning the Croix de Guerre for conspicuous service under fire. He died in Penticton on 12 August 1929.

EASTHAM, J.W.: arrived in Vernon, B.C. in the spring of 1914 where he was to replace W.H. Brittain as the B.C. Provincial Entomologist & Plant Pathologist. The latter left Vernon to accept the position of Professor at the Nova Scotia Agricultural College in Truro having served in B.C. from 1912-1913. Although Eastham dealt with matters concerning economic entomology within the province, he was more interested in plant pathology. When a new Court House was built in Vancouver and opened for occupancy in 1915, he left for that centre to establish it as the headquarters of Plant Pathology for the Province. He left Max Ruhmann in Vernon to take care of all the entomological matters.



FOXLEE, Harold Royson (1884-1974): was born in Ruislip, England, on 5 May 1884. Attending John Lyons School, he excelled in athletics and won scholastic honours. An uncle wanted him to apprentice with him to become a Civil Engineer. England appeared too crowded at the turn of the century so the young man sailed for South Africa where he worked as a mounted policeman and brushed shoulders with Winston Churchill. After two years, intestinal parasites sent him back to England for a four-year cure. Canada was the next country to explore and in 1907, Foxlee arrived in Robson, British

Columbia. The frontier was tough but interesting; Olive Bunyon was invited from England and a wedding took place in 1910. Two children, Roy and Frank, soon entered their lives, and a third, Edward was born in 1920 after Foxlee returned from France and World War I. He worked in lumber-planing mills, followed by guard duty in a heavy water plant in World War II. At about 50 years of age, with no previous entomological training, Foxlee became interested in the collecting of moths and butterflies; these he sold to Universities in the United States and Canada. Compliments on his perfect specimens kept him interested in the Lepidoptera but by age 62 he devoted his time to the collection of beetles and other insects because of their adverse effects on timber. He collected full-time and supplied Universities, Ottawa, and world-wide collectors with specimens. By 1969 his large, exhaustive collection (it was estimated that 50-70 years would be required to name all the new species) was donated to the University of British Columbia. After five years spent comfortably and fairly active in a home in Trail, B.C., Harold R. Foxlee passed away on 17 November 1974.

GUPPY, Richard (1910-1980): was born in Devon, England and spent his early childhood in India where his father was a Magistrate with the Indian Civil Service. He attended a boarding school in England and in 1921 the family emigrated to Canada to settle in Tofino on the west coast of Vancouver Island where Richard became a commercial fisherman. In 1933 he married Honor Leakey, a cousin of the famous African paleontologist, Louis Leakey. They settled near Wellington, B.C., on the east coast of Vancouver Island in 1936 and retired to Thetis Island in 1965, where he died in February 1980. Richard and his brother Bob collected butterflies, beetles, and bird's eggs in England and India. He gave up the hobby until after he became established as a fisherman at Wellington. His interest in natural history resulted in the collection and sale of ferns and salal leaves to florists; beetles, butterflies, craneflies, dragonflies, moths, spiders, newts and salamanders to collectors. Richard was especially interested in collecting Lepidoptera and Coleoptera; his private collection of about 5,000 mounted and identified specimens of moths and beetles were purchased jointly by the Royal B.C. Museum and the University of British Columbia. He preferred to collect and study the native fauna near his home, did little travelling, and had nothing in common with economic entomologists. Some of his articles and notes are to be found in the *Proceedings of the E.S.B.C.* and other naturalist and entomological journals. A butterfly, *Parnassius phoebus guppi*, and a caddisfly, *Palaeagapetus guppi*, were named in his honour. Also, he was the first to propose the "hilltopping" hypothesis, a concept of territoriality accounting for the "mating rendezvous" and tendency of insects, especially males, to congregate on hilltops. Richard was the grandson of the famous Trinidadian scientist, R.J.L. Guppy, who popularized the well-known aquaria fish known as "guppies".

HANHAM, Abdiel William (1857-1944): was born in England in 1857. At the age of 24, Hanham left England for North America arriving in Philadelphia in 1881; then moved onward to Missouri. He joined the staff of the Bank of British North America and began a life of "musical chairs" in the banking business. From Montreal he was posted to Kingston, then Ottawa, Paris, Hamilton, Brantford, Quebec City (1891),

Winnipeg (1893), Victoria (1901), and then Duncan, B.C. Here he remained until he retired. Although he was, principally, a keen lepidopterist and collector, he amassed many specimens of Coleoptera as well; his collection was later given to the Provincial Museum of British Columbia (now the Royal British Columbia Museum). His expertise included conchology, being as familiar with the molluscs as with the insects. His knowledge, experience, good counsel, 14 scientific papers published in the *Canadian Entomologist*, and willing help given to so many others, has guaranteed him a place among the naturalist-entomologists of British Columbia and Canada. A.W. Hanham died on 18 January 1944.



HARDY, George Austin (1888-1966): was born in Glasgow, Scotland in 1888. He learned of the abundance and diversity of natural living things in the pleasant, unspoiled countryside of woodland and stream, and collected both faunal and floral specimens. Young Hardy learned to be a taxidermist and studied biology at the Glasgow Technical School. He was interested in beetles, especially the Cerambycidae. He emigrated to Canada and took up a homestead in Alberta but in a few years he returned to his native Scotland. He worked as a taxidermist in London and at the Essex Museum; then

returned to the old homestead in Alberta. Here he made extensive collections of mammals, insects, and plants for the Essex Museum. In 1924 he joined the Provincial Museum in Victoria as a botanist, a position he held until 1928. The next 13 years were spent in a variety of occupations in Alberta and on Vancouver Island; he then returned to curate the insects in the collections of the Provincial Museum. His more than 89 articles, reports, and scientific papers, encompassing many subjects, touched not only on the wood borers and the lesser-known moths of British Columbia, but also on the plants, fungi, and flowers of the Pacific Northwest.



Harvey, Capt. R.V (1872-1915): was born in Londonderry, Ireland in 1872. He was educated at Liverpool College and received his Master of Arts degree from Magdalen College, Cambridge. Arriving in Vancouver in 1900, Captain Harvey opened a private academy for boys, the Queen's School, in Vancouver and became its Headmaster. He studied the Lepidoptera and had collected extensively in England; similar entomological activities were continued in the Vancouver area adding many new species to the lists of British Columbia insects. In 1904 he began to earnestly collect Diptera, especially the Syrphidae. His

energetic and dedicated collecting is exemplified by the 130 mile trek he took in 1906 over the Hope Trail to Princeton; he repeated it two years later. His ceaseless efforts to build, unify, and promote entomology culminated in the formation of the Entomological Society of British Columbia in 1902; Harvey was its Secretary until 1908. Thereafter he returned to the collecting of plants, became involved in the Boy Scout Movement and transplanted the Boys School to Victoria to be re-established there as the University School. He joined the Canadian Expeditionary Force, 7th Battalion, saw action in France, was wounded and later died in April 1915, while in a German prisoner-of-war camp. The Entomological Society of British Columbia owes its initiation and existence to his singleness of purpose, persuasive charm, dynamic leadership and scientific zeal.

KEEN, Rev. John Henry (1851-1950): was born in England in 1851. He graduated from the Church Missionary Society School in Islington, England in 1873. He left for Canada in 1875, ordained as a Deacon, to serve as a missionary at Moose Fort on Hudson Bay. Here he remained for seven years. He returned to England in 1882, to assume the duties of a Curate in Spitalfields and Islington. The Rev. Keen returned

to Massett, B.C. in 1890, to once more serve the native people, this time the Haida Indians on the Queen Charlotte Archipelago. During his eight years at Massett, Keen assiduously collected the beetle fauna of the area – he compiled a catalogue of some 241 species distributed them freely to other coleopterists and published his findings in the *Canadian Entomologist*. In 1898, Keen received a year's furlough, then was assigned to the native village of Metlakatla, northwest of Prince Rupert, where he continued to work amidst the native people for the next fourteen years. Here also he collected beetles and in 1905 published a list of 50 species many of which were identified by James Fletcher, the then Dominion Entomologist. He left for England in 1913 and to a life of retirement. Our knowledge of the original beetle fauna of the northwest B.C. coast is due primarily to the painstaking and energetic collecting of this remarkable clergyman. Rev. Keen died on 3 April 1950 at Tunbridge Wells, England, at the age of 98 and "in full command of his faculties".



LEECH, Daniel Herbert (1878-1941): was born in Manchester, England on 6 September 1878. He was a born naturalist and as a boy collected everything from bird's eggs, to mosses, ferns, fossils, and insects. He wanted to be a farmer but at his father's insistence he trained as an architect. Daniel emigrated to Canada in 1905 and as a surveyor and draughtsman he found employment with the Canadian Pacific Railway. The next year he went to Alberta and was placed in charge of a survey-work gang during the building of the giant irrigation system near Gleichen. In 1908 he moved to Salmon Arm, B.C., bought some

land, married Olive Roberta Shepherd and settled down to farming. He cleared the land, introduced registered Jersey cattle, planted and maintained a large orchard, and kept bees. In 1939 and 1940 his farm was an Illustration Station for the Dominion Department of Agriculture. He never made a formal insect collection but was very knowledgeable of families and habits of insects. He encouraged his son, Hugh B. Leech, to study entomology, thus carrying on a tradition of natural history interests. His other son, Geoffrey B. Leech, an ore-body mineralogist, is now retired from the Geological Survey of Canada, Ottawa. Daniel Leech died on 17 May 1941 at Salmon Arm, B.C.

LLEWELLYN-JONES, James Rushton John (1894-1956): was born on 27 July 1894 at Newcote West Avenue, Exeter, England. He received his early education in Exeter and continued, after World War I, at Cambridge University obtaining his M.A. in Theology. He served Exeter Cathedral for a time. His interest in, and knowledge of entomology, gained him a Fellowship in the Royal Entomological Society of London in 1925. Arriving in Canada in 1930, he chose to live in the Duncan area and finally settled near Cobble Hill, British Columbia, in 1941. He, as a man of private means, having had a considerable estate in England, spent his time collecting and rearing the micro-Lepidoptera. During his five years as President of the Entomological Society of British Columbia (1943-1947), Llewellyn-Jones strove to establish student scholarships (seven annual scholarships were paid by him), increase the entomological literature (he willed his entomological library to the University), and establish a reserve fund for publishing the *Proceedings* of the Society (he willed his estate to the Society). His insect collection of 5,000 perfectly labelled, mounted, and catalogued specimens of macro-Lepidoptera was donated to the University of British Columbia. J.R.J. Llewellyn-Jones died on 26 November 1956 and was buried on 4 December 1956 in Ocean View Cemetery, Vancouver.

MARMONT, Lindsay Edgar (1860-1949): was born in 1860 in Gloucestershire, England. He emigrated to Canada in 1880 and settled on a homestead near Rounthwaite, Manitoba. As an amateur collector of insects, especially the beetles, moths and butterflies, he was often in the company of Norman Criddle and J.B. Wallis.

Marmont moved to British Columbia in 1907, resided in Maillardville and was the Justice of the Peace and Mayor of Coquitlam. In British Columbia he turned his attention to the micro-Lepidoptera and catalogued these for the province. He joined the Entomological Society of British Columbia in 1911, took a keen and steady interest in its welfare and served as President from 1921 to 1925. Marmont was always tolerant of the opinion of others, and brightened the lives of his listeners with his lively good humour, sound advice, and sympathetic understanding. L.E. Marmont died in 1949, one of "the last of the old brigade – the Aurelians of B.C."



MOILLIET, Theodor Albert (1883-1935) was born on 11 May 1883 in Cheyney Court, Herefordshire, England. He received his education in Felstad School in Essex. Being the youngest of five brothers he was largely left on his own to decide whether to emigrate to Canada or fight in the South African War. "Tam" arrived in Canada in 1899 to start work as a farmhand near Orillia, Ontario. Here he learned how not to farm, pulled up stakes and went west to help with the harvest in Saskatchewan. Late that fall he continued west to Trail, British Columbia, where he found employment at the smelter. Here he contracted pneumonia and mercury poisoning.

To escape the toxic environment of the Trail smelter, Tam settled for a ranching life style, preferably in central British Columbia. He homesteaded on a sheep ranch at Vavenby, British Columbia, one that was plagued with disease, tick paralysis, and wolves, but he, nevertheless, was successful in his endeavours. He was the first to try pasturing sheep on the high ranges. As an interested and avid collector of micro-Lepidoptera, he discovered two that were new to science. He collected several new species of tree hoppers; these were determined by his close friend E.H. Blackmore. Tam was also the first to collect the rabbit tick from which tularemia was isolated. Tam had a strong interest in the community; organized the Upper North Thompson Farmers' Institute in 1916 which later became the Upper North Thompson Livestock Association and in which he served as Secretary until his death. He was Secretary of the local School Board, kept weather records and started a Debating Society.

PATTERSON, Alice McDougall: was born in Minnesota and received her primary education in that State. The family moved to Terrace, B.C. but Alice continued her education at McMaster University where she obtained her Bachelor of Arts degree. After the death of her father she stayed with an aunt in New Westminster, B.C., attended the University of British Columbia and obtained a Master of Arts degree in biology. Her specialty was aphid taxonomy; she collected widely in B.C. and accepted specimens from a host of friends. She returned to Toronto, completed all of the requirements of her doctorate including a thesis "*The Classification of the Aphids of British Columbia*" but did not sit for her final examinations. In 1926, Alice married P.G. McDougall, a geologist who worked largely in Bolivia while she stayed in Canada and worked in her private laboratory in New Westminster. She contracted tuberculosis in or about 1933 and died in Vancouver on 5 November 1935. Her collection of more than 1000 microscope slides of 211 species of aphids, as well as many unidentified specimens, and about 700 collections of aphids preserved in alcohol, were donated to the University of British Columbia by her husband. Her library of books, separates, and bulletins, all on aphids, as well as laboratory equipment, were included in the donation.

REED, Edmund Baynes (1838-1916): was born in England where he received his education and spent his boyhood years. He came to Canada as a young man and practiced law in London, Ontario for several years. He disliked the profession and gave it up to become the Secretary-Treasurer of the Synod of the Diocese of Huron (Church of England) which position he held until 1890 and then moved to Victoria.

Reed had always been a devotee of natural history, even as a boy in England; the collection and study of insects was particularly appealing to him. He was a charter member of the Entomological Society of Canada when it was founded in 1863, served as Secretary-Treasurer (1871-1873, 1880-1886), Vice-President (1874, 1877-1889), Member of Council, Auditor, Curator and Librarian; he was responsible for the latter's establishment. Reed contributed many articles on entomology, especially those dealing with noxious insects and their control as published in the First and many subsequent Annual Reports of the Entomological Society of Ontario. Because of his expertise in making meteorological observations he was placed in charge of the newly-established Observatory at Victoria, B.C. in 1890; a position he held for the next 26 years. Being interested in economic as well as systematic entomology, Reed not only contributed articles on the Lepidoptera, but also included descriptions of larvae, records of rare captures, collecting notes, and popular papers on various species from many Orders of insects. He was a member and staunch supporter of the E.S.B.C. and died on 18 November 1916 at Victoria, B.C. in the 79th year of his life.

SHERMAN, R.S.: The collecting bug "bit" him when he captured a rhinoceros beetle and delivered it to Professor Bell of Albert College, who pronounced it as a rare capture and new record for Canada. He continued his insect collecting in the Belleville, Ontario district in the 1870s. He moved to the west coast and lived in Vancouver during the early decades of the present century collecting extensively on the southwest coast. As a lover of "Nature's children, be they birds, beasts, insects, or plants", he preferred to collect beetles and butterflies and especially the Diptera; their economic importance, however, was of little interest to him. He was an old-fashioned entomologist, one for whom the net, killing bottle, pinning block, and neatly labelled, pinned specimens in a box meant everything. Systematic entomology and a naturalist's delight in the wonders of nature caused him to regard himself as "a harmless imbecile who afforded rare sport for the small boy and the yokel".



STACE SMITH, Gordon (1886-1962): was born on 10 October 1886 at Beausejour Manitoba, the oldest child of John Stace Smith (1862-1921) and Jean Horsburgh Grant (1861-1939). In 1890 Gordon's family moved to Salmon Arm, B.C., where he completed his formal education by the age of 14. Then followed a variegated career as a miner, lumberman, prospector, and mining foreman. By age 27 he had acquired a wife, moved to Creston and took up residency there. His interest varied from stamps, to literature, Indian artifacts, and butterflies, but zeroed in on the beetles of the Creston area. His creative writing was

in verse; three volume of poems were published: in 1930, 1940 and 1960. From 1934-1944 he worked in the Abitibi region of Quebec, amassed an astounding collection of 16,000 beetles which he sold to the California Academy of Sciences in 1951. Gordon was a very assiduous and meticulous collector, acquiring 2,800 species of B.C. beetles (1200-1500 collected in the Creston area) which he sold to the University of B.C. in 1960. In his day it was regarded by taxonomists as the best beetle collection in the province. He was assisted in the identification of species by most of the leading coleopterists of America. Gordon corresponded widely, traded continuously, and was held in highest esteem by learned entomologists and collectors alike. He died on 19 February 1962 in the Creston Valley Hospital.



WHITEHOUSE, Frank Cecil (1879-1959) was born in 1879 at Leamington Spa, Warwick, England. Here he was educated but he left school in 1895 to begin a banking career. After emigrating to Canada in 1905 he continued in this profession as a bank manager, serving in each of the four western provinces until he retired in 1934. Frank loved fishing, both deep-sea and freshwater. During his many fishing trips he developed an intense interest in dragonflies. His collecting activities resulted in the publication of three comprehensive books on dragonflies: those of British Columbia (1941), of Jamaica (1943), and a Catalog of Odonata (1948). He collaborated closely with E.M. Walker of the University of Toronto. His own extensive collection of insects was divided between the Vancouver City Museum, the British Columbia Provincial Museum, and the University of British Columbia. The latter received specimens of each sex of 79 species of Odonata found in the province of British Columbia. As well as being a respected odonatologist, Frank also wrote a novel, a book of poems, and two books on sport fishing in Canada. He died in December 1959 in Phoenix, Arizona, where he had previously spent several winters.

V. PROFILES OF BRITISH COLUMBIA ENTOMOLOGISTS



ALFARO, Rene Ivan
B.For.(1972) U. Chile; M.P.M.
(1977), Ph.D.(1980) Simon Fraser
Born: 27 February 1948
Santiago, Chile
Address:Forestry Canada
Pacific Forestry Centre
506 West Burnside Road
Victoria, B.C. V8Z 1M5

Rene took an early interest in forestry; consequently, he worked as a forester in his native country after completing his elementary, secondary, and initial University education in Chile. In 1974 he emigrated to Canada, turned his interests to forest entomology and completed two more advanced programs of study. He joined the Pacific Forestry Centre in 1980 to conduct research aimed at quantifying the damage caused by forest pests. To date he has conducted extensive research on the damage caused by the Douglas-fir tussock moth, dwarf mistletoes, spruce budworm, and spruce weevil. The results of his research have enabled private and provincial pest management agencies to calculate potential depletions of timber supplies and to justify the control of insect infestations. Rene was Chairman of the IUFRO working group on insects affecting reforestation, participated in the Canada/USA (CANUSA) spruce budworm research program, and received the Scientific Achievement Award, IUFRO's highest recognition of scientific productivity for a scientist under 45 years of age. He taught a course in forest entomology at Simon Fraser University (1979), another in economic entomology at the University of Victoria (1982), and is currently a guest lecturer at these same institutions as well as at the University of British Columbia.



ANDISON, Harry
B.S.A. (1934) U.B.C.
Born: 20 February 1913
Vancouver, B.C.
Retired: 30 December 1976
Address:2786 Heron St.
Victoria, B.C.
V8R 6A2

Harry got hooked on entomology in his early teens when he assisted in the compulsory spray program in Vernon, British Columbia, to control the codling moth. After graduating from the University in 1934, he worked for the Dominion Entomological Laboratory, Victoria, under the guidance of W. Downes. Here he learned much about economic entomology, especially how to control urban insect pests such as earwigs and those occurring on holly. He transferred to the Fruit Insect Laboratory, Summerland, in 1942 to work on the biology and control of "little cherry" disease, codling moth, pear thrips, and tree-fruit insects generally. Of significance was his pioneer work with the chlorinated hydrocarbon insecticides; their modes of application and evaluation of effectiveness. In 1946 he replaced Downes at the Victoria Laboratory and thus became responsible for the control of myriad insects of gardens, fruit trees, and greenhouses. This was accomplished by dedicated research on the biology of the pest insects and the meticulous assessment and application of chemicals and/or biological agents. In 1959, with the formation of the Research Branch, Harry was appointed Director of the Sidney Research Station where, until retirement, he was responsible for the research programs of both entomology and plant pathology.



ANGERILLI, Nello P.D.
B.Sc. (1973), Ph.D. (1977) Simon Fraser
Born: 15 May 1952
Trail, British Columbia
Address:Eastern Indonesia Universities Development
Project,
Directorate General of Higher Education,
Jl. Pintu I, Lt. 1, Senayan,
Jakarta Selatan, Indonesia.

Nello grew up in Trail, B.C. where his interest in biological phenomena was aroused by the lack of such events. After completing two degrees at S.F.U. he accepted a position as Instructor at the East Kootenay Community College, Cranbrook, B.C. Here he planned, developed and co-ordinated all Biology courses for the first- and second-year levels of instruction. He selected and supervised additional personnel, gave short-courses in biology and seminars in pest management. In 1981, while on sabbatical leave, he undertook post-doctoral research in the Faculty of Forestry at U.B.C. by investigating the close range behaviour of various forest insects in response to pheromones and host odours. A year later Nello joined the staff of the Research Station, Summerland, B.C. where until 1988 he developed, implemented and maintained management systems for mites, scale and other leaf-feeding insects in British Columbia orchards. This involved basic and applied research into mite, scale and lepidopteran biology, behaviour, and ecology. Since July 1988, Nello has assumed the responsibilities, as an Adjunct Professor and Academic Advisor of Simon Fraser University, for the local management and upgrading of basic science instruction in four faculties of a government university in Indonesia; in 1990 he became Advisory Team Leader of this project in three Indonesian universities. Nello has served as President of the Entomological Society of B.C. (1987) and as a Member of the Governing Board of the Entomological Society of Canada (1987-1990).



ARNOTT, David Alexander
B.Sc. (1928) Sask.
Born: 29 September 1903
Staffordshire, England
Retired: 27 September 1968
Died: 14 June 1977
Kamloops, B.C.

In 1906 Dave moved with his parents to Frostburg, Maryland where he began his schooling, then moved to Yorkton, Saskatchewan in 1910. After graduating from the Provincial Normal School in Saskatoon in 1923 he taught in public schools for two years, then entered the University. In 1928 he joined the Dominion Entomological Laboratory, Indian Head, Saskatchewan to work with Ken Stewart on the control of shelterbelt insects. He transferred to the Entomological Laboratory, Chatham, Ontario in 1929, where, for the next 22 years, he investigated insect pests of fruits and vegetables, including the sugar beet nematode and weevils in clover. In 1951 he was transferred to the Field Crop Insect Laboratory, Kamloops, where for four years he investigated the seed losses from vegetable and flower crops in southern B.C. From 1955-1958 he made surveys of cutworm damage and discovered seven more pest species in field crops and 30 other species of Lepidoptera not previously recorded. Dave investigated and proved that silver top damage to grass seed crops was caused by several species of Miridae.



ARRAND, Jack Colburn
 B.Sc. (1949), M.Sc. (1952) Sask.
 Born: 8 May 1923
 Saskatoon, Saskatchewan
 Retired: 1987
 Address: 4882 Maxine Lane
 Victoria, B.C.
 V8Y 2J2

Jack began his entomological career in 1948 as a summer student in the employ of the Dominion Entomological Laboratory, Saskatoon. He was assigned to work with H.A. McMahon on the biology and control of insect pests of alfalfa. He continued this work full time (except for some educational leave) after graduating with a Bachelor's degree, then resigned in 1957 to accept a position as Assistant Entomologist for British Columbia. Not only was this work concerned with the control of *Lygus* bugs, Jack also discovered a new species of a bud-blasting mirid, *Plagiognathus medicagus*. Jack has ascended the hierarchy of administrative positions within the B.C. Ministry of Agriculture and Fisheries, from Assistant Head, Entomology Branch (1957-1974); Project Analyst, B.C.M.A.F. (1974-1977); Assistant Director, Entomology-Plant Pathology Branch (1977-1981); to Director, Crop Protection Branch (1981-1987). In addition to his many and varied administrative duties, his entomological work in B.C. has dealt with extension entomology: integrated mite control in apple orchards in the Okanagan Valley; orchard pollination by honeybees; and biological control of the winter moth. He received an Honorary Citizen Award from the City of Victoria for his role in the latter. In 1987, Jack received an "Award of Excellence" from, and in 1990 an Honorary Membership in the Professional Pest Management Association of B.C. He served as President of the Entomological Society of B.C. in 1966.



BANHAM, Frederick Lewis
 B.S.A. (1951) U.B.C.
 Born: 28 January 1929
 Vancouver, B.C.
 Retired: 30 September 1989
 Address: R.R. 4
 Summerland, B.C.
 V0H 1Z0

Following his initial education in Vancouver, Fred continued on to University where he fell victim to the masterful entomological indoctrination of G.J. Spencer. Practical experience with insects came when employed as a summer student (1949, 1950) at the Field Crop Insect Laboratory, Kamloops. Here he worked with Chet Nielson and Doug Findlayson on the biology and control of root maggots and the tuber flea beetle, at a time when the chlorinated hydrocarbon insecticides were a panacea for all insect ills. When Neilson resigned in 1951, Fred was appointed to continue the flea beetle project and to begin studies on soil-infesting cutworms that attacked asparagus and tomatoes. Control programs for these pests and a monitoring system for the former were developed. Work on the endemic sagebrush beetle was followed by a transfer to the Summerland Research Station in 1965, where he continued his work on economic insect pests of vegetables. In 1970 Fred was reassigned to work on the population dynamics and control of stone-fruit and grape insect and mite pests. Sampling methods, including sex pheromone baited traps, were utilized to maximize control of at least nine species of peach and grape insects. Economic threshold levels for the control of the peach twig borer were determined. An IPM program was developed to control Virginia creeper leafhoppers on grapes, as was a test method to evaluate host plant resistance to grape phylloxera. Fred served as President of the Entomological Society of B.C. (1968) and as a Director of the Entomological Society of Canada (1966-1968).



BARLOW, John S.
 B.S.A. (1942) O.A.C.; M.A. (1948), Ph.D. (1952) Toronto
 Born: 30 January 1921
 Leamington, Ontario
 Retired: 1981
 Address: R.R. #1
 South Pender Island, B.C.
 V0N 2M0

Jack was raised in rural Leamington, where he also received his elementary and secondary education. After spending a year as a mechanic's apprentice, he enrolled at the Ontario Agricultural College and graduated with a degree in chemistry. In 1942 he joined the R.C.A.F. and completed one tour of duty in the European Theatre of Operations. Following his war service he joined the staff of Lever Bros. in Toronto but since this held little future for him he returned to Guelph for post-graduate studies in biochemistry. In 1949, Jack joined the Defence Research Board's Northern Laboratory at Churchill, Manitoba where he was involved in basic studies of the life history, behaviour and control of northern mosquitoes. After completing a doctoral program in biochemistry he joined the staff of the Dominion Parasite Laboratory, Belleville, Ontario in 1953 to incept studies of the nutrition and metabolism of parasitic insects. In 1967 he resigned his position in Belleville and moved to Simon Fraser University where, together with seven other scientists, formed the Centre for Pest Management. Here he taught biochemistry to biology students and supervised graduate student research until he retired. Jack's research has centred on fatty acid metabolism in host-parasite systems of insects. More than 40 research papers and reports have resulted from this work. He has served as an alderman for the City of Belleville, was its "Citizen of the Year" for 1967 and spent two terms as Associate Dean of Science at S.F.U.



BEIRNE, Bryan Patrick F.E.S.C., M.R.I.A.
 B.Sc. (1938), Ph.D. (1940), M.Sc. (1941),
 M.A. (1942) Dublin
 Born: 22 January 1918
 Wexford, Ireland
 Retired: 1983
 Address: 2203 - 3755 Bartlett Court
 Burnaby, B.C.
 V3J 7G7

After graduating with four degrees from Trinity College, Bryan remained there as a faculty member to teach general zoology and entomology, was involved in research of the zoogeography and systematics of insect pests, and operated a private pest control business. In 1948 he joined the Insect Systematics Unit of the Division of Entomology in Ottawa, was placed in charge of the Hemiptera Section and published some excellent monographs on these insects in Canada. In 1955 he became Head of the Belleville Biological Control Laboratory which was upgraded to a Research Institute in 1959 with Beirne as Director. In 1967 he and seven colleagues from the Institute left to form the Pestology Centre of Simon Fraser University. He has piloted the Centre to its present world-renowned status in the development of pest management systems. He was appointed Dean of Graduate Studies in 1979. Bryan has authored 14 books or monographs and over 100 research articles, was elected Member of the Royal Irish Academy in 1947 and awarded the Gold Medal of the Entomological Society of Canada in 1976.

**BELTON, Elspeth M.**

B.Sc. (Hons.) (1954), Ph.D. (1957) Glasgow
Born: 1 June 1933
Glasgow, Scotland
Address: Dept. Biological Sciences
Simon Fraser University
Burnaby, B.C.
V5A 1S6

Elspeth got her first taste of entomology when working as a student assistant in the Entomology Section of the British Museum in 1953. Here she was involved in the taxonomy of the snout beetle family, Erirrhiniinae. As a student assistant at the Pest Infestation Laboratory, Slough in 1955, she evaluated insect damage to groundnuts. After graduation she worked as a Research Assistant in the Departments of Zoology (1954-1957) and Genetics (1957-1959) of Glasgow University, followed by a year as a Lecturer in the City College, New York (1960-1961). In 1961 she came to Belleville, Ontario, with her husband Peter, and in 1967 to Burnaby, B.C. Since 1973 Elspeth has been a Research Assistant in the Department of Biological Sciences at Simon Fraser University. Here she has not only continued some of her taxonomic work but has investigated the conduct and ethics of controversial pest control attempts in B.C. She has also compiled and assessed information about Canadian agricultural insect pests, particularly Lepidoptera on fruit. Elspeth has a keen interest in the biology and distribution of mosquitoes in Canada and has been active in promoting the use of common names of insects. She has chaired the Committee on Common Names of Insects for the Entomological Society of Canada (1985 – present) and served as a Director of the Entomological Society of B.C. (1980-1982).

**BELTON, Peter**

B.Sc. (Hons.) (1955) London; A.R.C.S. (1955) Imp. Coll.;
Ph.D. (1970) Glasgow
Born: 6 September 1930
Driffield, England
Address: Dept. Biological Sciences Centre for Pest
Management
Simon Fraser University
Burnaby, B.C. V5A 1S6

Following a stint as an Assistant Experimental Officer of the Ministry of Food in London, England (1948-1950), and a year with the Royal Air Force as a radio and radar fitter (1950-1951), Peter enrolled at Imperial College, London, in the applied entomology program. He was accepted by Graham Hoyle as a Ph.D. student in Glasgow University in 1955. As an Assistant Professor in the Zoology Department (1955-1959), he taught pre-medical zoology and physiology and studied Scottish country dancing with his wife-to-be, Elspeth. He was a Research Associate at Columbia University, New York (1959-1961), then emigrated to Canada to join the staff of the Entomology Research Institute, Belleville, Ontario. Here he studied the chemical and physical factors that affect the physiology and behaviour of insect pests. Of particular interest to him was sound production and reception in insects, and the electrophysiology of the sense organs that are involved in host attraction. In 1967 he was one of the group of eight scientists that founded the Pestology Centre at Simon Fraser University. Here he teaches courses in pest management and continues his studies of insect sound production. Peter has published on the tympanic organs of lepidopterans, repulsion of Lepidoptera with ultrasound, direction finding of insects, attraction of male mosquitoes, insect behaviour and flight, and the mosquitoes of B.C. He has served as Regional Director of the American Mosquito Control Association, President of the Northwest Mosquito and Vector Control Association and in 1979 was President of the Entomological Society of B.C.

**BORDEN, John Harvey F.E.S.C.**

B.Sc. (1963) Wash. St.; M.Sc. (1965)
Ph.D. (1966) Calif. (Berkeley)
Born: 6 February 1938
Berkeley, California, U.S.A.
Address: Dept. Biological Sciences
Simon Fraser University
Burnaby, B.C.
V5A 1S6

After studying forest entomology at, and graduating from the two Universities, John accepted a teaching-research position at Simon Fraser University in 1966. Here he has taught Introductory Entomology, Forest Pest Management, and Biology and Management of Forest Insects. His principal interest and work has been the biology and chemical ecology of bark beetles. The isolation of new pheromones and other semiochemicals (he holds three patents) and their field testing as tools of pest management of noxious forest and agricultural insects, have won him international acclaim as an authority in the research and practical application of insect sex hormones. Pheromones of at least 15 species of forest insect pests have been identified. John has successfully developed semiochemical-based management systems for ambrosia beetles and the mountain pine beetle. His able and enthusiastic teaching has stimulated, enticed, and sustained many students who are interested in entomology; to date he has supervised the research of 52 graduate students. John has co-authored one book, written chapters for nine others and has published more than 200 scientific papers. In 1977 he was awarded the C. Gordon Hewitt Award, and in 1988 the Gold Medal, both from the Entomological Society of Canada for outstanding achievement in entomological research.

**BROWN, Clifford Elmer**

B.S.A. (1949) Manitoba; M.Sc. (1952) Minn.
Born: 30 December 1921
Ninga, Manitoba
Retired: 30 November 1985
Address: 4636 Sunnymead Way
Victoria, B.C.
V8Y 3C7

Cliff received his elementary education in a rural school south of Ninga, and attended the High School in Killarney, Manitoba. He then spent two years as a fur-trade clerk with the Hudson's Bay Company in the north, two years in the R.C.A.F. (navigator), and when discharged attended the University of Manitoba. His entomological career began in 1948 as a Student Assistant at the Dominion Entomological Laboratory, Indian Head, Saskatchewan, helping to control the fall cankerworm. He became the Head of the Insect Survey that monitored the distribution of shelter belt and shade tree insects of the prairie provinces. In 1956 he transferred to the Forest Biology Laboratory, Calgary, where he headed the Forest Insect Survey for Alberta and the N.W. Territories. Cliff was active in the development of the automated recording of insect and disease survey data and in 1964 produced one of the first maps of insect distribution by machine methods. In 1966 he became Assistant Co-ordinator, Forest Insect Survey, Ottawa; helped co-ordinate survey programs throughout Canada and assisted in the development of records used in the Insect and Disease Survey and in the production of a code book used throughout the Survey across Canada. In 1972 he transferred to the Pacific Forest Research Centre where, as Program Manager and Deputy Director, he assisted in the development of research programs and was responsible for overseeing many parts of that program. Cliff was a member of, and served on the Executive of the Entomological Societies of Saskatchewan, Alberta, and Canada.

**BUCKELL, Edward Ronald**

B.A. Cambridge
 Born: 8 April 1889
 Romsey, Hampshire, England
 Retired: 30 April 1949
 Died: 17 December 1961
 Salmon Arm, B.C.

Ronald came to Canada in 1912 and settled in the interior of British Columbia near Shushwap Lake. Here he helped his father on a fruit farm. He enlisted in 1914, fought at the Somme in 1916, was wounded and repatriated in 1917. It was then he began his entomological career, working for the Horticultural Board of the B.C. Department of Agriculture on codling moth control. Later he was enlisted to help with grasshopper control on rangeland in the interior of the province. In 1928, when R.C. Treherne was posted back to Ottawa, Buckell became Head of the Field Crops Entomological Laboratory at Vernon, later at Kamloops. He remained with the Department until he retired. Most of Buckell's economic entomological work was associated with grasshopper control: improving arsenical baits, helping to draft the grasshopper Control Act to establish the highly effective Grasshopper Control Zones of British Columbia, and conducting insect pest surveys. He also collected extensively, was partial to the Orthoptera but included the Odonata, Diptera, and many parasitic Hymenoptera in his captures. Always an outdoorsman, he loved to hunt, enjoyed Nature and camping, and critically examined the forces that induced insects to become pests.

**CANNINGS, Robert Alexander**

B.Sc. (Hons.)(1970), M.Sc. (1973) U.B.C.
 Born: 12 August 1948
 Summerland, B.C.
 Address: Biology Section
 Royal British Columbia Museum
 675 Belleville Street
 Victoria, B.C.
 V8V 1X4

Rob was introduced to the world of birds and insects at an early age by watching and accompanying his father who was the photographer at the Summerland Research Station. His interest in, and study of natural history qualified him as a summer-time Park Naturalist during his High School and University years (1965-1973). He then accepted a position as Park Officer (Biologist) assessing and planning interpretation programs for the B.C. Provincial Parks Branch (1974-1976). Following two years as a free-lance writer and entomologist (1976-1978), Rob accepted the responsibilities as Curator of the Spencer Entomological Museum at U.B.C., but only for a year. He advanced to become Curator of Entomology at the B.C. Provincial Museum and is currently the Chief of the Biology Section but has retained the curatorship of entomology. Rob's interests have centred on the systematics and life histories of Diptera (especially Asilidae) and Odonata, and the ecology of aquatic systems. He has more than 60 publications to his credit, including two books on birds and dragonflies, respectively. Rob has served as President (1986) and Editor of *Boreus* (since 1981) of the Entomological Society of B.C. and as Regional Director (1983-1986) representing that Society on the Governing Board of the Entomological Society of Canada.

**CANNINGS, Sydney Graham**

B.Sc. (Hons.)(1975), M.Sc. (1978) U.B.C.
 Born: 31 March 1954
 Penticton, B.C.
 Address: Department of Zoology
 University of British Columbia
 Vancouver, B.C.
 V6T 2A9

Syd's formative years, spent in the Okanagan Valley, exposed him to the myriad plants and animals of the arid B.C. interior. These piqued his interest and led him to Vancouver where higher education further stimulated his curiosity in birds, insects and plants. In the summer months of 1971-1974, he worked as a Park Naturalist in Mount Robson, Okanagan Lake, and Haynes Point Provincial Parks. Encouraged by the artful entomology lectures of G.G.E. Scudder, and with the help of a National Research Council Postgraduate Scholarship (1975-1977), he delved further into entomology and studied the thermal and cuticular permeability responses of water boatmen. In 1978, as a Research Assistant in the Department of Zoology, U.B.C., he sampled the saline lakes of the Chilcotin Plateau for their benthic, planktonic and littoral invertebrates. In 1979 he continued this work, collecting insects in glacial refugia in the Yukon. Since 1980 Syd, as Curator of the Spencer Entomological Museum, has been responsible for the collecting, classification and maintenance of the 600,000-specimen insect collection. He has published on the biology and distribution of the Corixidae (Hemiptera), Odonata, and Plecoptera.

**CARLSON, Jerry Allen**

B.Sc. (1978) Simon Fraser; M.Sc. (1987) U.B.C.
 Born: 30 October 1951
 New Westminster, B.C.
 Address: Phero Tech Inc.
 7572 Progress Way
 R.R. #5
 Delta, B.C.
 V4G 1E9

After completing his elementary and High School education in New Westminster, Jerry went logging for several forest companies in coastal British Columbia. He soon found that insects, especially the ambrosia, lamellicorn and bark beetles accompanied him on the logging trips. Although his interest in insects was recreational at the time, it soon became professional when he worked for the provincial Forest Service (1973-1975) in the Prince Rupert area and with Agriculture Canada (1975-1977) at the Summerland Research Station – working on the autocidal control of the codling moth – during the summer months while at Simon Fraser University. After graduation, Jerry set up his own consulting company (1978-1983) doing pest management project work in Agriculture and Forestry. He pursued further post graduate training at U.B.C., (1982-1985) and then joined Phero Tech Inc. as Manager of its Technical Services. Here he has senior responsibilities for all of the company's semiochemical-based pest management programs of noxious forest and agricultural pest insects. He is also responsible for research on field applications, consultation services with clients, planning of programs, and personnel management.

**CHAPMAN, John Arthur**

B.A. (1940) Wooster Coll.; M.Sc. (1942) Wesleyan University;
 Ph.D. (1949) Calif.(Berkeley)
 Born: 18 October 1919
 Dumaguete, Philippines
 Died: 28 October 1974
 Victoria, B.C.

John was born the son of missionary teachers; his father, Dr. James Chapman, was also an entomologist. When John was 16 (1935), the family moved to the United States where he attended several Universities from 1940 to 1949, with a break of two years in the United States Navy. He taught for several years at the University of Montana and moved to Victoria in 1953 to undertake a career in forest entomology with the Canadian Forestry Service. John was fundamentally a naturalist with wide interests in insect physiology, behaviour, ecology and morphology. His most noted work concerned the host-finding behaviour of bark and ambrosia beetles. His concept of odour meteorology exemplified his original work on the responses of insects to chemical attractants and laid the foundations for subsequent development of pest management systems by many other scientists. At the time of his death, John was writing a guide to the ants of British Columbia. John published 69 scientific papers and was a member of the Entomological Societies of Canada (Director, 1969), British Columbia (President, 1973) and America.

**CHARLES, Walter Douglas**

B.S.A. (1937) U.B.C.
 Born: 29 June 1913
 Castor, Alberta
 Retired: 29 June 1978
 Address: Site 22
 R.R. No. 1
 Peach Orchard Road
 Summerland, B.C.
 V0H 1Z0

After receiving his degree in Agriculture, and having specialized in plant pathology, Walter took a job with Walter Ltd., a fruit packing and shipping company. Here he remained as a warehouseman and later as foreman from 1937 to 1958. During this period he took time out to help fight a war and served in the Royal Canadian Medical Corps (1943-1946). In 1958, Walter joined the Health Protection Branch as a Food & Drug Inspector and remained in that position until retirement. Throughout his career Walter had an interest in the invertebrates. Although he did not consider himself an entomologist he was more "at home" with the spiders and thus is regarded as an arachnologist. He collected spiders showing a particular interest in the taxonomy of the spiders of the Okanagan Valley. Although many were identified by the Systematics Branch of the Division of Entomology in Ottawa, he was encouraged to identify the ones he collected, thus becoming proficient in the taxonomy of this group of invertebrates.

**CHURCHER, John Joseph**

B.S.A. (1981) Macdonald Coll.; M.Sc. (1984) U.B.C.
 Born: 23 April 1959
 Belleville, Ontario
 Address: Ministry of Natural Resource
 Forest Health & Protection
 P.O. Box 1000
 1219 Queen Street East
 Sault Ste. Marie, Ontario
 P6A 5N5

Joe's first experience in entomology came when he was in Grade five and visited the Entomology Laboratory for Biological Control, the "Bug-Lab" in Belleville. However, his first practical experience with insects came when he worked as a summer assistant on spruce budworm surveys for Forest Protection Ltd., Fredericton, N.B. (1978-1981). Here he evaluated a method, using baskets fitted to pole pruners, for the collection of samples of spruce budworm larvae. Then, having obtained his Bachelor's degree, he moved west for post-graduate studies at the University of British Columbia. For his Master's thesis research, Joe worked with J.A. McLean and the B.C. Forest Service, on the detection of spruce beetle infestations using aerial photography. He had joined the B.C. Forest Service in 1982, conducted his thesis research and served as a biologist in the Prince George area where he dealt with forest insect management and control techniques. In 1984 he was employed briefly as a forest entomology consultant and then accepted a position as a provincial forest entomologist with the Ministry of Natural Resources in Ontario, serving in that capacity to the present time.

**CONDRASHOFF, Sergei Feodore**

B.Sc. (1953) Calif. (Berkeley)
 Born: 28 January 1932
 Bassano, Alberta
 Address: c/o 2441 Mowat St.
 Victoria, B.C.
 V8R 5T1

Sergei's entomological career began with Canadian Forestry Service, Insect and Disease Survey, Vernon (1954) and continued in Victoria (1962-1970). His assignments focussed on short-term economic problems. He identified three new species of gall midges damaging Douglas-fir trees and formulated management procedures to reduce losses from these pests. He demonstrated the feasibility of conducting aerial appraisals of bark beetle populations and damage, and developed forest management recommendations to reduce losses in conifer seedling plantings caused by two species of weevils. His analysis of climatic factors, following severe defoliation of mature hemlock by the hemlock needle miner on Vancouver Island, precluded implementation of expensive forest protection measures. He developed an insect egg sampling technique that offered high accuracy of forest insect population surveys with great reduction in costs. After 1970, Sergei entered private entomological practice; was successful in the breeding and release of insect parasitoids to control the larch case-bearer and achieved biological control of the winter moth on Vancouver Island. For this Sergei and three project colleagues received the Honorary Citizen of Victoria award. In 1976, Sergei founded a company to develop and manufacture safe chemical materials for domestic use and registered several products based on soaps. In 1985 he was awarded an Honorary Life Membership in the Agricultural Institute of Canada in recognition for his contributions to Canadian agriculture.



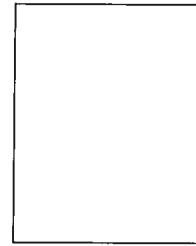
CRAM, William Thomas
 B.S.A. (1950) U.B.C.; M.Sc. (1955), Ph.D. (1964) Oregon St. Univ.
 Born: 20 October 1927
 Burnaby, B.C.
 Retired: 31 July 1984
 Address: 12939 – 22A Ave.
 White Rock, B.C.
 V4A 7E4

Tom began his entomological career in 1949 with the Fruit Insect Laboratory of Agriculture Canada in Victoria, then headed by H. Andison. Here for the next ten years he was associated with insect pests of berry crops, studying their biologies and devising practical methods of cultural and chemical control. Included in this work were the root weevils on strawberries, raspberries, blueberries, and cranberries. After his transfer to the Vancouver Research Station in 1960, he diverted his attention to the susceptibility of cultivars of berry crops to the black vine weevil. For the next 24 years he has continued his studies of the biology and control of pests of berry crops as well as the mechanism of transmission of plant viruses by aphid vectors. Tom's work has resulted in the successful control of insect pests of berry crops using chemicals, and in the production of grower's guides to berry pests. Tom has served as President of the Entomological Society of B.C. (1970) and also as a member of the Governing Board of Entomological Society of Canada (1971-1973).



CURTIS, Leslie Colin
 B.Sc. (1938) U.B.C.
 Born: 13 March 1904
 London, England
 Retired: 13 March 1969
 Died: 24 January 1979
 Kamloops, B.C.

Colin started out on a chosen career as a school teacher. He taught in schools at Victoria, Sooke and Duncan on Vancouver Island, and at Fort Fraser, Vanderhoof, Naramata and Kamloops, all in British Columbia. He had an intense interest in natural history and when opportunity beckoned he joined the staff of the Livestock Insect Laboratory at Kamloops in 1948 to begin a study of the biting flies that affected man and livestock in British Columbia. Throughout the next 21 years he maintained that interest, diverging for a while to undertake studies of the systematics of mosquitoes in the Fraser Valley, and the *Phlebotomus* flies and mosquitoes of the Yukon. Included also were periods when he conducted surveys of the abundance of mosquitoes and took a hand at evaluating and improving pesticide application equipment. His final contribution to entomology was a comprehensive monographic treatise on the mosquitoes of British Columbia; a work that is particularly valuable to systematists, and to applied and economic entomologists who are involved in mosquito abatement. Many will remember him as a dedicated ham radio operator with a storehouse of knowledge on early B.C. steamships and railways.



DENNYS, Arthur Alexander
 Born: 27 June 1894
 Mussoorie, India.
 Retired: 1941
 Died: 9 September 1942
 Vancouver, B.C.

Alex arrived in Canada in 1912 at the age of 17. At his home near Salmon Arm, British Columbia, he operated an apple orchard, fished and hunted with exuberance. Although he had no entomological training he was hired and joined the staff of the Dominion Entomological Laboratory at Vernon in 1925, serving there continuously until sickness forced his retirement in 1941. He was the "spray bloke" whose time was taken up in the orchards assisting growers with their sprayers, applying insecticides to insect infestations with meticulous and painstaking care, testing new insecticides, and helping in the development of more efficient spraying machines. However, he was also a most astute observer of the habits of insects; ever curious and never tiring. He spent hours examining the morphological structures of insects, explained the details of feeding and devised control of the apple mealy bug, developed an effective canker paint for the control of the woolly apple aphid, and defined the mechanism of action of arsenical poisons in killing codling moth larvae. Almost single handedly he eliminated the Colorado potato beetle from the East Kootenay district. He was completely reliable and honest in all his dealings with others.



DOERKSEN, George Peter
 B.Sc. (1963) U.B.C.; M.Sc. (1969)
 West. Wash. St. Coll.; Ph.D. (1974)
 North Carolina St.
 Born: 5 July 1940
 New Westminster, B.C.
 Died: 30 July 1981
 Liard River Hotsprings, B.C.

George grew up in a farming community in the Lower Fraser Valley, and attended Pitt Meadows School in Haney. After he graduated from University he taught elementary school in Quesnel for a year and High School biology and chemistry in New Westminster for two years. After a further two-year stint (1967-1969) to obtain a Master's degree – his thesis dealt with the internal parasites of muskrats – he headed for the tropics to teach biology, mathematics and general science in Valencia, Venezuela. The myriad colourful insects of the region turned his attention to entomology; a subsequent summer field course at the University of Oklahoma Biological Field Station started him on his career in odonatology. He took time out to obtain a doctorate (his thesis was a treatise on pyralid moths) and returned to Vancouver Island in 1974. He wanted to become a self-supporting entomologist but found it necessary to hold down a job in a lumber mill at Tahsis. His greatest interest was in dragonflies; to photograph all the B.C. species was his goal. His favourite topic of endeavour was the reproductive behaviour of the Odonata. He was in the northern wilds of the province, nearing the completion of his photographic portfolio of dragonflies – this to be compiled as a field guide to the Odonata of British Columbia – when he was killed by a grizzly bear. His untimely death cut short a promising entomological career.

**DOWNES, William**

Born: 13 October 1874
 Combe Raleigh
 South Devon, England
 Retired: 14 January 1947
 Victoria, B.C.
 Died: 24 December 1959
 Victoria, B.C.

Downes developed a keen interest in insects at an early age; his father and brothers were collectors. After his schooling in Devon and Bristol he went to New Zealand to try sheep farming, an adventure that lasted until 1901 when he returned to England, then emigrated to Canada stopping in Alberta. He bought a ranch at Armstrong, British Columbia in 1902, suffered ill health, rented the ranch and moved to Victoria in 1915. Two years later he was hired by the Entomological Branch to investigate the biology of pear thrips at the Royal Oak Field Station. In 1919 he was appointed Head of the Entomological Laboratory at Victoria, remaining there until retirement. He studied the life histories of, and developed practical control measures for many farm, garden, and orchard insect pests; especially the root weevils, narcissus bulb fly, earwigs, cherry fruit worm, pea leaf weevil, and the apple sawfly. He was a recognized specialist of the Hemiptera, amassed an excellent collection which was donated to the University of British Columbia in 1957. He was Secretary-Treasurer (1919), Vice President (1928-1930), President (1933-1935), and Editor (1944-1947, 1950-1954) of the Entomological Society of B.C.

**DOWNING, Ralph Strang**

B.A. (1949) U.B.C.; M.Sc. (1953) Oregon St. Univ.
 Born: 16 October 1920
 Vernon, B.C.
 Retired: 30 December 1979
 Address: R.R. #4, Site 97
 Summerland, B.C.
 V0H 1Z0

At the end of World War II, during which time Ralph had served as a pilot with Squadron 184 and piloted Hurricanes and Typhoons in Britain and Europe, he began his University education. During the summers of 1946-1948 he worked at the Fruit Insect Laboratory, Summerland, aiding in the control of pome fruits. He became a permanent member of the staff in 1949, and devoted the remainder of his entomological career to a study of the biology, behaviour, and control of orchard mites and scale insects. Ralph conceived, developed and implemented an integrated program of mite control in B.C. apple orchards, a program that has been of immense economic value to fruit growers in the Okanagan Valley.

**DUNCAN, Robert William**

B.Sc. (1970) U. Victoria
 Born: 12 December 1947
 Victoria, B.C.
 Address: Forestry Canada
 Pacific Forestry Centre
 506 West Burnside Road
 Victoria, B.C.
 V8Z 1M5

Bob, though born on the west coast, received his elementary education in North Bay, Ontario, after his family moved there in 1956. He next moved to Arvida, Quebec where he completed his high school education. Upon his return to Victoria in 1966, Bob enrolled in the biology program at the University of Victoria. Summer employment at this time included field positions with the Management, Inventory and Research Divisions of the B.C. Forest Service and the Canada Land Inventory. These positions provided unique opportunities to observe and collect insect specimens throughout the Province. After graduating in 1977, Bob accepted employment with Forestry Canada in Victoria where he currently is the insectary biologist with the Forest Insect and Disease Survey unit. He is responsible for insect identifications and rearings in support of the survey program. Although interested in general insect taxonomy he prefers the Scolytidae and Cecidomyiidae. Bob has published an illustrated guide to the identification of *Dendroctonus* beetles in B.C.; described a new species of gall midge, *Chamaediplosis nootkatensis* that damages yellow cypress, and described an unusual occurrence of a web-spinning spider mite, *Schizotetranychus schizopus*. Some of his spare time is devoted to his garden and the growing of 250 varieties of tree fruits.

**DYCK, Victor Arnold**

B.A. (1962) Sask.; M.Sc. (1967) Trent; Ph.D. (1970) McGill
 Born: 8 March 1941
 Drake, Saskatchewan
 Address: Agriculture Canada Research Station
 Summerland, B.C.
 V0H 1Z0

Having been born, reared, and educated in Saskatchewan, Arn was also subjected to the presence of grasshoppers, often in large numbers. These insects were the subject of studies supervised by R.L. Edwards both in Saskatoon and at Trent. Upon completion of his doctoral work – also on grasshoppers – Arn joined the International Rice Research Institute in Los Banos, Phillipines. Here, as a Research Entomologist from 1970 to 1982, he was responsible for investigations of the ecology and control of rice stem borers and planthoppers. Arn's interest in I.P.M. and in fruit entomology caused him to return to Canada in 1982 to replace M.D. Proverbs (the latter retired in 1980) at the Research Station in Summerland. Here Arn continued Proverb's work on biological control of the codling moth using the radiation-induced sterility technique. To date he has devised improvements in the sterile insect release program and assisted growers in developing a plan to implement it. He validated the codling moth degree-day system for predicting the appropriate times to spray insecticides. A variety of insect growth regulators were tested for efficacy against the codling moth. Disinfestation procedures for apples and cherries, to permit export of these crops to Japan, have also been studied.



EBATA, Timothy Masao
 B.Sc. (1984), M.Sc. (1986) U.B.C.
 Born: 6 December 1959
 Vancouver, B.C.
 Address: B.C. Ministry of Forests
 Prince Rupert Forest Region
 Bag 5000
 Smithers, B.C.
 V0J 2N0

Timothy is a relative newcomer to entomology. Having come under the influence of G.G.E. Scudder in his undergraduate studies, he decided to continue in this field of biology. A summer job with R.S. Vernon at Vancouver and Summerland introduced him to the practical side of entomology. However, another summer (1982) of work as a Research Assistant to John Borden, convinced him that forest entomology could become a life's vocation. Further studies under the guidance of John McLean and research on the biology of the Douglas-fir cone moth further whetted his appetite in entomological research. The summers of 1983-1985 were spent assisting G. Miller of the Pacific Forestry Centre, Victoria, in cone and seed insect pest management studies while his Master's thesis research comprised the rearing of the Douglas-fir cone moth on artificial diets. In January 1986 he obtained employment as a Regional Forest Entomologist to work on forest pest management in the Prince Rupert Forest Region. Timothy provides advice and training to the B.C. Forest Service industry staff, consultants and the public concerning insect pest management problems, particularly in the management of mountain pine beetle, other bark beetles, and pests of second-growth forests.



FINLAYSON, Douglas G.
 B.A. (Hons.) (1948), M.A. (1950) U.B.C.;
 Ph.D. (1965) Univ. West. Ont.
 Born: 27 December 1918
 Winnipeg, Manitoba
 Retired: December 1980
 Address: 201-1178 Beach Drive
 Victoria, B.C.
 V8S 2M9

After receiving his initial education in Winnipeg, Doug joined the R.C.A.F. in 1940. After five years of active service he enrolled as a student at the University of British Columbia, came under the influence of Prof. Spencer, and a career in entomology was born. During and after his University training, Doug worked for the Field Crop Insect Laboratory in Kamloops, beginning as a student assistant in 1948. Root maggots of carrots, onions and *Brassica* crops were prime targets of his investigations, principally in biology and control of the tuber flea beetle. Because his training was in chemistry and toxicology, Doug's entomological endeavours encompassed the use of chemical insecticides. At Kamloops, and later (since 1960) at the Vancouver Research Station his studies included the effects of organic insecticides on the mortality, survival, and especially the occurrence of resistance to insecticides, by root maggots and flea beetles. The formulation of control procedures has permitted growers to produce root crops free of insect damage. His further studies of the predators and parasites of root maggots has allowed effective IPM programs to be established in the vegetable growing regions of British Columbia.



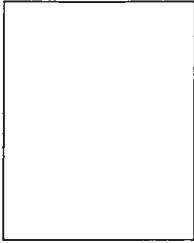
FINLAYSON, Thelma
 B.A. (1936) Toronto; Teaching Cert. (1937) Ont. Coll. Ed.
 Born: 29 June 1914
 Oshawa, Ontario
 Retired: 31 August 1979
 Address: 1804 - 3737 Bartlett Court
 Burnaby, B.C.
 V3J 7E3

Thelma, during her professional entomological career, has been involved in studies of parasites as natural control agents of noxious insects. For 30 years (1937-1967) she was employed by the Dominion Parasite Laboratory, Belleville, Ontario; renamed the Entomology Research Institute in 1959. Here she reared entomophagous insects for release to control the spruce sawfly; studied diapause and nutrition of hymenopterous parasites; curated insect collections, and detailed the taxonomy and systematics of the immature forms of dipteran and hymenopteran parasites. After becoming a member of the Pestology Centre at Simon Fraser University in 1967, she continued the work of larval taxonomy, developed courses in entomology for the M.P.M. program, and taught courses in entomology, introductory biology and pest management. Even after retirement and as Professor Emerita, Thelma continues her research on the taxonomy of the final-instar larvae of hymenopterous insects and parasites of aphids. Tangible products of her work are the 38 scientific research papers, monographs and book chapters on insect parasitology and taxonomy. Thelma served as President of the Entomological Society of B.C. in 1975.



FITZPATRICK, Sheila Maureen
 B.S.A. (1979), M.Sc. (1982) U.B.C.; Ph.D. (1988) Laval
 Born: 10 August 1956
 Vancouver, B.C.
 Address: Agriculture Canada Research Station
 6660 N.W. Marine Drive
 Vancouver, B.C.
 V6T 1X2

After completing her elementary and High School education in Richmond, Sheila enrolled at the University of British Columbia in a degree program in agriculture (crop protection). She returned for post graduate studies in entomology (1980-1982) and investigated the territorial aggression of male syrphid flies. In 1983 she accepted an NSERC Post Graduate Scholarship and went to work with J.N. McNeil at Laval University where she exploited her interest in behavioural ecology, especially in pheromone communication and reproductive strategies of economically important insects. She completed and published her work on the role of the male pheromone in the mating behaviour of *Pseudaletia unipuncta*. In 1988 she declined an NSERC post-doctoral scholarship to accept the position of Industrial Research Fellow with Integrated Crop Management Services, Okanagan Centre, where she studied the activity patterns of *Agapeta zoegana*, a potential biological control agent of knapweed. As of April 1989, Sheila has been employed at the Research Station in Vancouver; her research here comprises the behavioural ecology and integrated pest management of cranberry and blueberry pests. Sheila won the E.S.C. Student Paper Competition in 1987 and has served as a Director (1989-1991) and member of the Public Education Committee of the Entomological Society of B.C.



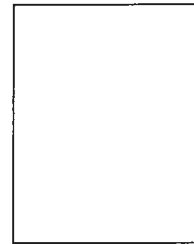
FOLWELL, James R.
 B.S.A. (19..) O.A.C.; M.Sc. (19..) Toronto
 Born: 1915
 Toronto, Ontario
 Died: 16 June 1960
 Toronto, Ontario

Jim was an athlete and loved sport as much as science. He played football as a student at O.A.C. and for the Argo Football team in Toronto. He first tested the waters of entomology by working as a Student Assistant at the Dominion Parasite Laboratory, Belleville, Ontario, during the summers of 1940 and 1942. The call to arms in World War II was heeded; he served in the R.C.A.F. After demobilization he played football at O.A.C., lectured at the University of Toronto for one session, and coached the Varsity Blues football team. In 1949 Jim was appointed to the staff of the Stored Products Insect Laboratory in Ottawa. Later that year he transferred to head the newly-formed Stored Products Insect Laboratory in Vancouver where he conducted research on improved methods of mill and terminal elevator sanitation and fumigation. In 1952 he returned to Ottawa but left in 1953 to accept a position with the Chemical Division of Shell Oil in Toronto. Sudden death terminated a promising career of liaisoning the chemical industry with the insecticide users of Canada.



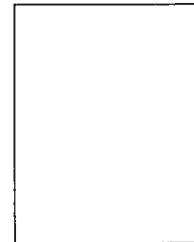
FORBES, Albert Ronald F.E.S.C.
 B.A. (1952) U.B.C.; M.Sc. (1955) Ore. St. Univ.;
 Ph.D. (1963) Calif. (Berkeley)
 Born: 16 October 1931
 Victoria, B.C.
 Address: Agriculture Canada Research Station
 6660 N.W. Marine Drive
 Vancouver, B.C.
 V6T 1X2

Ron received his initial introduction to entomology when, as a student assistant (1949-1951) he worked with K.M. King at the Field Crop Insect Laboratory in Victoria. This introduced him to investigative research on the biology and control of root maggots and wireworms; the critical biological data for three species of root maggots permitted the development of effective chemical control for root maggots in stem brassicas and rutabagas. He received a permanent appointment in 1952 and remained with Agriculture Canada until 1991. In 1956 Ron was transferred to F.C.I.L. in Vancouver which in 1960 became part of the present Research Station. When most of the plant-virus work in Canada was being centred at Vancouver, Ron became involved in insect vectoring of viruses. His work with aphid vectors necessitated an extensive taxonomic and systematic study of the aphids; to date he has discovered a new genus, many new species, and has found at least 400 species in the province. Ron has made major contributions in economic entomology (root maggots, other soil insects, plant disease epidemiology), aphid biology and taxonomy. He is a world authority on feeding mechanisms of plant pathogens. Ron has authored 50 research papers including three book chapters, and is an Adjunct Professor in the Department of Plant Science, U.B.C. At the Vancouver Research Station he has served as Head, Entomology Section since 1976, Associate Director since 1984, and as Director in 1990. He was President of the Entomological Society of B.C. in 1981.



FRAZER, Bryan Douglas
 B.Sc. (1965) U.B.C.; Ph.D. (1971) Calif. (Berkeley)
 Born: 17 February 1942
 Penticton, B.C.
 Address: Agriculture Canada Research Station
 6660 N.W. Marine Drive
 Vancouver, B.C.
 V6T 1X2

Bryan got his start in entomology as a summer student at the Research Stations in Summerland (1963) and Vancouver (1964, 1965); assisting in chemical control projects to find the best pesticide for the control of pear psylla and berry crop pests. He joined the staff of the Research Station in Vancouver in 1965, became familiar with aphid taxonomy and began his career in aphid ecology. Bryan's doctoral research in California, on the biological control and population dynamics of the walnut aphid (1967-1971), and an importation of an Iranian parasite, resulted in reducing the aphid from a multi-million dollar pest to a sporadic minor one. Returning to the Vancouver Station in 1971, Bryan began work on the development of simulation models of field populations of the pea aphid on alfalfa. With the use of such models he, and many colleagues, demonstrated (1972-1980) the impact and limitations of coccinellids as predators. He has developed methods of taking absolute samples of coccinellids and generated a variety of monitoring and sampling systems for use in pest and plant virus management. Bryan has since produced monitoring programs for aphids for use in co-operative work on the control of plant viruses in potatoes and strawberries. He has also been actively involved in work with aphid parasites, syrphids, coccinellids, knapweed parasites, leafrollers, and spiders in his capacity as research advisor to UBC graduate students. He is currently Head of the Entomology Section of the Vancouver Research Station.



FULTON, Harry Graham
 B.S.A. (1923) U.B.C.
 Born: 19 December 1902
 Vancouver, B.C.
 Retired: 1967
 Address: 322 - 45650 Patten Road
 Chilliwack, B.C.
 V2P 1S4

Harry, a native of Chilliwack, British Columbia, graduated with a degree in Agronomy but with no formal entomological training. He wanted to farm, so he bought 120 acres of Fraser Valley land from his father, thus acquiring both, a farm and a mortgage. He farmed this acreage from 1926 to 1933. When the Depression of the 1930s set in he could not keep up with the debt payments and had to forfeit the farm. He worked in the plant of the Fraser Valley Milk Producers Association for a year and then landed a job with the Dominion Entomological Laboratory at Agassiz as an assistant to R. Glendenning. Here he remained from 1934 on, to investigate the biology of, and devise methods for the control of pest vegetable insects of the Lower Fraser Valley. When Glendenning retired in 1959, Harry became Officer-in-Charge and transferred the laboratory to Chilliwack in 1960. For the next seven years he conducted extensive investigations of the biology and control of the tuber flea beetle and the carrot rust fly. When he retired, the laboratory, which had since reverted to the level of a sub-station of the Vancouver Research Station, was dissolved.



GERBER, Henry Siegfried
 B.A. (1963), M.A. (1964) Walla Walla Coll.;
 Ph.D. (1969) Wash. St.
 Born: 29 April 1934
 Czernovtsy, Romania
 Address: British Columbia Ministry of Agriculture and Food
 17720 - 57th Avenue
 Cloverdale, B.C.
 V3S 4P9

Henry arrived in Canada in 1951 and received his early education at Lacombe, Alberta. Upon completion of his University training in 1969 he went to work as an extension entomologist for the British Columbia Ministry of Agriculture & Fisheries. Having been associated with E.C. Klostermeyer in the State of Washington, and having dealt with the biology, morphology, and habits of leafcutter bees, he was well qualified to continue the pollination work associated with seed production of forage crops in British Columbia. However, as an extension entomologist he had to deal with all manner of pests, subsequently he investigated outbreaks and damage caused by mites and insects on ornamentals, shade trees, berry crops and vegetables, and recommended control. Henry has produced a number of extension publications dealing with these pests as well as Guides for the production of vegetables, berries and field crops in British Columbia. His most recent work has been as editor and compiler of *A Gardeners Guide to Pest Prevention and Control in the Home and Garden*. Henry served as President of the Entomological Society of B.C. in 1977.



GILKESON, Linda Arlene
 B.F.A.(Hons.)(1973) York; Ph.D. (Hons.)(1986) McGill
 Born: 17 June 1950
 Pullman, Washington, U.S.A.
 Address: Applied Bio-Nomics Ltd.
 P.O. Box. No. 2637
 Sidney, B.C.
 V8L 4C1

Linda has regarded the living world about her from an aesthetic point of view, thus having high regard for the flora and fauna in her surroundings. She received her undergraduate education, not in science, but in Fine Arts. She is intrigued by plants and founded a mail order plant nursery in Souris, P.E.I. in 1975. Management of the nursery, until 1981, indicated a whole new realm of interactions, especially between that of plants and insects. For three years, while operating the nursery business, Linda worked at a solar greenhouse project and studied the application of biological agents to control pests of tomatoes and bedding plants. Because of her interest in bio-control, especially that of controlling aphids, she sought further education, this time in entomology. With the help of N.S.E.R.C. Scholarships she enrolled at McGill University and completed a doctoral program in 1986. She found employment with Applied Bio-Nomics Ltd., and now, as Director of Research, supervises all applied work on mass-production methods for bio-control and release rates in commercial greenhouses, orchards, and nurseries. Linda is also involved in the development of bio-control of aphids in China, cold tolerance studies, and diapause response and genetic selection for improved strains of bio-control agents. She currently holds an Adjunct Research Scientist position with the Vancouver Research Station, is a member of the Governing Board of the Entomological Society of Canada (1989-1992), and has served as Vice-President (1990) and President (1991) of the Professional Pest Management Association of B.C.



GILLESPIE, David Roy
 B.Sc. (1976), M.Sc. (1979), Ph.D. (1982) Simon Fraser Univ.
 Born: 23 September 1952
 Victoria, B.C.
 Address: Agriculture Canada Research Station
 P.O. Box 1000
 Agassiz, B.C.
 V0M 1A0

Dave received his early education in several centres on the west coast of British Columbia: Alert Bay, Spring Island, and Vancouver. His early enthusiasm for all of nature's small creatures induced him to seek a career in biology. During his undergraduate years in the Department of Biological Sciences at Simon Fraser University, he discovered and was attracted to the wonderful world of insects. He pursued this interest by completing post-graduate studies on the systematics of immature parasitic Hymenoptera, and on leafrollers affecting berry crops. In 1982, Dave was appointed to the staff of the Canada Agriculture Research Station at Saanichton to replace N.L. Tonks who had retired. His research comprised studies of the biology and ecology of insect pests of greenhouse crops and their natural enemies. The results of this work have played a key role in the development of many new novel pest management strategies currently in use in the greenhouse industry. In 1987 he was transferred to the Research Station in Agassiz. Dave's recent research has focussed on the biology and behaviour of minute pirate bugs and their application for biological control of western flower thrips. He is currently Head of the Crop Science Section of the Agassiz Research Station.



GLENDENNING, Reginald
 Born: 1888
 London, England
 Retired: 1953
 Died: 27 February 1977
 Mission, B.C.

Glendenning showed an interest in natural history at an early age, gaining experience at the Royal Horticultural Society's garden at Wisely. He married in 1907 and emigrated to Canada where he became foreman of a nursery at Duncan, British Columbia. Bankruptcy of the company forced him into a series of occupations: grave digger, bricklayer, schoolteacher, store clerk, and bank clerk; spare time was devoted to collecting and identifying native flora. In 1916 he was given leave from the Army to conduct a survey for mite infestations on black currants on Vancouver Island. This work was required by the Provincial Government but was directed by R.C. Treherne. In 1917 he collected parasites of the tent caterpillar, fall webworm, and spruce webworm for A.B. Baird of the federal Entomology Division's laboratory at Agassiz. Upon Baird's transfer back to Ottawa, Glendenning was appointed Head of the Agassiz Laboratory where he remained until he retired. During those 37 years he studied the biology, and devised practical controls for a large number of insect, acarid, molluscan, and vertebrate pests of gardens, forest, orchard, and homes. For ten years he studied and effected control of moles in the Fraser Valley. He was a keen aphidologist; one species was named in his honour. He was Secretary (1922-1932) and President (1947) of the Entomological Society of B.C.

**GRAHAM, Kenneth**

B.A. (1934) U.B.C.; M.Sc. (1937) McGill; Ph.D. (1945) Toronto
 Born: 3 September 1911
 Keatley, Saskatchewan
 Retired: 31 August 1977
 Address: 3192 W. 44th Ave.
 Vancouver, B.C.
 V6N 3K6

After completing his undergraduate studies in general zoology, entomology, and botany, Ken continued to the M.Sc. degree in entomology at Macdonald College of McGill University. He then completed a doctoral program in general physiology, biochemistry and bacteriology in Toronto, while serving as a Laboratory Assistant in comparative anatomy of vertebrates. From 1931 to 1939 he was employed seasonally by the federal Division of Entomology, assigned to field investigations of diverse forest insect problems in British Columbia. From 1940 to 1946 he was continuously employed with the federal service, being transferred to Sault Ste. Marie to initiate insect disease investigations. In 1948 he was appointed a Professor of Forest Entomology at the University of British Columbia where he taught undergraduate and graduate courses and directed the studies and research of graduate students until he retired. His research and publications covered a number of topics, with principal focus on phototactic, anemotactic and chemotactic behaviour of ambrosia beetles, and the anaerobic induction of susceptibility of logs to beetle attack. Ken authored a textbook, *Concepts of Forest Entomology*, and co-authored a *Laboratory Manual of Forest Entomology* with R.W. Stark and D.L. Wood. He served as a Visiting Professor (Berkeley, 1967; Madrid, 1972) and as a consultant to the forest industry, government, private citizens, and concerned citizen groups.

**GRANT, James**

Naturalist
 Born: 25 May 1920
 Lumby, B.C.
 Died: 27 January 1986
 Vernon, B.C.

Jim had a keen interest in natural history, one that was expressed at an early age in paintings of birds and plants. Following his primary and secondary schooling, he was engaged in logging but that was only for a short interlude before his entry into the Signal Corps of the Canadian Army in 1941. He saw active service in Europe during World War II until 1946. Jim then joined the Forest Entomology Laboratory in Vernon to serve as a Forest Biology Ranger whose duties varied to include forest insect and disease surveys, biological studies, rearings, and determinations of pest species. The field work also provided him with opportunities to continue his interests in botany and ornithology. He performed similar duties in Alberta (1949-1950), returned to Vernon and was promoted to a supervisory position of the Rangers. He resigned in 1968 when the Laboratory was closed. In 1970 he was appointed as the field-studies co-ordinator of the Vernon School District, responsible for the organizing and conducting of field trips to many ecological sites of forest, grassland, and water, for many hundreds of students in the area. Jim also taught night classes in entomology, ornithology, and botany and authored numerous scientific articles and natural history reports. He had a special talent of stimulating young minds and sparking curiosity in natural history.

**GRAY, Thomas Gerald**

B.Sc. (1970) U. Victoria
 Born: 8 March 1941
 Vancouver, B.C.
 Address: Pacific Forestry Centre
 506 W. Burnside Road
 Victoria, B.C.
 V8Z 1M5

After completing his elementary and High School education in Edmonton, Alberta, Tom strayed into the field of commerce. He joined the Bank of Nova Scotia in Vancouver in 1960 and progressed through the ranks to Assistant Accountant in the bank's Main Branch in Victoria. His interests had always been in the environment; he, therefore, embarked on a program of study of geology at the University of Victoria but changed to zoology. While at the University, Tom spent four summers as a Student Assistant at the Pacific Forestry Centre. The work appealed to him, it piqued his interests and he returned to the Centre after graduation to accept a Technician position. Here he contributed to studies of flight muscle degeneration in spruce beetles, studies of population densities of hemlock looper and the biocontrol (nuclear polyhedrosis virus and *B.t.*) of the western spruce budworm. Tom's interest in insect pheromones has led him into participatory activities with senior scientists in studies of the synthesis, action, and practical use of pheromones in the bionomics, population dynamics and control of spruce budworm, Douglas-fir tussock moth, European pine shoot moth, western blackheaded budworm, and black army cutworm.

**GREGSON, John Douglas**

B.A. (1934) U.B.C.; M.Sc. (1936) Alberta
 Born: 17 June 1910
 Blackfalds, Alberta
 Retired: 30 April 1971
 Address: 1594 Lorne St. E.
 Kamloops, B.C.
 V2C 1X6

A boyhood spent on the prairies near Red Deer, Alberta, and an enthusiastic, insect-collecting father and uncle, primed Jack for a life that included insects. After 1923, when the family moved to Courtenay, British Columbia, he had substantial collections of insects on hand; these he exhibited at Fairs where he came to know W. Downes, the federal entomologist at Victoria. This contact led to work as a summer student on mosquito control with Eric Hearle (1932) and to further entomological training with G.J. Spencer of the University of British Columbia. After graduating in 1934 Jack joined the staff of the Livestock Insect Laboratory at Kamloops, remaining there, except for two winters of post-graduate work (1934-1935), until retirement. A study of the life history, behaviour, and control of ticks comprised his lifelong scientific endeavour. Jack described three new species of *Ixodes* ticks; in 1946 he devised the first practical method of protecting livestock from tick paralysis by using BHC. His greatest efforts were directed toward solving the mechanisms of feeding and engorgement, and the physiology of tick paralysis. This work culminated in two exhaustive and authoritative monographs, *The Ixodidae of Canada* (1956), and *Tick Paralysis* (1973). Jack will also be remembered for his selfless participation in alpine activities with young people, his oil paintings, his superb nature photography, and his prize-winning gardening endeavours.

**GUPPY, Crispin Spencer**

B.Sc. (1981), M.Sc. (1985) U.B.C.

Born: 26 August 1953

N. Vancouver, B.C.

Address: Biological Collections

Royal British Columbia Museum

675 Belleville St.

Victoria, B.C.

V8V 1X4

Cris was introduced to butterfly collecting at the age of eight; an interest he maintained throughout elementary and high school. For several winters he worked as a produce clerk in Vancouver and collected butterflies throughout north-western North America during the summers. Tired of "postage stamp" collecting of butterflies, he returned to school in 1977. Formal training in Zoology, studies of the behaviour and ecology of insects, and work as an entomology technician and Teaching Assistant in the Department of Zoology, U.B.C. (1981-1987), not only strengthened his interest in insects but also prompted further studies in ecology. Since 1987 he has been employed as a technician by the Royal British Columbia Museum where his duties initially included the reorganization of the insect collections, followed by annual additions of collected specimens. He is now actively curating the entomological holdings. Cris has investigated the biology and behaviour of butterflies; his papers on the geographic variation and adaptive significance of melanin in *Parnassius* attest to his keen interest in the Papilionidae. He is the senior author of an RBCM Memoir, "The Butterflies of British Columbia", and has served as Director (1986-1988) and President (1988-1989) of the Entomological Society of B.C.

**HANDFORD, Richard Henry**

B.S.A. (1930) Manitoba; M.Sc. (1932) Sask.; Ph.D. (1939) Minn.

Born: 29 May 1905

Dresden, North Dakota, U.S.A.

Retired: 28 May 1970

Address: 512 - 1433 Faircliff Lane

Victoria, B.C.

V8S 3J6

Dick's early education was obtained in southern Manitoba. This was followed by Normal School training in Moosomin (1923) and Regina (1926) and subsequent teaching in rural schools in Saskatchewan (1926-1928). During the summers, while at University (1928-1933), he worked at the Dominion Entomological Laboratory, Treesbank, Manitoba, under the watchful eye of N. Criddle. This association laid the foundation for his expertise in the biology and control of many noxious prairie insects. Most of his endeavours were associated with grasshoppers: population surveys, bait testing, pesticide application, and cultural control. His descriptive taxonomic treatise of nymphal grasshoppers, particularly that of the genus *Melanoplus*, is still the standard reference on the subject today. In 1943 he was appointed Co-ordinator of Grasshopper Research, responsible for the assignment of research projects, placement of personnel, and direction of overall objectives. He relinquished these duties in 1948 to succeed E.R. Buckell as Head of the Entomology Laboratory at Kamloops. However, he continued his research of population densities and control of rangeland grasshopper species in British Columbia and investigated the biology and control of vegetable insect pests. He was appointed Director of the Canada Agriculture Research Station, Kamloops (then comprising Entomology and Range Management) in 1962, a position he held until retirement. Dick remains one of the few acridologists who pioneered and improved man's ability to control the winged scourge, the grasshoppers of Western Canada.

**HARRIS, John Walter Edwin**

B.S.F. (1959) U.B.C.; M.Sc. (1961) Syracuse;

Ph.D. (1964) Wisconsin

Born: 15 February 1937

Vancouver, B.C.

Address: Pacific Forestry Centre

506 W. Burnside Road

Victoria, B.C.

V8Z 1M5

John received his elementary and secondary education in schools in the Vancouver area but did not develop an especial liking for entomology until he had begun his University training. Here his interest in biology was encouraged while working for three summers as a Student Assistant to Les McMullen on the Douglas-fir bark beetle at Vernon and Lac LaHache. After completing his post-graduate studies, John joined the Pacific Forestry Centre to work as a forest entomologist. He has taken an active part in forest insect pest surveys, including the sampling of populations of the western spruce budworm, European pine shoot moth, poplar-and-willow borer, and balsam woolly adelgid. Much of the sampling of pest populations has involved remote sensing (aerial photography, LANDSAT), but also included the collection, computer storage, retrieval, analysis, and interpretation of annual forest pest population data. John has undertaken several projects in which he introduced and evaluated the effectiveness of foreign parasites and predators in controlling noxious forest insect pests. He is currently engaged in enhancing populations of native natural enemies of a spruce terminal weevil.

**HEARLE, Eric**

B.S.A. (1917) O.A.C.; M.Sc. (1925) Alberta

Born: 21 July 1893

India

Died: 17 April 1934

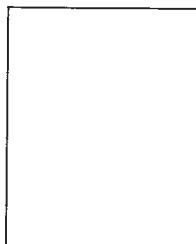
Kamloops, B.C.

Hearle came to Canada in 1912 and entered the Ontario Agricultural College at Guelph, Ontario. World War I interrupted his studies; he served the military for two years, was wounded, repatriated, and then completed his studies. His first entomological experience was as a summer assistant to L. Caesar, the Provincial Entomologist of Ontario. He was granted a studentship by the National Research Council to study the habits, behaviour, and control of mosquitoes in the Lower Fraser Valley; a study extended for two more years by the federal Entomological Branch. His *Report No. 17* in 1921, remains a baseline study of these insects to this day. From 1920-1925 he made a similar study of the mosquitoes in the Banff area; his control recommendations of oiling the larval hatching sites permitted the tourist trade to flourish in the Park. In 1926-1927 he established a Livestock Insect Laboratory at Indian Head, Saskatchewan and surveyed the province for the presence of biting flies. The location of the Laboratory was not central to the western Canadian livestock area, so in 1928 he re-established the laboratory at Kamloops, British Columbia. Here the studies of the habits and control of tabanids, warbles, ticks, blackflies, and mosquitoes were the basis of his comprehensive publications, and laid the foundation for all future livestock insect work in Western Canada.



HEDLIN, Alan Frans
 B.S.A. (1949) Sask.; M.Sc. (1952) Manitoba
 Born: 5 September 1919
 Watrous, Saskatchewan
 Retired: 1979
 Address: 10448 Allbay Road
 Sidney, B.C.
 V8L 2P1

Alan was brought up in a rural setting and received his primary and secondary education in schools in Renown, Saskatchewan. His initial contact with entomology occurred at the Dominion Entomological Laboratory, Indian Head, Saskatchewan, where he worked as a summer student in 1947 and 1948. Upon completion of his undergraduate training he returned to Indian Head as a Research Officer to work on the biology and control of forest and shelterbelt insects. In 1955, Alan transferred to the Pacific Forestry Centre, Victoria, where he spent the remainder of his professional career. Al's special area of interest was insects affecting seed production in conifers. Studies were conducted on a wide range of seed-destroying insects found on various species of conifers; Douglas-fir being the most important. The investigations included the insects' life history and habits, population dynamics, effects on seed production in seed-tree orchards, chemical and cultural control methods, pheromone studies, and taxonomy; several previously unrecorded species were described and named. Al has authored numerous scientific articles and reports and chaired a committee that prepared the summary publication, *Cone and Seed Insects of North America*, published by the Mexican Department of Agriculture, U.S. Forest Service and the Canadian Forestry Service. Al served as a Director of the Entomological Society of B.C. (1967-1969) and the Entomological Society of Canada (1968-1970).



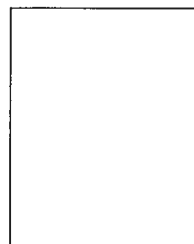
HENDERSON, Deborah Elizabeth
 B.Sc. (1974) Trent; M.Sc. (1978) Manitoba; Ph.D. (1982) U.B.C.
 Born: 14 November 1951
 North York, Ontario
 Address: 2962 W. 15th Avenue
 Vancouver, B.C.
 V6K 3A3

Deborah received her elementary and secondary education in schools of Thornhill, Ontario. Her interest in natural history led to undergraduate work at Trent University where her principal studies centred on biology, with a year spent as an exchange student at the University of Sheffield, studying endocrinology. Her special interest in parasitology guided her to the University of Manitoba to investigate the parasites and endocrine parameters in the red winged blackbird under the guidance of H. Welch. She then turned to entomology for a doctoral program; a study of the oviposition responses of syrphid flies including their behaviour and the ultrastructure and neurophysiology of sensilla on the ovipositor and antennae. She then received a two-year post-doctoral Fellowship which she served at the University of Toronto, working with Susan McIver, investigating the neurology of larval mosquitoes. Because she has always held an interest in developing alternatives to chemical control of insect pests, she started a company (E.S. Croconsult Ltd.) to offer IPM services to growers of small fruit and vegetable crops in the Fraser Valley; in 1990 this included black currants. Recently she and D. Raworth have co-authored a handbook, *Beneficial Insects and Common Pests of Strawberry and Raspberry*; a second book that includes insects on cranberry, currants and blueberry, is in progress.



HEPNER, Donald Gordon
 B.S.F. (1979) U.B.C.
 Born: 9 May 1954
 Matsqui, B.C.
 Address: B.C. Ministry of Forests
 B.C. Forest Service
 4595 Canada Way
 Burnaby, B.C.
 V5G 4L9

Donald received his elementary and secondary education in Abbotsford, B.C. He commenced studies in forestry at U.B.C. in 1972, took time out for a year (1974) to work for B.C. Telephone Co. and returned in 1975 to complete his undergraduate program by 1979. His original interests lay in forest and park land management and outdoor recreation but while working as a summer student for the B.C. Ministry of Forests in the Williams Lake area during the summers of 1977 and 1978, he became interested in forest entomology. He had conducted surveys of abundance of mountain pine beetle infestations and had assisted in their control. In 1982, after two years with the Recreation Section, B.C. Forest Service, and a year of foreign travel, Don commenced work as a technician in the Pest Management Section, Vancouver Region, B.C. Ministry of Forests. He has served as a Forest Entomologist since 1984 and is currently nearing the completion of an M.P.M. degree at Simon Fraser University under the guidance of J. Borden. Don currently serves as an insect specialist for the Vancouver Forest Region, identifies and evaluates forest insect problems and provides advice and recommendations for control. The forest pests he has dealt with include the western spruce budworm, white pine beetle, Douglas-fir and mountain pine beetles, balsam woolly aphid, western blackheaded budworm and gypsy moth.



HERIOT, Allan Douglas
 Born: 1875
 England
 Retired: January 1946
 Died: 1955
 Hove, Sussex, England

Allan Heriot was an unusual man: kind, philosophical, proficient at carpentry, water-colour painting, gardening, music, and character acting. He added entomology to that list after he reached the age of 53. When only 17 he signed up as a farm pupil at Cannington Manor in south-eastern Saskatchewan but left two years later (1894) to go prospecting in British Columbia. He never struck it rich though he participated in the Klondike gold rush of 1898. He bought land near Coldstream, British Columbia in 1904, started an orchard, operated a greenhouse, and became a local builder. In 1928 he joined the staff of the Fruit Insect Laboratory at Vernon where he pursued entomological activities until 1946. Heriot was a "lab man", seeking answers to insect problems by studying insect behaviour and structure. He got answers to the size and operation of insect sucking stylets, to the moulting process of arthropods, the morphology of the woolly apple aphid and apple tree mites, the nutritional requirements of the codling moth, and the mode of action of arsenicals when killing larvae. All of these studies were fundamental to specific insect control, and form the foundation on which current research is based.



HODGKINSON, Robert Sidney
 B.Sc. (1975) Lakehead; M.P.M. (1980) Simon Fraser
 Born: 18 June 1950
 Ottawa, Ontario
 Address: Prince George Forest Region
 B.C. Ministry of Forests
 1011 – 4th Avenue
 Prince George, B.C.
 V2L 3H9

While obtaining two technical diplomas in forestry and his B.Sc., Robert worked for three summers and a year with the Canadian Forestry Service, Chemical Control Research Institute in Ontario assisting in spruce budworm control research (1973-1976). He then undertook graduate studies in pest management at Simon Fraser University while working on gypsy moth and western spruce budworm control projects for Agriculture Canada and the B.C. Ministry of Forests, respectively (1976-1979). After a stint with the Canadian Forestry Service in Sault Ste. Marie, Ontario, Robert returned to British Columbia and has been the Regional Forest Entomologist for the B.C. Ministry of Forests in Prince George since 1980. Robert's earlier field trials led to the operational development of lethal trap trees for spruce beetle suppression in British Columbia. He also supervises operational spray programs to control forest defoliators and makes field prescriptions to government and industrial personnel to improve the management of pest insects in plantations, second growth, and mature stands of trees. Robert is also a Registered Professional Forester (R.P.F.) and a Registered Professional Biologist (R.P. Bio.) in British Columbia.



HOLLAND, George Pearson F.E.S.C.
 B.A. (1933), M.A. (1937) U.B.C. D.Sc. (1963) Carleton
 Born: 27 August 1911
 Vancouver, B.C.
 Retired: 1976
 Died: 10 November 1985
 Ottawa, Ontario

George grew up and received his primary education in Vancouver, where, after graduating in Zoology he had visions of being the grand vizier of conchology. It was only after hearing the forceful lectures of G.J. Spencer that his interest in entomology flaired, further kindled by a summer job as a student assistant at the Dominion Livestock Insect Laboratory, Kamloops, B.C., in 1936. Here he and J.D. Gregson investigated the biology and control of mosquitoes, ticks and warble flies. Being an outdoorsman and a hunter, George soon became aware of, and took a serious interest in the fleas that infested wild animals. His investigation of their distribution and speciation soon led to an in-depth taxonomic study of the Siphonaptera. In 1948 he was appointed Head of the Systematics Unit – later renamed the Biosystematic Research Institute, now the Biosystematics Research Centre. Here for the next 21 years George planned, guided and directed the course of systematic entomology in Canada at the federal level. He increased participation from 7 to 45 scientists and made the Canadian National Collection of insects one of the best in the world. He will be remembered for this and for his comprehensive taxonomic treatise of the Siphonaptera of Canada. George was President of the Entomological Society of Canada in 1958 and received its Gold Medal in 1970.



HOLLING, Crawford Stanley (Buzz)
 B.A. (1952), M.A. (1954) Toronto; Ph.D. (1957) U.B.C.; F.R.S.C.
 Born: 6 December 1930
 Theresa, New York, U.S.A.
 Address: Department of Zoology
 University of Florida
 223 Bartram Hall
 Gainesville, Florida
 U.S.A.32611

"Buzz" began his career in Biology at the Forest Biology Laboratory at Sault Ste. Marie, Ontario, in 1952, then transferred to the Forest Research Laboratory in Victoria in 1965. During the 15 years with the Forest Biology Division, his interests centred on the ecology of insects, particularly that of predation. His competence with mathematics permitted him to pursue studies on mathematical modelling of the interaction of complex biological phenomena as these affected population trends and fluctuations. In practical terms this theoretical work assisted in the assessment of damage by the spruce budworm, rationalized the causes of epidemic outbreaks, explained the modulation effects of natural control factors, and described the fluctuations in numbers in restricted environments. He has been, at various times, Professor and Director of the Institute of Resource Ecology, University of British Columbia, and the Director of the International Institute for Applied Systems Analysis, Vienna. During this period his research emphasized theoretical and applied aspects of ecological systems and ecological policy. The goal has been to blend concepts of stability theory and ecology with modelling and policy analysis. At the University of Florida he has launched a comparative study of the structure and dynamics of ecosystems. The key policy question is how these systems might respond to global climatic change. Buzz was awarded the Austrian Cross of Honour for Arts and Science and the 1970 Gold Medal of the Entomological Society of Canada.



HOPPING, George Redstone
 B.S.F.(1925) Oregon St.; M.Sc.(1931) Iowa St.
 Born: 14 November 1899
 Kaweah, California, U.S.A.
 Retired: October 1964
 Died: 30 March 1974
 Victoria, B.C.

George received his primary education in Berkeley including one year at the University of California at Berkeley before moving with the family to Vernon in 1920. Here he followed in his father's footsteps by becoming a forest entomologist. He began his work with forest insects with the Canada Department of Agriculture, Entomology Division, in 1925 and succeeded his father as Officer-in-Charge of the Forest Insect Laboratory in Vernon in 1940. He was a keen observer and careful worker, publishing more than 50 papers on forest insect pests, on management of damaged forest stands, and on the ecology of insects. He initiated and taught courses in forest entomology for a year (1947-1948) at the University of British Columbia. In 1948 he established and directed the Forest Biology Laboratory in Calgary until 1960. He then voluntarily gave up his administrative duties to return to his specialty in entomological research – bark beetle taxonomy. Before he retired, George produced a monographic taxonomic review of bark beetles (genus *Ips*), a landmark in the annals of forest entomology. He served as Vice-President (1954) and President (1956) of the Entomological Society of Alberta and as Historian of the Rocky Mountain Section, Canadian Institute of Forestry (1967-1968).



HOPPING, Ralph
Rutgers College (1889-1890)
Born: 8 April 1868
New York, N.Y., U.S.A.
Retired: 8 April 1939
Died: 29 October 1941

Ralph had always been a lover of Nature; he collected beetles at the age of nine. After ill health forced him to leave Rutgers College, he moved to California in 1891. He married in 1892, then raised cattle, horses, and mules for three years, and turned to work in a lumber mill. In 1898 he and his partner, John Broder, established a tourist accomodation business in Sequoia National Park and ran pack trips into the then virgin forested areas near Mt. Whitney. When the business failed he joined the U.S. Forestry Service in 1912, where his intimate knowledge of insects allowed him to advise and participate in solving forest entomological problems. In 1919 J.M. Swaine persuaded him to accept the position of Head of the Forest Insect Laboratory at Vernon, British Columbia. Here he remained until retirement. Hopping's preferred insects were the long-horned beetles (*Lepticrini*); his collection of these was extensive although all noxious beetles of the forest received scrutiny and consideration. He spent much time in identifying species, helping others, and corresponding widely. His knowledge of dendrology added to taxonomic botany, while his championing of the underdog brought him revered friendship from all walks of life. He published 30 articles on beetles; one genus and one species have been named in his honour.



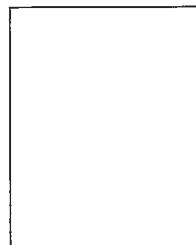
HUMBLE, Leland (Lee) Medley
B.Sc. (1977), Ph.D. (1987) U. Vic.
Born: 3 November 1951
Dawson Creek, B.C.
Address: Pacific Forestry Centre
506 W. Burnside Road
Victoria, B.C.
V8Z 1M5

Lee completed his elementary and High School education in Nelson, B.C. His interest in natural history was triggered by classes in biology taken while at the University of Victoria (1969-1970) and in entomology classes at Selkirk College, Castlegar, B.C. (1974-1975). Following his undergraduate training he worked as a student assistant for R.A. Ring on insect cold hardiness and on the control of the winter moth. A collecting trip to Inuvik and Tuktoyaktuk, N.W.T. in 1978, initiated an interest in, and studies of arctic insects, culminating in the completion of a doctoral program and thesis on the overwintering strategies of arctic sawflies and their parasitoids. He also worked with T. Finlayson on larval systematics, and on pupal and hyperparasitoids of the winter moth and Bruce spanworm. In 1985 he found employment for six months with Applied Bio-Nomics Ltd., Sidney, B.C., to evaluate the efficacy of *Verticillium lecanii* as a control for greenhouse whitefly on cucumber crops, then joined Forestry Canada to work with the Forest Insect & Disease Survey. Here he supervises the insectary which provides diagnostic and taxonomic services, houses a reference collection of 66,000 specimens representing 6,000 insect species, and maintains a historical database of pest insects comprising 400,000 records. Lee has recently aided in assembling a checklist of scale insects of B.C. (16 new species) and currently is producing a checklist of parasitoids of forest insects in the Pacific region.



ISMAN, Murray Bruce
B.Sc. (1975), M.Sc. (1977) U.B.C.; Ph.D. (1981) Calif. (Davis)
Born: 14 June 1953
Vancouver, B.C.
Address: Department of Plant Science
University of Br. Columbia
Vancouver, B.C.
V6T 2A2

Murray's interest in plants and insects and their interactions were developed during his early post-graduate studies under the tutelage of G.G.E. Scudder at the University of British Columbia. This interest continued throughout his doctoral program at Davis where he studied the toxicity of tomato phenolic compounds on the fruit-worm, *Heliothis zea*. After completing his University education and two years of post-doctoral research at the University of California at Irvine (1981-1983), he accepted an academic appointment to the Plant Science Department, University of British Columbia. He has investigated the effects of substances from desert plants on insects and also found that sesquiterpene lactones are toxic to grasshoppers; the chromenes from the Asteraceae have toxic qualities as well. His research currently focusses on the development of new botanical insecticides and anti-feedants. Murray teaches insect physiology, toxicology and pesticide use, as well as economic entomology and crop protection. He has published more than 35 scientific papers and is a regular contributor to meetings and symposia. Murray served as President of the Entomological Society of B.C. in 1988.



JACOB, John Kenneth
B.E. (1933); B.A. (1935), M.A. (1938) U.B.C.
Born: 1911
Vancouver, B.C.
Died: 28 November 1941
Vancouver, B.C.

Kenneth completed his education in Prince of Wales school and entered the Faculty of Applied Science at the University of British Columbia to graduate with a degree in forest engineering. He then changed course, majoring in biology and achieving first class honours in Zoology and Botany in 1938. Having obtained a Carnegie Graduate Scholarship for research, he made a thorough and exhaustive study of insects affecting all stored products in the port of Vancouver, ranging from grain elevators and flour mills to the corner grocery stores. He was the best-informed man in Canada on termites having worked out the complicated life history of local species. He was employed for two seasons by the Systematics Unit of Agriculture Canada, to collect rare and wanted specimens for the Canadian National Collection. Stanford University had awarded him a fellowship to study under the the guidance of Gordon Ferris but ill health and hospitalization, in 1939, forced cancellation of these plans. His publications range from distributional and systematic to faunal studies of local species.



JAMIESON, Glen Stewart
 B.S.A. (1967) McDonald Coll.; M.Sc. (1970); Ph.D. (1973) U.B.C.
 Born: 12 November 1946
 Montreal, Quebec
 Address: Pacific Biological Station
 Nanaimo, B.C.
 V9R 5K6

Glen spent two summers as a student working for the Lyman Entomological Museum at Macdonald College, having responsibility for collecting and identifying as many species as possible. After the completion of a Master's program that involved research on marine mammals, he returned to entomology and investigated the systems ecology of sympatric gerrid species in British Columbia as part of his doctoral program. His interest in the marine environment resulted in a year (1974) spent as a Post-doctoral Fellow on a Killam Fellowship studying the population genetics of lobsters at Dalhousie University. Glen next worked as a fisheries and aquaculture consultant for Applied Marine Research Ltd., Halifax, before joining the Department of Fisheries and Oceans in St. Andrews, New Brunswick. From 1977 to 1981, he was responsible for the health and management of sea scallop production from Northumberland Strait to Georges Bank. In 1978 his position was moved to Halifax and in 1981 he transferred to Nanaimo, British Columbia as Head of the shellfish division – including the herring division – from 1982 to 1985. His research has since focussed on Dungeness crab, mussels and squid. Entomology is now a hobby; his interests centre on pentatomids and aquatic insects. As an orchid grower, Glen also has an interest in pollinators of these rare and often exotic plants. He is currently making a collection of insects from the Englishman River in Parksville. He served as a Director of the Entomological Society of B.C. from 1985 to 1987.



KOVACS, Ervin
 B.S.A. (1983) Kiev; M.Sc. (1988) U.B.C.
 Born: 24 June 1959
 Szony, Hungary
 Address: Phero Tech Inc.
 7572 Progress Way
 R.R. #5
 Delta, B.C.
 V4G 1E9

Ervin was interested in agriculture even as young boy growing up in Hungary. He received his elementary education in Acs and completed his High School in 1977 in Kisber, Hungary. A desire for further education led to enrollment at the University of Kiev where his interest in plant protection was heightened by a study of entomology and the control of noxious insects. Following graduation he returned to his native Hungary to work as a crop protection technician for a state-owned agricultural company. Here he worked for a year and a half (1983-1984) and in the fall of 1984 he defected to Austria. Ervin lived in Vienna until the spring of 1985 when he was finally able to immigrate to Canada and settle in Vancouver. He promptly enrolled at U.B.C. to study forest entomology under the tutelage of John McLean. His thesis research involved investigation of the parasitoid complex of the weevils of lodgepole pine. Following the completion of his Master's program, he spent a further two years (1988-1990) as a Research Technician in the Department of Forest Sciences, University of British Columbia. Ervin is currently involved in monitoring greenhouse pests with sticky colour cards at Phero Tech Inc.



LAZORKO, Walter
 M.D. (1935) Univ. Lwiv
 Born: 13 January 1909
 Peremyshl, Ukraine
 Retired: 1975
 Died: 12 January 1990
 Vancouver, B.C.

Dr. Walter Lazorko was an ardent entomologist, ever since his boyhood. In his native Ukraine he collected as often as he could and amassed a collection of some 500,000 specimens. After completing his medical training he practiced in Ziboriw for less than a year, married, then returned to Lwiv. In 1940, during World War II, he was attached to the Museum of Natural Science as curator of Coleoptera. The German occupying forces closed the museum and Walter returned to medical work in Lwiv. When Soviet forces returned in 1944, his family, along with the insect collection, were smuggled out of Russia. They found a safe haven in Austria and later (1948) in Canada. Walter worked as an X-ray technician at St. Paul's Hospital in Vancouver, then at Shaughnessy Veteran's Hospital until he got his certification to practice medicine in Canada in 1954. He then worked in gerontology and internal medicine in Riverview Hospital, a psychiatric facility, until he retired. After joining the E.S.B.C. in 1950, Dr. Lazorko was a faithful contributor of articles to the *Proceedings* and the *Journal*. His entomological interests had centred on the Coleoptera; he collected more than 200,000 specimens in B.C. He was an excellent taxonomist and identified many species of beetles to enhance the collections of the Spencer Entomological Museum. Dr. Lazorko was elected an Honorary Life Member of the Entomological Society of B.C. in 1987. He was awarded the Criddle Award of the Entomological Society of Canada in 1988 as an outstanding amateur entomologist of B.C. He sent most of his European-collected insect material back to Kiev, U.S.S.R., before he died.



LEECH, Hugh Bosdin
 B.S.A. (1933) U.B.C.; M.Sc. (1937) California (Berkeley)
 Born: 10 May 1910
 Kamloops, B.C.
 Retired: May 1975
 Died: 8 November 1990
 Angwin, California

Hugh spent his early youth amid the mountain vistas of central British Columbia. He was educated in preparatory schools in Lakeview, Ontario, and Vernon, B.C.; completed High School in Salmon Arm, B.C.; and studied at Universities in Vancouver and Berkeley. His interest in natural history, and especially entomology, was encouraged by his parents throughout his early years. In 1929 he was employed as a Laboratory Assistant to E.R. Buckell in the federal Field Crop Insect Laboratory, Vernon. However, the following year he worked for the Forest Insect Laboratory, Vernon, where, under the guidance and encouragement of Ralph Hopping he spent the next seven summers (1930-1937) assisting in studies of the biology, control and systematics of forest insect pests. Thereafter (1937-1947), Hugh worked full-time for the Laboratory, devoting his energies to forest insect surveys, collecting, and describing new species of insects, notably the water beetles. In 1947, he joined the Department of Entomology, California Academy of Sciences as Assistant Curator. Here he remained, even after retirement, as Curator Emeritus. Throughout his career, Hugh worked assiduously on the systematics of water beetles, amassed a private 30,000 water beetle collection which he donated to the Academy and developed it into a world-class Coleoptera collection. He gave unfailingly of his time and talents to students and other professional systematists, published 347 papers, described 51 new species and had 84 insect species named after him; truly a taxonomic Curator's Curator.



LEECH, Robert (Robin) Ernest
 B.Sc. (1963) U.B.C.; M.Sc. (1965), Ph.D. (1971) Alta.
 Born: 1 February 1937
 Berkeley, California, U.S.A.
 Address: 10534 - 139 Street
 Edmonton, Alberta
 T5N 2K7

Robin, though born in the United States, received part of his elementary education in Vernon, B.C., then returned to Mill Valley, California where he also completed his High School work. Following his University education he has had an interesting and variable career in entomology. Robin has worked in, and written about spiders at Hazen Camp, N.W.T. (1966), collected invertebrates and plants, enjoyed a post-doctoral position in Ottawa (1970-1972), was a program manager for the control of TB, anthrax and brucellosis in bison in National Parks for Parks Canada (1972-1974), and was a member of the Research Secretariat of Alberta Environment (1974-1978). He has chosen to be independent by establishing himself as a private consultant in entomology and as a resource specialist for the Edmonton area schools. Since 1988, Robin has been a full-time instructor for courses in comparative vertebrate anatomy, meteorology, general and taxonomic entomology and botany, and water pollution at the Northern Institute of Technology in Edmonton. His current project is a treatise on the origins of insect flight. Many scientific expeditions: Yukon (1956), Africa (1957-1958), Antarctica (1959-1960, 1960-1961), Viet Nam & Laos (1960), Alaska (1962), Greenland (1963-1964), Mexico (1967), New Zealand, Australia and Europe, have provided him with first-hand information on natural history of the world. To date he has published more than 60 refereed papers, six government reports and numerous other articles on topics as varied as spiders, snakes, plants, fish, and other invertebrates.



LINDGREN, Bo Staffan
 Fil. Kand. (1975) Uppsala; M.P.M. (1980),
 Ph.D. (1982) Simon Fraser
 Born: 18 July 1950
 Norrkoping, Sweden
 Address: Phero Tech Inc.
 7572 Progress Way
 R.R. No. 5
 Delta, British Columbia
 V4G 1E9

When Staffan emigrated to Canada in 1977 he had already received extensive training in ecology and forestry. He was a substitute teacher of natural science in Secondary Schools in Sweden (1972-1976), a part-time Research Assistant in ecological zoology at the University of Umea (1973-1977); appraised the regeneration and survival of lodgepole pine for a Swedish paper company (1974); and was a Teaching Assistant in the Department of Medical Physiology, University of Umea (1975-1976). While enrolled in post-graduate classes at Simon Fraser University, Staffan also served as a tutorial instructor in ecology and entomology. Following graduation he held a post-doctoral fellowship at U.B.C. and served as a consultant for PMG/Stratford Projects Ltd. (1982-1983) to implement pheromone-based management of ambrosia beetles. While at Simon Fraser University he developed a bark beetle trap and patented it in numerous countries. It is now widely used for research and management of bark and ambrosia beetles throughout North America. Since 1984 he has been the Research Director for Phero Tech Inc. responsible for all research activities in entomology with special emphasis on developing new traps and trapping techniques. Staffan has published widely on pheromones, semiochemicals, and trapping of ambrosia beetles and other forest insect pests in forest management programs.



MACKAUER, Manfred F.E.S.C.
 D. Phil. (1959) Frankfurt a M.
 Born: 3 June 1932
 Wiesbaden, Germany
 Address: Dept. Biol. Sciences
 Simon Fraser University
 Burnaby, B.C.
 V5A 1S6

Manfred remained at the University of Frankfurt am Main for two years (1959-1961) as a Research Associate of the Zoologisches Institut. He emigrated to Canada in 1961 to take a position with the Research Institute for Biological Control (formerly the Dominion Parasite Laboratory) in Belleville, Ontario. Here he was a Group Leader of the Section assigned to insect parasites. He left Belleville in 1967 as part of a group of eight scientists to form the Centre for Pest Management at Simon Fraser University. He served as Chairman of the Department of Biological Sciences (1976-1981) and as Director of the Centre of Pest Management since 1982. At S.F.U. he taught courses in biological control, insect biology, biosystematics, genetics, and pest management. Manfred has an international reputation on the biology and systematics of aphids, aphid parasitoids, and biological control. His original studies and evaluation of *Aphidius smithi* as a natural enemy of aphids, have led to a better understanding of sex ratios, host selection behaviour and host suitability. His more than 110 scientific papers, monographs, and book chapters dealing with insect parasitism, aphid taxonomy, and biological control of insects, attest to his expertise in this field of entomological science. Manfred has served as a member of the Governing Board (1975-1978) and as Chairman of the Publications Committee (1985-1987) of the Entomological Society of Canada. He received the Society's Gold Medal for Outstanding Achievement in 1989.



MADSEN, Harold Fred F.E.S.C.
 A.B. (1943) San Jose Coll.; Ph.D. (1949) Calif. (Berkeley)
 Born: 31 March 1921
 San Jose, California
 Retired: 31 Decemebr 1984
 Died: 13 September 1987
 Penticton, B.C.

There was never any doubt as to what Harold wanted to do in life, for even at an early age he was an avid insect collector and headed straight for a University education in entomology. But World War II intervened and Harold spent a few years with the U.S. Navy. This did not quell his biological interests for he vigorously pursued further studies at Berkeley after the war. After graduating in 1949 he accepted the position of Extension Entomologist; the first in California. The job (1950-1954) was a real challenge and learning experience; it involved the control of a variety of insects throughout the State. In 1954 he accepted a teaching-research position at Berkeley where the teaching of entomology and his association with the control of fruit insects gave him the experience that resulted in his appointment, in 1964, as the successor to James Marshall as Head of the Fruit Insect Laboratory at Summerland. Here he was directly involved with the control of tree fruit insect pests, particularly the codling moth. During his tenure at Summerland, Harold initiated and co-ordinated the introduction of pest management programs for the control of many orchard pests. Other investigations included population sampling, pheromone research, evaluation of chemical sprays, and the introduction and assessment of biological control agents. He was President of the Entomological Society of Canada in 1986-1987.



MAHER, Thomas Francis
 B.For. (1979) Oregon St.; M.For. (1981) U.B.C.
 Born: 2 December 1954
 Denver, Colorado
 Address: TFM Forestry Ltd.
 P.O. Box 364
 Kamloops, B.C.
 V2C 5K9

Tom spent his early years in Denver, Hawaii, Washington, D.C., and San Francisco before completing his high school education in San Diego, California. His interest in forestry prompted a move to Oregon and enrollment in Oregon State University where, under the guidance of the late Julius Rudinsky, a career in forest entomology was launched. After graduating in 1979, he came to Canada to take post-graduate studies at U.B.C. Under the direction of J.A. McLean, he studied the lodgepole terminal weevil in the Cariboo region of British Columbia. After graduating in 1981, Tom was employed by Northwood Pulp & Timber Ltd., Prince George, B.C. He was made responsible for all forest insect detection and control activities throughout the Company's operations in Houston and Prince George. In 1985 he resigned to take a position with the B.C. Ministry of Forests in Kamloops, where he was responsible for co-ordinating all entomological activities in the forests of the seven districts of the Kamloops Forest Region. A year later, Tom returned to the private sector as a forester with the consultants of Mountain Pacific Forestry Ltd. This experience led him in May 1987, to form his own consulting firm in Kamloops. As Director of the firm, Tom has been responsible for the completion of a myriad forest pest management contracts for private companies, provincial and federal governments.



MARSHALL, James
 B.S.A. (1925) Toronto; M.Sc. (1929) Wash. St.;
 Ph.D. (1938) McGill
 Born: 1 June 1903
 Strathblane, Scotland
 Retired: 23 August 1963
 Address: R.R. #1
 Site 29
 Summerland, B.C.
 V0H 1Z0

After graduating from the University of Toronto, Jim joined the Ontario Department of Agriculture as an Assistant Provincial Entomologist. He transferred to the federal entomological service in 1929 to work with fruit insects at Annapolis Royal in Nova Scotia; work that he continued at Washington State College, Wenatchee, Washington. He returned to Canada in 1938 to head the recently formed Fruit Insect Laboratory at Vernon, and later (1946) relocated at Summerland. Jim, in his life-long work as an economic entomologist, was involved in the reduction of insect damage to tree fruits and the elimination of arsenical pesticides from B.C. orchards that ended the health hazard to spray personnel and the poisoning of orchard soils. He developed a revolutionary "invert" spray mixture; introduced cryolite as an alternative insecticide to the arsenicals; developed a light, mobile, automatic air-blast concentrate sprayer; introduced and successfully promoted the bulk-bin method of harvesting fruit; introduced the spray thinning of apples and the intensive planting of dwarf apple trees; and pioneered much of the testing and evaluation of insecticides and surfactants. Lastly, he was responsible for the introduction and testing of the sterile male technique for the control of the codling moth. Jim will long be remembered as a dynamic speaker and tireless promoter of the betterment of the fruit growers, and the efficient production of fruit in the province of British Columbia.



MARSHALL, Valin George Kenneth
 B.S. (Agr.) (1959), M.Sc. (1963), Ph.D. (1964) McGill
 Born: 1 July 1933
 Carriacou, Grenada
 Address: Forestry Canada
 Pacific Forestry Centre
 506 W. Burnside Road
 Victoria, B.C.
 V8Z 1M5

Valin grew up and received his elementary and high school education in Carriacou and St. George's in Grenada. He had an early interest in agriculture and especially in biology. His boyhood dream of emigrating to Canada was realized in 1956 when he entered McGill University. Here he specialized in soil biology, a sub-discipline taught in the Department of Entomology. After completing his university education, Valin spent a year in France on a post-doctoral Fellowship (1964-1965) as an acarologist. He returned to accept a position with Forestry Canada at Petawawa, Ontario, where he was responsible for initiating the first departmental program in soil zoology. He was transferred to Victoria in 1970 to continue his studies of forest soil fauna, forest fertilization, and the impact of silvicultural practices on soil fauna. He has published extensively on the taxonomy of soil micro-arthropods, notably the *Catalogue of the Orbatida (Acari) of Continental United States and Canada*, published as a Memoir of the Entomological Society of Canada. Valin is also interested in nutrient cycling in forest ecosystems and the role of soil animals in the release of nutrients essential for plant growth. These studies contribute to the selection of environmentally-safe silvicultural practices. He has served on the E.S.C. Committee for the Biological Survey of Canada (Terrestrial Arthropods) in 1980-1981.



MacCARTHY, Hubert Reagh F.E.S.C.
 B.A. (Hons.) (1950) U.B.C.; Ph.D. (1953) Calif. (Berkeley)
 Born: 22 June 1911
 Riseley, England
 Retired: 22 June 1976
 Address: 4026 W. 38th Ave.
 Vancouver, B.C.
 V6N 2Y9

"Mac" didn't start out in life as an entomologist; he had to work his way up to that position from that of a farmer and agriculturist in Australia, England, Alberta, and British Columbia. After being self-employed as a cattle rancher in B.C. during the trying years of 1931-1940, he gave it all up for a patriotic and daring fling in the Infantry Corps stationed in many parts of the world, including the Aleutian Islands, during World War II. After the war he gained his university education, then began his research career in entomology at the Field Crop Insect Laboratory, Kamloops. Here he investigated the virology, biology, and control of witches broom on potatoes. In 1955, Mac was transferred to Vancouver to open a new Field Crop Insect Laboratory, this to become the Entomology Section of the new Research Station in 1959. Here he was principally involved in studies of the transmission of potato leaf roll and its control. As an Adjunct Professor since 1974 and after retirement until 1988, he has been associated with the M.P.M. program of Simon Fraser University, serving as counsellor and lecturer. Mac served as President of the Entomological Society of British Columbia (1960) and as Editor of the Journal (1953-1988).



MACDONALD, Duncan Ross
 B.Sc.F. (1952) Toronto; M.F. (1957) Michigan
 Born: 15 October 1928
 Hamilton, Ontario
 Retired: 30 December 1987
 Address: 104 – 1178 Beach Drive
 Victoria, B.C.
 V8S 2M9

Ross started his entomological career as a summer student (1947-1951) at the Forest Insect Laboratory, Sault Ste Marie, Ontario, where he aided in the investigation of spruce budworm problems in northern Ontario, Alberta, and the northwestern States. In 1952, he was sent on temporary loan (which lasted sixteen years!) to the Forest Insect Laboratory, Fredericton, N.B., to aid in the first aerial spraying project against the budworm in that province. Ross studied the effects of the spray program on the parasites of the budworm and also provided entomological advice and assessment expertise. In 1959, as a member of the team led by R.F. Morris, he reported on the impact of the spraying program on the population dynamics of the budworm. In 1968 he transferred to the Pacific Forest Research Centre, Victoria, as Section Head, Forest Entomology; then became Program Manager, Forest Production, in 1969, responsible for the direction of the Centre's programs in forest entomology, pathology, insect and disease survey, and fire research. He served as Deputy Director, P.F.R.C. (1972-1977); Director, Forest Protection Branch, Ottawa (1977-1980); Regional Director, P.F.R.C. (1980-1985); and Director General, Pacific & Yukon Region, C.F.S. (1985-1987). He materially advanced the forest entomology program by: integrating the pest management studies into larger multi-disciplinary investigations of regional forest management problems; increasing the emphasis on bark beetle research, promoting the development of biological controls; and applying system analyses and sophisticated technical support to most investigations.



McLEAN, John Alexander F.E.S.C.
 B.Sc. (1965), M.Sc. (1968) Auckland; Ph.D. (1976) Simon Fraser
 Born: 31 March 1943
 Takapuna, New Zealand
 Address: Faculty of Forestry
 Univ. of British Columbia
 Vancouver, B.C.
 V6T 1W5

After graduating in 1968 with a major in zoology and freshwater entomology from Auckland University, John turned his hand to teaching. His first position was as a biology teacher at Lytton High School in Gisborne, N.Z. This experience completed his requirements for a Diploma in Teaching. In 1970, John moved on to the University of the South Pacific in Suva, Fiji, where he enjoyed four years teaching biology in introductory biology classes. This experience also provided a wonderful opportunity to be exposed to tropical ecology first hand – from rainforest to coral reef. In 1974 he enrolled at Simon Fraser University, completed a doctoral program and remained as a Sessional Lecturer for a year. Since 1977, John has been associated with the U.B.C. Faculty of Forestry where he teaches two undergraduate and one graduate class in Forest Entomology. His research interests encompass several aspects of forest pest management including the use of pheromone-based suppression programs for the control of ambrosia beetles in timber processing areas; insect dispersal by mark-release-recapture methods involving several marking systems; and the impact of insects in young tree plantations. John has served as President of the Entomological Society of British Columbia (1983) and as a member of the Governing Board of the Entomological Society of Canada (1983-1985).



McMULLEN, Leslie Harold (Les)
 B.S.A. (1950) O.A.C.; M.Sc. (1952), Ph.D. (1955) Wisconsin
 Born: 3 March 1926
 Arran Twp, Bruce County, Ont.
 Retired: 30 March 1985
 Died: 11 August 1989
 Victoria, B.C.

Les spent his boyhood years at Tara, Ontario, where he received his primary and secondary education. His interest in entomology was sparked not only by taking classes from A.W. Baker at the Ontario Agricultural College, but was nurtured while employed as a summer student assistant in the spruce budworm project at Sault St. Marie. After completing his post-graduate studies, Les joined the Zoology Division, Department of Agriculture, at Vernon in 1955. A year later he was transferred to the Pacific Forest Research Centre, Victoria, where he continued his productive, 33-year career in forest entomology until retirement. Les' research was centred on the population biology and management of bark beetles and the Sitka spruce weevil. His most successful and meaningful work was to define the role of intraspecific competition and host selection in the population dynamics of the Douglas-fir beetle. The practical evaluation of this work resulted in the development of the so-called Douglas-fir beetle clauses which form the basis of management programs for the bark beetle species. Les served as Section Head of Forest Entomology Research at the Pacific Forestry Centre from 1965 to 1968. An honorary Life Membership in the Entomological Society of British Columbia was awarded to Les in 1985. He was an avid photographer and contributed to salmon enhancement programs in his retirement years.



McMULLEN, Robert David F.E.S.C.
 B.Sc.(Agr.) (1953) Alberta; M.Sc. (1960) Wash. St.;
 Ph.D. (1964) Calif. (Berkeley)
 Born: 25 February 1930
 Medicine Hat, Alberta
 Retired: 1989
 Address: R.R. #4
 Summerland, B.C.
 V0H 1Z0

After receiving his basic and high school education in Medicine Hat, Dave enrolled at the University of Alberta where his entomological interests were stimulated during lectures given by E.H. Strickland. During the summer months, while attending the University, he was employed at the Dominion Entomological Laboratory at Indian Head, Saskatchewan. Here he worked with George Bradley and L.O.T. Peterson and learned first-hand of the biology and control of forest pests: pine needle scale, spruce spider mites, and spruce sawflies. After graduation he worked for the Entomology Section, Defence Research Laboratory, Suffield, Alberta (1953-1956). This gave him an opportunity to learn all about mosquitoes and how to live with the "wall-to-wall" populations of these insects that are present during the spring months at Churchill, Manitoba. Dave then joined the staff of the Research Station, Harrow, Ontario, where he was involved with the control of insect and mite pests of greenhouse and fruit crops. He transferred to the Research Station, Summerland, B.C. in 1964 to conduct research on the biology, ecology, and control of pear psylla. He developed an I.P.M. program for mites and insects on pears and other deciduous fruits and identified the apple mealybug as the vector of little cherry disease in the South Okanagan. In 1976-1977, Dave investigated Culicoides vectors of blue tongue disease of animals. He was appointed Head of the Entomology Section in 1978 and as Head, Entomology & Plant Pathology, in 1980. Dave was named a Fellow of the Entomological Society of Canada in 1985.



MILLER, Charles Douglas Fairbanks

B.S.A. (1948) O.A.C.; M.Sc. (1951) U.B.C.; Ph.D. (1967) McGill
Born: 20 March 19-
Alabama, N.Y., U.S.A.
Retired: 24 January 1983
Address: 842 Coles Street
Victoria, B.C.
V9A 6W7

Doug began his professional career in entomology in 1948 when he was employed at the Biological Control Sub-station of Agriculture Canada, located on the campus of the University of British Columbia. In 1951 he transferred to the Biosystematics Research Institute in Ottawa where he was involved with the taxonomy of ants, wasps, and parasitic insects. He published several monographic works on the classification of these Hymenoptera. In 1968 he was appointed Section Head, Entomology, at the Research Station, Harrow, Ontario. Here he supervised pest management research programs until 1973. Doug then was appointed Research Co-ordinator in Ottawa, to effect the smooth operation of research involving biosystematics, apiculture, and vertebrate pests. In 1978 he accepted the position of Research Program Manager of the Pacific Forest Research Centre, Victoria. In addition to his contributions to the classification of insects, Doug has materially aided the development of participatory management systems in research establishments, thereby increasing the output and cost efficiency of research programs within the Research Branch.



MILLER, Gordon Edward

B.Sc. (Hons. (1972), M.Sc. (1976), M.P.M. (1979), Ph.D. (1983)
Simon Fraser University
Born: 3 August 1950
Vancouver, B.C.
Address: Forestry Canada
Pacific Forestry Centre
506 W. Burnside Road
Victoria, B.C.
V8Z 1M5

Gordon became interested in insects during his early childhood but despite the painful experience of collecting bees with bare hands, he developed a keen interest in their beauty and diversity. After completing his Master's degree, and while engaged in the M.P.M. program, Gordon went to work as an extension entomologist at the Special Crops & Horticulture Research Centre, Brooks, Alberta. From 1978-1980 he served as a biologist with the B.C. Ministry of Forests in Victoria, working on seed orchard pests. When A.F. Hedlin retired in 1980, Gordon succeeded him as a cone and seed entomologist at the Pacific Forestry Centre. His research work has centred on the biology, population dynamics, and control of cone and seed insects; 31 of his more than 40 scientific papers deal with these hexapods. Gordon has also undertaken studies of sampling methods of forest insects, investigated the impact of insects on forest production and regeneration, and initiated pest management programs with specific reference to semiochemicals. Since 1986, he has been a Research Director and is responsible for the management of the Production and Protection Program (entomology and pathology) of the Centre. Gordon has served as Director (1978-1983) and Secretary-Treasurer (1983-1985) of the Entomological Society of British Columbia and as Vice President and President of the Professional Pest Management Association of B.C. (1985-1986).



MOECK, Henry Adolf

B.Sc. (1964), M.Sc. (1967) U.B.C.; Ph.D. (1975) Calif. (Berkeley)
Born: 29 March 1941
Teschen, Poland
Address: Forestry Canada
Pacific Forestry Centre
506 W. Burnside Road
Victoria, B.C.
V8Z 1M5

After arriving in Canada in 1953, Henry finished his high school education in Calgary in 1960. Seven years later, with a Master's degree and a fresh store of forest entomology information, he went to work for the Canadian Forestry Service in Vancouver, as a Forest Products entomologist. Since 1970 he has been in active research at the Centre in Victoria - with time out for graduate work (1970-1973). His main entomological interest is insect behaviour, particularly the primary attraction of scolytid beetles. He discovered that ethanol produced in aged logs served as the primary attractant for ambrosia beetles, and that ethanol could induce an attack on trees by spruce beetles. Further, he demonstrated in the field that spruce beetles and mountain pine beetles also have primary attraction capabilities. Henry has investigated the responses of bark beetles to pheromone-baited trees and pipe traps. In 1983 he incepted studies of native and exotic insect predators and parasitoids as biological control agents of mountain pine beetles. A laboratory method for continuous rearing of four species of clerid beetles was developed and led to the discovery of colour mutants in two native species, and verified the production of interspecific hybrids of the native *Thanasimus undatulus* and the European *T. formicarius*. Qualitative and quantitative data on the natural enemies and other associates that occupy mountain pine beetle-killed lodgepole pines, have been compiled.



MORGAN, Cecil Vernon George

B.Sc. (1945) U.B.C.
Born: 24 February 1916
New Westminster, B.C.
Retired: 30 September 1974
Address: R.R. #4
Summerland, B.C.
V0H 1Z0

Cec began his entomological career as a Student Assistant in forest entomology at the Forest Insect Laboratory, Vernon, B.C. in 1937. After World War II, and after completing his University program, he joined James Marshall in the investigation of fruit insect pests at the Summerland Fruit Insect Laboratory. His interest was in mites and after DDT so successfully controlled most of the pest insects on fruit trees, these acarines flourished to become noxious pests in turn. Cec's undaunted pursuit of ways and means of reducing or eliminating the mite damage in orchards, included the use of chemical control, studying the morphology, habits, and behaviour of species, and using predacious species of mites in pest management programs. Much of the success of control of the woolly apple aphid and scale insects, is a direct result of the research work conducted by Cec in his attempts to suppress the damage caused by noxious insect and mite pests in the fruit growing regions of British Columbia.

**MYERS, Judith Helen**

B.Sc. (1963) Chatham Coll.; M.Sc. (1968) Tufts;
Ph.D. (1970) Indiana
Born: 3 July 1941
Sewickley, Pennsylvania
Address: The Ecology Group
Depts. of Zoology and Plant Science
Univ. of British Columbia
Vancouver, B.C.
V6T 2A9

Judith's entrance into the entomological arena started as early as 1965 when she began studying antennal morphology, courtship behaviour, and olfaction of butterflies. As a doctoral student (1967-1970) she turned to a study of populations, sex ratios, and densities of voles. She spent two years as a post-doctoral fellow at the University of California (Berkeley), where she studied the population structure of feral housemice. Since coming to the University of British Columbia in 1972 she has been successful in the elucidation of problems of isozymes, allozymes, food quality, population behaviour, predation, alarm pheromones and insect behaviour, and physiological adaptations of insects. Insect species that have received her scrutiny include the Florida Queen butterflies, tent caterpillar, pea aphids, cinnabar moth, *Cactoblastis* moth, carpenter ants, winter moth, and European crane fly. Insect-plant interactions, as elucidated in the biological control of weeds and population cycles of forest Lepidoptera, including the potential role of insect pathogens, are current research interests. Her pedagogical duties include the teaching of courses in economic entomology, ecological genetics, and the biological control of insects.

**NADEL, Hannah**

B.Sc. (1977) Auburn; Ph.D. (1985) Calif. (Riverside)
Born: 19 May 1954
Northampton, Massachusetts
Address: Royal Br. Columbia Museum
675 Belleville Street
Victoria, B.C.
V8V 1X4

Hannah received her early education in Israel and New England, and completed her secondary schooling at the American International School in Vienna (1968-1972). She chose Auburn University as the place to further her education, simply because this institution headed an alphabetical list of American Universities. The basic biology she learned here stimulated her interest in biological control and prompted a move to Riverside for additional academic training. After completing her doctorate, Hannah accepted a post-doctoral appointment at Leiden University, Netherlands (1985-1987) and a Research Associate position with the Florida Tropical Research & Education Center, Homestead, Florida (1987-1990). Her entomological interest in mating behaviour and sex ratios of parasitic wasps resulted in the discovery of male swarming behaviour of Chalcidoidea. She used her knowledge of host-finding behaviour of a parasitoid in a successful program of biological control in Africa. She has compiled the first comprehensive collection of fig-inhabiting insects in North America. Since marrying Rob Cannings in August 1990, and moving to Canada, Hannah is planning to continue her involvement with biological control by working with companies producing parasites and predators for agricultural use. She is also a Research Associate with the Royal British Columbia Museum.

**NAIR, Karunakaran K.**

B.Sc. (1942) Madras; M.Sc. (1946) Ph.D. (1952) Bombay
Born: 22 December 1920
Alleppey, India
Retired: 30 August 1985
Address: Dept. Biol. Science
Simon Fraser University
Burnaby, B.C.
V5A 1S6

After completing his Master's program, Karun served as a Senior Lecturer in the Department of Zoology, Wilson College, University of Bombay (1947-1956). He headed the Department from 1956 to 1959 and taught courses in animal physiology, insect physiology, and histological technique. He then joined the Atomic Energy Establishment at Bombay as Head of the Insect Sterilization and Pest Control Section (1959-1965). His conceptual design of a mobile grain irradiator was a first in the industry. In 1967, Karun accepted a position with the Entomology Research Institute, Belleville, Ontario, where he studied the biochemical and physiological attributes of parasitoids. He left Belleville in 1967, along with seven other scientists, to form the Centre for Pest Management at Simon Fraser University. Here he has taught courses in insect physiology and economic entomology as these related to parasitism and pest management. Karun's research has centred on insect physiology and developmental biology; specifically on the mechanism of juvenile hormone-induced polyploidization and vitellogenin synthesis in the fat body cells of insects. He has published more than 75 research papers and three book chapters; has been an invited speaker or symposium participant at entomological meetings in Canada, U.S.A., Poland, Greece, Austria, China, Germany, and Brazil; and a consultant to the International Atomic Energy Agency as well as to India's Atomic Energy Department.

**OTVOS, Imre Steven**

B.S.F. (1961, Soporo Division) U.B.C.
M.Sc. (1964), Ph.D. (1969) Calif. (Berkeley)
Born: 20 October 1938
Debrecen, Hungary
Address: Forestry Canada
Pacific Forestry Centre
506 West Burnside Road
Victoria, B.C. V8Z 1M5

After receiving his primary and high school education in Hungary, Imre emigrated to Canada in 1957 with the *Soporon Division of Forestry*. Since graduating in forestry and entomology, Imre has, for the past 21 years, been actively involved in pest management of forest insects with the Canadian Forestry Service, both in St. John's, Newfoundland (1969-1980) and in Victoria. In his work Imre has placed particular emphasis on biological control agents: birds and invertebrate predators, dipterous and hymenopterous parasitoids, nuclear polyhedrosis viruses, *Entomophthora* fungi, and *Bacillus thuringiensis* these to control a host of forest insect pests. He measured the direct consumption of bark beetles by vertebrate predators and measured the indirect effects of woodpecker predation. Imre has developed a biologically safe extraction method for looper eggs, a collecting method for looper pupae and demonstrated, for the first time, the existence of sex pheromones in the eastern hemlock looper. He has evaluated the importance of introduced parasitoids and fungal pathogens in the population dynamics of the hemlock looper, and has pioneered the concept of artificially creating an epizootic of naturally occurring pathogens by increasing and applying the inoculum before such an event would occur naturally. He is the co-developer of a pest management system for Douglas-fir tussock moth in British Columbia. He has more than 50 scientific publications and reports to his credit, and has served as Secretary Treasurer of the Entomological Society of B.C. (1981-1982) and Director of the Entomological Society of Canada (1987-1989)



PROVERBS, Maurice Desmond (Jinx) F.E.S.C.
 B.Sc. (1944), M.Sc. (1946), Ph.D (1951) McGill
 Born: 16 December 1921
 Barbados, W.I.
 Retired: 31 December 1980
 Address: Site 102
 R.R. 4
 Summerland, B.C.
 V0H 1Z0

"Jinx" joined the staff of the Fruit Insect Laboratory, Summerland, in 1947, remaining there until he retired. He worked to control a number of economic tree-fruit insect pests, including aphids and scale insects. In 1954 he initiated a program of research embodying the sterile insect release (SIR) method for the control of the codling moth. This pioneering work in Canada culminated in the release of sterile moths in apple and peach orchards, during the period 1962-1978, in the Okanagan and Similkameen valleys. Excellent control was achieved but the program proved to be too expensive; it was terminated in 1979. Jinx was recognized as a world authority on the SIR method of insect control and has trained scientists in seven other countries in its implementation and evaluation. Jinx has served as President of the Entomological Society of B.C. (1958) and as a member of the Governing Board of the Entomological Society of Canada (1963-1964, 1981).



RAINE, John
 B.S.A. (1950) U.B.C.; M.Sc. (1956) Univ. Oregon
 Born: 10 September 1927
 Stanley, England
 Retired: 1987
 Address: 2853 West 32nd Avenue
 Vancouver, B.C.
 V6L 2B5

John came to Canada in 1929, received his elementary education in Paradise Valley, Alberta, and attended the High School in Trail, B.C. After graduating in plant science from the University of British Columbia, John worked as a Farm Supervisor and Pesticides Sales Trainee until 1952. He then joined Canada Agriculture to work at the Entomological Laboratory in Victoria. Until 1954 he was involved in research and extension work dealing with fruit pests, particularly the life history and control of the cherry fruit fly. On his return from post-graduate studies, John continued his investigation of the life histories of several species of leafhoppers and developed control strategies which are still in use today. A move to the Research Station in Vancouver in 1960, changed the direction of his research; he studied the life history and control of leafrollers attacking blueberries and verified that two species of leafhoppers were vectors of Witches' Broom disease of legumes and potato. He studied the ultrastructure of leafhopper salivary glands and gained information on the mechanism of transmission of mycoplasma-type organisms by leafhoppers. When Little Cherry Disease broke out in 1969, John joined the team to find the cause and method of spread of the disease. Mealy bugs were established as the vector; their control and the eradication of infected trees curbed the disease. He returned to investigate life strategies and control of blueberry pests (1981-1989), and developed integrated pest management programs for these insects.



RAWORTH, David Arnold
 B.Sc. (1972) Simon Fraser; Ph.D. (1982) U.B.C.
 Born: 29 October 1947
 Lethbridge, Alberta
 Address: Agriculture Canada Research Station
 6660 N.W. Marine Drive
 Vancouver, B.C.
 V6T 1X2

David received his elementary and part of his high school education in Lethbridge, Alberta, before moving to the west coast in 1962. He entered Simon Fraser University with the intention of becoming a marine biologist. However, after graduating, David joined the Agriculture Canada Research Station at Vancouver to work as a technician (1973-1983). During that time, under the tutelage of Bryan Frazer and Neil Gilbert, David contributed to studies of the interaction between coccinellids and aphids. At the same time, he continued his education at U.B.C. where he undertook studies in entomology, insect population ecology, and statistics. David continued his work at the Vancouver Research Station as a Biologist (1983) and a Research Scientist (1986), developing management programs for mites and insects on strawberry and raspberry crops. Major studies include the population dynamics of the cabbage aphid and spider mites, development of a rapid sampling technique and an economic threshold function for spider mites on strawberry, and predation studies with a number of predators of spider mites. David has served as Director (1986-1988), President-Elect (1988-1989), President (1989-1990), and a member of the Editorial Board (since 1986) of the Entomological Society of B.C.



RICH, George Bernard
 B.A. (1949) U.B.C.
 Born: 14 November 1914
 Southey, Saskatchewan
 Died: 25 February 1973
 Kamloops, B.C.

George received his entomological training under the masterful guidance of G.J. Spencer, having by this time served his country in World War II as a member of the Royal Canadian Artillery and taking part in the Normandy invasion and in later skirmishes in France and Holland. His first job as a Student Assistant in 1949 at the Livestock Insect Laboratory, Kamloops, B.C., developed into a career vocation at the same institution until the Laboratory was dissolved in 1971. George's entomological work with livestock insect pests centred on the control of animal parasites with chemicals; first using DDT and BHC to control hog lice, then with systemic insecticides, applied as boluses or Pour-on solutions, to control warble grubs. These tests and statistical evaluations have been the basis for economic control of these livestock parasites in western Canada. Before his untimely death by heart attack, he had also found time to investigate the parasitic effects of the spinose ear tick on cattle and deer, and to examine the immune responses of cattle to tick paralysis.



RICHMOND, Hector (Hec) Allan
 B.S.F.(1928) Oregon St.; M.Sc. (1935) Macdonald Coll.
 Born: 21 December 1902
 Oklahoma
 Retired: 1957
 Died: 9 July 1989
 Nanaimo, B.C.

Hec moved with his parents from Oklahoma to Vernon, B.C. in 1911, here to complete his primary education and become enamoured with the forests, lakes, and mountains of central B.C. Here also, he got his start in entomology as a bark beetle spotter for R. Hopping of the federal Forest Entomology Laboratory. He was hired to conduct forest insect surveys (1923-1929); much of these were done on horseback through the forested areas of southern Alberta, including the Cypress Hills and National Parks north to Edmonton. After receiving his Master's degree, Hec continued the insect surveys in southern B.C. and in the Kootenays. In 1936 he was transferred to the then new Forest Insect Laboratory, Winnipeg, where he conducted investigations of the jackpine budworm and the spruce budworm, as well as continuing the annual forest insect surveys. In 1945 he was appointed Head of the Forest Insect Laboratory, Victoria, and spent the next ten years supervising all research of forest insect pests in B.C. A transfer to Quebec City, to supervise the management of the eastern spruce budworm in eastern Canada, occurred in 1955. Hec resigned from the federal service in 1957 to return to the west coast as a consulting industrial forest entomologist for MacMillan Bloedel and the Council of Forest Industries. Much of the control work on ambrosia beetles, blackheaded budworm, and green striped forest looper was done under his supervision. He will be remembered as a pioneer of forest entomology, a distinguished forester, gifted and entertaining speaker, and respected historian.



RICKER, William Edwin O.C., F.R.S.C.
 B.A. (1930), M.A. (1931), Ph.D. (1936) Toronto;
 D.Sc. (1970) Manitoba; LL.D. (1972) Dalhousie
 Born: 11 August 1908
 Waterdown, Ontario
 Retired: 12 August 1973
 Address: 3052 Hammond Bay Road
 Nanaimo, B.C.
 V9T 1E2

Bill's entomological encounters began in 1928-1930 when he, with Fred Ide, collected large aquatic species as part of a study of local trout waters. His first job was with the the salmon research station on Cultus Lake (1931-1938) where he investigated the lake's flora and fauna, and its physical and chemical properties. Here he discovered a new dragonfly species, *Macromia rickeri*, along with many other caddis- and stoneflies. Bill left Cultus Lake in 1938 to work for the Salmon Commission and in 1939 he accepted a position as Assistant Professor of Zoology at Indiana University and Head of the State's fisheries investigations. In addition to his work with fish he collected locally and in the Appalachians and wrote papers on stonefly distribution, classification, and evolutionary trends including *Stoneflies of Southwestern British Columbia*. In 1950 he was appointed Editor of Publications for the Fisheries Research Board of Canada and chose Nanaimo as his headquarters. He is best known for two handbooks for fishery investigations, and a study of the relation between recruitment and parallel abundance that included the much-used "Ricker curve". He has also written systematic reviews of several stonefly sub-families and was a describer or co-describer of 90 species and 46 genera of stoneflies. He joined the Entomological Society of British Columbia in 1934 and is probably its oldest member.



RING, Richard Alexander
 B.Sc. (1961), Ph.D. (1965) Glasgow
 Born: 24 September 1938
 Glasgow, Scotland
 Address: Department of Biology
 University of Victoria
 P.O. Box 1700
 Victoria, B.C.
 V8W 2Y2

Richard's interest in agriculture led him to a degree in agricultural zoology. In the summers (1959-1961) he worked as a crop inspector examining seed potato fields for the presence of disease, nematodes, and rogue varieties. He gained some teaching experience as an extra-mural lecturer in zoology at the University of Glasgow; then came to U.B.C. in 1964 to accept a year of teaching-research duties as an Assistant Professor, to teach entomology to science and agriculture students. He then was awarded a post-doctoral Fellowship which he served at the Biosystematics Research Institute in 1965-1966, studying the relationships between diapause and cold-hardiness in overwintering insects. Since 1966, Richard has been on the academic staff of the University of Victoria. His interests include the biology of intertidal and salt spring insects, and the biocontrol of Eurasian milfoil. His principal work has dealt with cold tolerance of arctic insects. His work includes not only the investigation of physiological mechanisms and biochemical correlates of supercooling and freezing tolerance, but major emphasis is given to overwintering strategies of various insect species of different taxa in identical overwintering sites. Richard had served as President of the Entomological Society of B.C. in 1972 and 1984, and was President of the Entomological Society of Canada in 1992.



ROITBERG, Bernard David
 B.Sc. (1975), M.Sc. (1977) U.B.C.; Ph.D. (1981) Univ. Mass.
 Born: 24 June 1953
 Windsor, Ontario
 Address: Dept. Biol. Sciences
 Simon Fraser University
 Burnaby, B.C.
 V5A 1S6

Bernard was brought up and received his early education in Windsor, Ontario. His natural curiosity about insects, and later, recognizing their potential as laboratory and experimental tools, turned his attention to entomology. Some experience in economic entomology (biology and control of tree fruit insects) was gained when working as a summer assistant with Fred Banham and Harold Madsen at the Research Station in Summerland, B.C. In 1982 he completed a post-doctoral appointment at the University of Massachusetts where he studied the foraging behaviour of flies. He then accepted an Assistant Professor position in the Centre for Pest Management at Simon Fraser University. Bernard has directed his research toward the application of insect behaviour and ecology in the solving of insect control problems. This includes search and oviposition decisions in tephritid flies, host-parasite interactions in aphid systems, and the theory of evolution of marking pheromones. Bernard has served as President of the Entomological Society of B.C. (1987) and as a member of the Governing Board of the Entomological Society of Canada (1989-1991)



ROSS, Douglas Alexander
 B.S.A.(1939) O.A.C.; M.Sc. (1946), Ph.D. (1950) Cornell
 Born: 29 January 1916
 Vineland, Ontario
 Retired: December 1978
 Address:3 – 940 Foul Bay Road
 Victoria, B.C.
 V8S 4H8

Doug was introduced to entomology at an early age in the family household; his father was in charge of entomological activities at the Dominion Entomological Laboratory, Vineland, Ontario. While obtaining his university education (1936-1950), Doug was also in the employ of Canada Agriculture in the forest insect laboratories in Ottawa, Sault Ste. Marie, and Laniel, where he investigated the parasites of the eastern spruce budworm and the maple leaf cutter. In 1950 he joined the Forest Entomology Laboratory in Vernon, B.C. and was placed in charge five years later. When the Laboratory closed in 1970, Doug moved to Victoria to head the detection and assessment functions of the Forest Insect & Disease Survey (FIDS) of B.C. and the Yukon, a position he held until he retired in 1978. His professional interests are evident in the 55 journal publications and numerous FIDS reports on seed and cone insects, wood borers, and defoliators. Doug was a strong supporter of the Canadian Institute of Forestry, the Royal B.C. Museum, and the Vernon Museum and Civic Centre. He served as President of the Entomological Society of British Columbia (1960) and as Director of the Entomological Society of Canada (1961-1962).



RUHMANN, Max Hermann
 Born: 9 September 1880
 Hzehoe, Holstein, Germany
 Retired: December 1942
 Died: 4 December 1943

Though born in Germany, Max Ruhmann spent his very early years in Holland, moved to Kent in England (1886), then studied medicine at Trinity College in Dublin. He abandoned medicine after a stint in the British Army and studied horticulture at the Glasnevin Botanical Gardens. In 1907 he emigrated to Canada with his wife – they were married in 1904 – and worked on fruit ranches near Vernon, British Columbia. He was appointed an Assistant Plant Pathologist and Entomologist in 1912 by the B.C. Department of Agriculture, became an Assistant Entomologist in 1918, and served as Provincial Entomologist from 1935 to 1942. In 1937, Max was responsible for the control of the Colorado potato beetle in the Grand Forks district and largely through his efforts of sound chemical control – and some hand picking – this pest was confined to the Kootenay region and did not spread to the rest of the province. Max served the B.C. agricultural community as an extension entomologist with quiet, expert, and committed diligence, always ready to give practical advice on insect control. He was adept and meticulous at making displays of insects and their damage, was a proficient taxonomist in identifying noxious and other insects, all the while taking a personal interest in furthering the work of insect control in the province.



SAFRANYIK, Laszlo (Les) F.E.S.C.
 B.S.F. (1961), M.S.F. (1963), Ph.D. (1969) U.B.C.
 Born: 13 February 1938
 Besenyszog, Hungary
 Address:Forestry Canada
 Pacific Forestry Centre
 506 West Burnside Road
 Victoria, B.C.
 V8Z 1M5

Les arrived in Canada from his native Hungary in 1957 to take his advanced academic training in forest protection, forest entomology, insect ecology, and population dynamics. He worked for the Canadian Forestry Service in Calgary (1964-1969), then at Edmonton (1969-1971), and is now in Victoria at the Pacific Forestry Centre. Les is interested in the taxonomy, population biology and management of bark beetles. He was the first to develop a sampling technique to allow estimation of absolute population density and spatial distribution of the mountain pine beetle. He demonstrated the intensity of host tree resistance to beetle attack and developed guidelines for its management. Les has also been involved in large-scale beetle management systems and is responsible for the development, direction, and evaluation of bark beetle research projects that encompass studies of host-tree/insect interactions, sampling, and control methods. His more than 40 research publications attest to his expertise in the use of forestry practices, semiochemicals and the application of biological control agents – whose response to abiotic factors is known – in the control of forest pests. Les served as President of the Entomological Society of B.C. (1982).



SAHOTA, Tara
 B.Sc. (Hons.)(1959), M.Sc. (1960) Panjab Univ.; Ph.D. (1966)
 Toronto
 Born: 1 December 1936
 Lyallpur, India
 Address:Pacific Forestry Centre
 506 West Burnside Road
 Victoria, B.C.
 V8Z 1M5

Tara's initial contact with entomology came in the form of external morphology and anatomy of a meloid beetle when he was a Master's student at Panjab University. He came to Canada in 1963 and since then most of his work has focussed on developmental biology – at the University of Toronto, (1963-1966) and the Developmental Biology Center at Western Reserve University (1966-1967) – on reproductive physiology, and on the physiological ecology of bark beetles in relation to population ecology at the Pacific Forestry Centre since 1967. Tara's entomological research has permitted him to publish on: tissue interactions and pattern formation during metamorphosis; nerve regeneration in transplanted sensory and motor organs; hormonal regulation of metamorphosis and reproduction; reproduction and vitellogenesis in bark beetles; diapause in the pharate adult stage of seed and cone insects; chromatin distribution patterns in relation to changes in cell functions, rates of reproductive processes, and population quality. His current work is aimed at providing an understanding of the observed relationship between chromatin distribution patterns and population quality and its significance when pest populations fluctuate.



SCUDDER, Geoffrey George Edgar F.R.S.C., F.E.S.C.
 B.Sc. (1955) Wales; D. Phil. (1958) Oxford
 Born: 18 March 1934
 Fawkham, Kent, England
 Address: Department of Zoology
 Univ. of British Columbia
 Vancouver, B.C.
 V6T 2A9

Geoffrey's early commitment to entomology was evidenced by the publication of 29 scientific papers before he earned his Ph.D. He is a hemipterist, an authoritative taxonomist, not only describing new species of true bugs but also an expert zoogeographer who is very knowledgeable on matters of evolution, phylogeny, and ecology of the Hemiptera. Geoffrey joined the Zoology Department of U.B.C. in 1958, rose quickly through the academic ranks, and has held the Headship since 1976. His research extends well beyond biosystematics and ecology; it includes functional morphology, neurosecretion, osmoregulation and other physiological parameters, development of flight muscle, and physiology of Malpighian tubules. He can lay claim to more than 200 scientific publications. He has distinguished himself as a master teacher who generates and disperses ideas *en masse*, inspires students, yet remains most helpful and compassionate, winning the respect of all those he contacts. He was President of the Entomological Society of Canada (1987) and was awarded its Gold Medal in 1975. He served as President and Secretary General of the XVIII International Congress of Entomology (1988).



SHEPARD, Jon Howard
 B.Sc. (Hons.) (1963) Ore. St.; M.Sc. (1965) Wash. State
 Born: 18 February 1941
 Weiser, Idaho
 Address: R.R. #2
 Sproule Cr. Rd.
 Nelson, B.C.
 V1L 5P5

Jon received his elementary education (1947-1956) in Kennewick, Washington – also began collecting Lepidoptera in 1956 – and attended Davis Senior High School (1956-1959) in Yakima, Washington. After earning an Honours degree in biology and a post-graduate degree in entomology, a varied employment career followed, namely: Notre Dame University, Nelson, B.C. (1966-1969, 1973-1975); Selkirk College, Castlegar, B.C. (1976-1978); Athabaska University (1981-1982); Brandon University (1982-1983), Northwest Community College, Terrace, B.C. (1983-1987), and Selkirk College, Castlegar (1987-1991). Jon's interest has centred on the Lepidoptera, especially their systematics, zoogeography, and population biology, with emphasis on arctic/alpine species. He has taught courses in general biology, population biology, and entomology in all institutions except Brandon University. His private collection of some 40,000 specimens of most Lepidoptera of northwestern North America, is the largest in western Canada. Jon has published more than 20 papers dealing with moths and butterflies. His current research includes a study of the lepidopteran fauna of the Queen Charlotte Islands and the Pacific Northwest with emphasis on a revision of the genus *Boloria* (Nymphalidae). He has given freely of his time by identifying insects for others, organizing meetings for the Lepidoptera Society, and advising authorities on park boundaries and ecological reserves.



SHEPHERD, Roy Frank
 B.F. (1952) U.B.C.; M.Sc. (1955), Ph.D. (1960) Minnesota
 Born: 3 January 1929
 Calgary, Alberta
 Address: Forestry Canada
 Pacific Forestry Centre
 506 West Burnside Road
 Victoria, B.C.
 V8Z 1M5

Roy has made forest entomology his career. Since 1952, when he first worked with the Canadian Forestry Service in Calgary, he has dogged forest defoliators with consummate skill and determination. His interest in entomology began when, as a summer student in 1949, he was hired to investigate some aspects of the biology of forest insects. Since then he has conducted population studies of the mountain pine beetle, described the beetles' attack on trees and their response to tree characteristics. Roy has devised sampling and control methods of the spruce budworm, the lodgepole needle miner, and several lepidopteran pests. Pheromone detection systems were established and control with microbial agents was perfected. He has provided expert information on insect control to forest managers and governments, provided leadership in bark beetle research, and has been an advisor to organizations conducting research and seeking non-chemical control procedures to suppress forest insect pests. His notable contribution to entomology comprises the pest management of Douglas-fir tussock moth, the monitoring of endemic populations with pheromone traps, and the prevention of insect outbreaks through early treatment with a nuclear polyhedrosis virus. Roy served as a Director (1984-1986) of the Entomological Society of Canada and was Chairman of the Scholarship Committee (1982-1988).



SHORE, Terence Leckie
 B.Sc. (Hons.) (1978), Ph.D. (1982) U.B.C.
 Born: 21 April 1951
 Vancouver, B.C.
 Address: Forestry Canada
 Pacific Forestry Centre
 506 West Burnside Road
 Victoria, B.C.
 V8Z 1M5

For Terry the Canadian west coast has been, and continues to be his home. Terry became interested in forest entomology when he was a student assistant to John McLean at the University of British Columbia in the summer of 1977. He investigated the biology of the western spruce budworm for his B.Sc. thesis and the use of pheromones for surveying and mass-trapping of ambrosia beetles, for his doctoral thesis. After graduating he joined the Forest Insect and Disease Survey Unit, Canadian Forestry Service, Victoria, B.C. where he developed sampling methods for several forest insect pests including the western spruce budworm, Douglas-fir tussock moth, western hemlock looper and various species of bark beetles. In 1985, as a Research Scientist, he was assigned to the Bark Beetle Project of what is now called, Forestry Canada. Here his work focussed on developing management strategies, including hazard rating methods, for the reduction of losses to the mountain pine beetle. Terry has published at least 20 scientific papers and reports dealing with the use of semiochemicals, sampling methods, and hazard ratings for management strategies of defoliators, bark and woodboring insects. His work on ambrosia beetles has permitted, in part, the expansion of the pest management business in British Columbia.

**SHRIMPTON, Gwendolyn May**

B.Sc. (1978) U. Victoria; M.P.M. (1983) Simon Fraser
 Born: 21 September 1956
 Victoria, B.C.
 Address: Surrey Nursery
 B.C. Forest Service
 3605 - 192nd Street
 Surrey, B.C.
 V3S 4N8

Gwen grew up in Calgary and Edmonton, Alberta, where she also received her elementary and High School education. She has always been interested in insects and was encouraged to study entomology by her father, Malcolm Shrimpton, a research scientist who worked on bark beetles with the Canadian Forest Service, and by R.A. Ring, a teacher of entomology at the University of Victoria. Several summer jobs, including an insect survey on three B.C. ecological reserves, insectary work at the Pacific Forestry Centre, and assisting J.A. McLean in forest entomology studies, cemented her resolve to pursue a career in entomology. During her Master's program Gwen worked for the B.C. Forest Service and completed her research on the biology and control of insects present in the seedling nurseries. She remained with the B.C. Service after graduation and continued her research. She now holds the position of Nursery Pest Management Co-ordinator and provides information on, and develops pest management programs for insects, weeds, and pathogens in both the private and governmental tree seedling nurseries throughout the province of British Columbia. Pest management programs for lygus bugs, cranberry girdler, cutworms, root weevils, European crane fly, fungus gnats and several aphid species have now been established.

**SPENCER, George Johnston**

B.S.A. (1914) O.A.C.; M.Sc. (1924) Illinois
 Born: 16 January 1888
 Yercaud, India
 Retired: 1953
 Died: 24 July 1966
 Vancouver, B.C.

Born of missionary parents in India, George began his higher education at the University of Manchester in 1906; finished at the Ontario Agricultural College in 1914. After a stint with the 18th Battalion of the Canadian Expeditionary Forces in the First World War, he continued his entomological education. He researched the biology of the European corn borer in Ontario; the biology of commercial crab on Vancouver Island; finally settling for a faculty position at U.B.C. Here he established and manned a one-man Department of Entomology, building it to a place of excellence in entomology in Canada. His principal work comprised research on grasshopper behaviour, parasitism, and control. However, his boundless enthusiasm for entomological work found him delving into the taxonomy of Homoptera and the presence and distribution of mammalian ectoparasites in western Canada. He was a gifted lecturer, a sound educator with limitless patience; the large number of practicing entomologists in Canada, once his students, attest to his consummate success as a gentleman, a learned teacher, and an understanding colleague.

**STARK, Ronald William F.E.S.C.**

B.S.F. (1948), M.A. (1951) Toronto; Ph.D. (1958) U.B.C.
 Born: 4 December 1922
 Calgary, Alberta
 Address: Dept. of Forest Resources
 University of Idaho
 Moscow, Idaho
 U.S.A.

Ron received his primary and secondary education in Calgary, then moved to eastern Canada where he completed his undergraduate program at the University of Toronto in 1948. He then joined the Division of Forest Biology at Calgary as a research entomologist. After ten years he not only completed two post-graduate programs of study but had consummated a classic study of population biology of the lodgepole needle miner, and had developed and popularized the sequential sampling method to assess dispersal and distribution of several generations of insects under changing environmental conditions. In 1959 he was appointed to the faculty of the University of California, and in 1970 to the University of Oregon. Here he served as Research Co-ordinator and Dean of Graduate Studies until 1977. The academic life included not only the teaching of forest entomology and ecology, but permitted research on sawflies and bark beetles. His research has augmented and improved sampling theory and population dynamics and has led to the development of a systems approach to integrated control. The latter - pertaining to bark beetles and the Douglas fir tussock moth - has been accepted by both U.S. and Canadian agencies. Ron is a dynamic and award-winning lecturer, has supervised the training of more than 40 students, and has published well over 100 scientific papers. He was awarded the Gold Medal of the Entomological Society of Canada in 1978.

**STRONG, Ward Billings**

B.Sc. (1981) U.B.C.; M.Sc. (1989) Simon Fraser University
 Born: 4 April 1959
 Woodland, California, U.S.A.
 Address: 2500 - 272 Street
 Aldergrove, B.C.
 VOX 1A0

Ward was born in the United States and emigrated to Courtney, B.C. in 1972, where his family operated a small truck farm. After completing his High School education he entered the University of British Columbia in 1976 and enrolled in the Faculty of Agriculture. Ward's interest in IPM was stimulated in classes given by G.G.E. Scudder; he decided to work in this area. He was hired by MonAgro Consultants where for the next several years he operated the company and expanded services to include field vegetables, cole crops, small fruits, and greenhouse vegetables and ornamentals. These services comprised the monitoring of various insect and disease pests, providing management recommendations, and guiding biological control programs in greenhouses. During this time he also attended (part-time) the Centre for Pest Management at S.F.U. to gain his Master's degree. Ward currently works for the East Chilliwack Agricultural Co-op to whom he sold MonAgro Consulting in 1989. The new endeavour, in the Pro-Test Department, is demonstrating that commercial IPM services can operate beneficially within the framework of an agricultural supply company. Of significance in Ward's work is his development of a biological control system using the phytoseiid, *Amblyseius cucumeris*, against western flower thrips in greenhouse cultures. He has also developed and implemented, in co-operation with many provincial and federal agricultural workers, several monitoring services for small fruits and vegetables.



SWEENEY, Jonathan David
 B.Sc. (1979) Simon Fraser; Ph.D. (1987) U.B.C.
 Born: 22 December 1956
 Trois Rivieres, Quebec
 Address: Canadian Forestry Service
 Maritime Forest Res. Centre
 P.O. Box 4000
 Fredericton, N.B.
 E3B 5P7

Jonathan exchanged the sweeping hills of Quebec for the alpine lakes and mountains of the Kootenays. He received his elementary and High School education in Castlegar, B.C. and developed a strong feeling for natural science. This interest was pursued at Simon Fraser University and after he graduated in 1979, he went to work as a field technician for Environmental Pest Management Services, Summerland, B.C. Here he monitored the pests of apples and pears, and provided growers in the Okanagan Valley with advice concerning the timing and suitability of control. While enrolled in a post-graduate program at U.B.C. (1982-1987), Jonathan investigated the biology and control of the western spruce budworm. During the summer months he worked as a Research Assistant for the B.C. Ministry of Forests in Princeton, B.C. (1981) and for the Faculty of Forestry at U.B.C. (1982). He taught Forest Entomology as a Sessional Lecturer (1984) and was awarded a Post Doctoral Fellowship tenable at the Pacific Forestry Centre (1987-1989). Here Jonathan aided in the development of sampling methods for seed and cone insects. In 1989, he was transferred to New Brunswick where he is currently studying seed cone insects and developing pest management programs for maritime tree-seed orchards. Jonathan served as a Director of the Entomological Society of B.C. (1984-1986) and as Director of Student Affairs of the Professional Pest Management Association of B.C. (1985-1988).



TAYLOR, Rev. George William **F.R.S.C., F.E.S, F.Z.S.**
 Born: 1854
 Derby, England
 Died: 22 August 1912
 Nanaimo, B.C.

Rev. Taylor emigrated to Canada in 1876. In Victoria, British Columbia, he studied theology, was chosen as a deacon in 1884, ordained a priest in 1886, and served parishes in British Columbia and Ottawa. In 1887 he was appointed Honorary Provincial Entomologist but gave it up when he went to Ottawa in 1888. On his return to Gabriola Island he conducted intensive studies of shells and insects (1890-1894) before being appointed Rector of the Anglican Church in Wellington, B.C. During these years he was an avid, dedicated collector of insects and became an expert taxonomist of the Lepidoptera, especially the Geometridae. He compiled the first list of native insects of B.C. In 1907 he was appointed Curator of the Marine Biological Station on Departure Bay by the federal government. He held that position until his death. He not only collected insects generally but willingly exchanged specimens with collectors, generously identified moths for others, and gave freely of his expert advice on the control of noxious pests. He amassed the finest collection of shells in Canada (7,000 specimens) and became known and recognized as an expert in conchology. He had five species of insect, three of molluscs and one sponge named after him. Taylor was the founding President of the Entomological Society of B.C., served for six years (1906-1911), and was a constant contributor to the *Canadian Entomologist*.



TONKS, Norman V.
 B.Sc. (1949) U.B.C.; M.Sc. (1959) Oregon St.
 Born: 8 March 1922
 Vernon, B.C.
 Retired: 14 January 1982
 Address: 2819 Graham Street
 Victoria, B.C.
 V8T 3Z3

Norman received his elementary and High School education in Vernon. Here he became acquainted with Alec Dennys and Max Ruhmann and developed a lasting interest in insects. After finishing High School, Norman served a three-year stint in the R.C.A.F. during World War II (1941-1944), followed by a university education (1944-1948). He worked as a summer student with the Fruit Insect Laboratory, Victoria, beginning in 1947, and then full-time after graduating from the University of British Columbia. He assisted H. Andison in studies of the biology and control of root weevils, June beetles and raspberry pests. In 1950, Norman established a summer field station at Abbotsford, B.C., where, for the next ten years, he investigated the biology and control of raspberry insects, rose leafhoppers, root weevils, and wireworms. During that period he took leave to take post graduate studies at Oregon State University. At the Research Station, Sidney, B.C. (1960-1981), Norman was engaged in the control of insects on ornamental and greenhouse plants.



TREHERNE, Reginald Charles
 B.S.A. (1909) O.A.C.
 Born: 24 March 1886
 Aldershot, England
 Died: 7 June 1924
 Ottawa, Ontario

"Tre" worked as a farm labourer for a year after coming to Canada in 1905; followed by two years at O.A.C. His entomological "bent" was fixed after a summer's work at Louisiana State College in 1908. A year later he moved into nursery inspection work in Ontario but was lured away by the Dominion Entomological Service and transferred to Agazziz, B.C. in 1911. Here he worked as an economic entomologist curbing the damage of field crop, orchard, and garden insect pests. In 1914, after the federal Entomological Branch was formed, he was placed in charge of the newly-created Field Crop Insect Laboratory in Vernon. He co-ordinated the research and extension activities of provincial and federal entomologists in B.C.; grasshopper control on the rangelands in central B.C. was of special importance. In 1922, when transferred to Ottawa as Chief of the Division of Field Crops and Garden Insects, he developed plans to expand the federal entomological facilities and establish more research laboratories across Canada. These aspirations, though initiated, were suddenly terminated by his death two years later.



TRIPP, Howard Allan
 B.S.A. (1950) Guelph; M.Sc. (1953) N.Y. St. Coll. (Syracuse)
 Born: 29 October 1923
 Fitzroy Harbour, Ontario
 Retired: 31 December 1978
 Address: 3969 Sequoia Place
 Victoria, B.C.
 V8N 4N4

Following his war service in the R.C.A.F. as a radio operator, and completing his post-war education, Howard's career in forest entomology covered a wide variety of research and service in four Canadian provinces. It began with Agriculture Canada, Division of Forest Biology at Ottawa in 1950, with research into the behaviour of the spruce seedworm, the spruce cone maggot, and descriptions of new species of gall midges. As a member of the Forest Insect Laboratory, Quebec City, Quebec, (1955-1962), he participated in and directed research studies on the Swaine jack-pine sawfly in northwest Quebec. He studied, identified, and described hyperparasites previously considered primary, and evaluated the ability of the host to encapsulate its parasites. Howard's work then shifted to the Forest Insect Laboratory at Sault Ste. Marie, Ontario, where he conducted taxonomic research on the genus, *Neodiprion*. In 1965 he was transferred to Calgary, Alberta, as Head of the Forest Insect and Disease Survey for Alberta and the N.W.T. When the Calgary Laboratory closed in 1970, Howard chose to return to Sault Ste Marie, to the Insect Pathology Research Institute, where he conducted studies on the bacterium, *Bacillus thuringiensis*. He pioneered the aerial application of Bt as an effective microbial insecticide against the spruce budworm. In 1973 he transferred to the Pacific Forstry Centre, Victoria, B.C. to head the Forest Insect and Disease Survey for British Columbia and the Yukon, a position he held until 1978 when he retired.



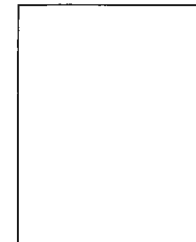
TURNBULL, Albert Lloyd
 B.S.F. (1951), M.S.F. (1953) U.B.C.; D. Phil. (1957) Oxford
 Born: 18 August 1917
 B-Say-Tah, Saskatchewan
 Retired: 1982
 Address: 746 Shaw Avenue
 Coquitlam, B.C.
 V3K 2R8

Bert was brought up and educated in Regina, Saskatchewan, and graduated from Balfour Technical Collegiate in 1936. He then joined his family at their subsistence farm in Comox, B.C. and survived the remainder of the depression years by growing food and working at odd jobs. In 1939 he joined the Canadian Army serving for six years at home and in Western Europe. After the war he used his veterans credits to go to University from which he graduated with a degree in forestry. He branched into entomology as a result of summer work with the Biological Control Investigations Laboratory, Vancouver (1951-1957), where he was engaged in investigations of biological control of forest insects, particularly the parasitoids of the spruce budworm. In 1957 he transferred to the Entomology Research Institute, Belleville, Ontario, where for the next ten years he was involved in studies of insect predation. Of particular interest were the spiders; their predation efficiency, distribution and systematics. As part of the group of eight that formed the Pestology Centre at Simon Fraser University in 1967, Bert not only taught classes relative to pest management, but remained actively engaged in his investigations of predation by spiders, their general ecology and taxonomy.



VAN SICKLE, Gordon Allan
 B.F. (1965), M.Sc. (1969) U.B.C.; Ph.D. (1972) Penn. State
 Born: 29 March 1942
 Calgary, Alberta
 Address: Forestry Canada
 Pacific Forestry Centre
 506 West Burnside Road
 Victoria, B.C.
 V8Z 1M5

Allan grew up in foothill country where trees are scarce and appreciated; this directed his interests to the forests of British Columbia and the University of B.C. After graduating with a degree in forestry, Allan gained employment as a Disease Survey Officer with the Forest Insect & Disease Survey, Fredericton, N.B. He was sent on education leave (1968-1972), returning each summer to continue laboratory and field duties. He returned to Western Canada in 1974 to continue the damage appraisal of insects and disease in the forests of British Columbia. Since 1979, Allan has been Head of the Forest Insect & Disease Survey, Pacific region. Throughout the years he has conducted surveys of insect and disease conditions in forests and has become adept at the assessment and appraisal of loss caused by these pests. He has been responsible for the compilation of annual regional and national insect and disease survey reports. This information has been of considerable value to national, provincial and consumer groups in maintaining a viable and productive renewable resource in western Canada.



VENABLES, Edmund Peter
 Born: 1881
 Hampshire, England
 Retired: 1946
 Died: 19 October 1966

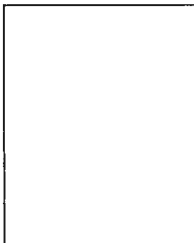
Described as "short, lean, and tough", Peter's career ran a very checkered course. Chronologically and synoptically this would read: England to Canada (1897), collector of insects; met James Fletcher the Dominion Entomologist (1900); First World War: Gallipoli, Camel Corps, Collector of Palestinian insects; six-month leave to the Okanagan; never returned to the army; Junior Entomologist with the federal Entomological Branch at Vernon, B.C. (1919-1936); Assistant Entomologist (1936-1946); retired. Peter was one of the "old time naturalists" who spent his time observing, recording, and outguessing orchard insect pests. He studied the bug and left chemical control to others. Much of the biology and the weak links in the life cycles of many noxious moths, butterflies, beetles, wasps, aphids, thrips, plant bugs, and mites, were recorded by him. He wrote witty poetry and was a founding member of the Entomological Society of B.C. His odiferous pipe may still haunt those who knew him!



VERNON, Robert Stanley

B.Sc. (1975), M.Sc. (1979), M.P.M., Ph.D. (1979) Simon Fraser
Born: 4 August 1951
New Westminster, B.C.
Address: Canada Agriculture Research Station
6660 N.W. Marine Drive
Vancouver, B.C.
V6T 1X2

Bob is a native of British Columbia. During his initial four years at Simon Fraser University, culminating in a Bachelor of Science degree in Biology, he specialized in courses relating to pest management. During the next four years of a post-graduate program he studied the olfactory responses of the onion maggot, *Delia antiqua*, to the volatile components of onion. Upon graduation he received an industrial post-doctoral fellowship and worked with the B.C. Coast Vegetable Growers Cooperative to establish MonAgro Consultants, British Columbia's first vegetable crop IPM consulting company. By 1981, he had developed and implemented grower-funded monitoring programs for the major insect pests of onions, carrots, and potatoes. Bob left private consulting in 1981 to accept a research position at the Canada Agriculture Research Station, Vancouver, where he is currently engaged in vegetable insect pest management. His responsibilities include: the development of monitoring procedures for pest and beneficial insects of field and green house vegetables; the development of chemical, physical, and biological control strategies; basic ecological studies; and the development of complete pest management programs for use in the farming community. He is also in the process of developing expert systems to enhance the quality and efficiency of IPM programs. One of Bob's main areas of study involves the response of insects to colour, and the development of colour-based trapping devices.



VROOM, Paul Noel

attended N.S. Agric. College
Born: 25 December 1891
St. Stephen, N.B.
Retired: 1957
Died: 29 July 1980

After only a year of entomological and agricultural studies at the Nova Scotia College of Agriculture in Truro, Paul was appointed by the province, in 1911, to conduct a winter survey of the brown-tail moth in New Brunswick. This brought him in touch with many early federal entomologists; he accepted an appointment as a brown-tail moth Inspector by the Entomological Branch in 1913. In 1916 he joined the Division of Foreign Pests Suppression, (later the Plant Protection Division) where he worked with biological control agents. This involved three years (1916-1919) with the Natural Control Investigations Laboratory in Fredericton; rearing tent caterpillar parasites at Agassiz, B.C. (1919); and participating in grasshopper control at Vernon, B.C. (1920-1929). Upon transfer to Ottawa in 1929 he was named Chief Inspector and assigned the identification of insect pests intercepted on nursery stock. From 1942 onwards, he was in charge of the import permit section of the Plant Protection Division.



WARD, Ivor Jesmond

B.Sc. (1938) Alberta
Born: 1908
England
Died: 5 February 1947

Ivor arrived in Vernon from England with his parents in 1912. After receiving his elementary education there he joined the staff of the Dominion Entomological Laboratory in Vernon in 1926. Here he investigated field crop insect pests, in particular the biology, distribution, and control of grasshoppers on the ranges of the interior of the province. In 1943 he was appointed the Provincial Entomologist making extension entomology his career until sudden death terminated his endeavours. He was engaged in the suppression of the Colorado potato beetle in the Kootenays, and the organizing of grasshopper control zones in the Nicola Valley and elsewhere in the interior of the province. He also devised improved methods of control for a variety of vegetable, fruit, and seed insects, and prepared some excellent extension publications dealing with insect control.



WEBSTER, John Malcolm

B.Sc. (1958), Ph.D. (1962) London
Born: 5 May 1936
Wakefield, England
Address: Dept. Biol. Sciences
Simon Fraser University
Burnaby, B.C.
V5A 1S6

Having specialized in parasitology and nematology at Imperial College, London, John accepted a Research Officer position at the Rothamsted Experimental Station in England. Here he was engaged in research on plant parasitic nematodes involving the culture of races of *Ditylenchus dipsice* and the pathotypes of *Heterodera/Globodera rostochiensis* on callus. He came to Canada in 1966 to work on entomopathogenic nematodes at the Biological Control Laboratory at Belleville, Ontario. In 1967 he joined seven other scientists from Belleville to form the Pestology Centre at Simon Fraser University; became Head of the Department of Biological Sciences in 1974, Dean of the Faculty in 1976, and Associate Vice-President (Academic) and Dean of Graduate Studies in 1980. He has published more than 100 scientific papers on nematodes, especially on the host parasite relationships of plant and insect parasites. Currently, John is head of a research team of about twelve postdoctoral researchers, graduate students and assistants, focussing on research on the pine wood nematode and on the use of rhabditoid nematodes as biological control agents of insects.



WELLINGTON, William George F.R.S.C. F.E.S.C.
 B.A. (Hons.)(1941) U.B.C.; M.A. (1945), Ph.D. (1947) Toronto
 Born: 16 August 1920
 Vancouver, B.C.
 Retired: 1 January 1986
 Address:2350 130A Street
 Surrey, B.C.
 V4A 8Y5

An enthusiastic teacher of biology in High School and the stimulating pedagogy of G.J. Spencer at U.B.C. directed Bill's career onto an entomological path. A further course in meteorology in 1941 gained him a position with the Meteorological Service and affiliation with the R.C.A.F. (1942-1945) as a weather forecaster and radi-sonde technician. This was followed by intensive post-graduate studies culminating in a position in forest entomology with Agriculture Canada (Forestry), at Sault Ste Marie, Ontario, and Victoria, B.C. (1946-1968). Here he investigated the microclimates of insect habitats, and interpreted insect behaviour and the causes of population fluctuations as dictated by the various meteorological factors. Bill left the federal service for the University of Toronto (1968-1970), then joined the faculty of the University of B.C. and the Institute for Resource Ecology (1970-1986). Throughout the years, Bill has utilized his special aptitudes and knowledge of meteorology and climatology to define, correlate, and identify the various components and aspects of ecology, be they physiological, behavioural or social variations that affect population dynamics, dispersal or territoriality of insects. His work has influenced not only insect ecology but also most other subdisciplines ranging from taxonomy to pest management. Bill was President of the Entomological Society of Canada in 1978 and was awarded its Gold Medal in 1968.



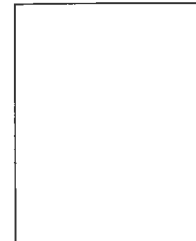
Wilkinson, Alfred Thomas Shrawley
 B.S.A. (1949) U.B.C.
 Born: 8 July 1923
 Grand Forks, B.C.
 Retired: 31 October 1985
 Address:4041 13th Avenue West
 Vancouver, B.C.
 V6R 2T3

Fred worked for a year after completing his elementary and High School education in Grand Forks, B.C., then joined the R.C.A.F. in 1942. After three years of active service overseas, he returned and enrolled at the University where he pursued a course in horticulture and agronomy. His summer employment with K.M. King and the Field Crop Insect Laboratory, Victoria, and the stimulating courses in entomology at the University soon convinced him of a career in entomology. His initial work comprised the study of the biology, distribution, and control of wireworms in British Columbia. Further research of the control – primarily insecticidal – of the carrot rust fly and other root maggots, added to his contribution to economic entomology. Fred's interest in biological control placed him in a favourable position to incept and conduct studies of the control of weeds (bull thistle, tansy ragwort, Canada thistle) using specific insects (Cinnabar moth and weevils). He has also had considerable success in his investigations of the population dynamics, distribution, damage potential and control – chemical and biological – of crane flies. Fred has published more than 20 technical papers, many popular articles and has made a significant contribution to our knowledge of economic entomology in B.C.



WILSON, Thomas F.R.H.S.
 Born: 25 July 1856
 Musselburgh, Scotland.
 Died: 6 March 1917
 Hope, B.C.

For Tom Wilson the habits of insects, animal ecology, plant life, and nature study were dearest to his heart. After his early studies of horticulture and forestry, and a stint as foreman of the Royal Botanical Gardens in Edinburgh, he, at the age of 24, left for India to be the superintendent of a tea plantation. In 1886 he returned to Scotland, then immigrated to Canada and worked on the construction of the Canadian Pacific Railway. When appointed a Fruit Inspector for the B.C. Department of Agriculture in 1896, he diligently strove to keep noxious insects out of B.C. orchards. In 1900 he was appointed the Inspector of Fumigation by the federal Entomological Service, thus aiding in the work of plant quarantine, sanitation, and exclusion of foreign insect pests. Six years later he was also appointed as Inspector of Indian Orchards; these latter duties became full time work in 1911. Death in a hotel fire at Hope in 1917 ended a dedicated career of entomological activity.



WINCHESTER, Neville Norman
 B.Sc. (1980), M.Sc. (1984) Univ. Victoria
 Born: 17 September 1955
 Halifax, Nova Scotia
 Address:Department of Biology
 University of Victoria
 Victoria, B.C.
 V8W 2Y2

A move to the west coast, where Neville experienced unsurpassed opportunities for outdoor recreation, also piqued his interest in biology. He completed his High School in Courteney and then entered the University of Victoria. He remained at the University to teach biology, under contract (1984-1988), and was also involved in the Eurasian Water Milfoil control program. In 1988, Neville was appointed Senior Laboratory Instructor in the Department of Biology, responsible for instructing in a variety of courses that range from computer modelling/ statistics to survey courses in the fields of entomology, ornithology, mammalogy, and ecology. Neville's principal research interest is in aquatic entomology where he is continuing an active program of studies of the ecology of arctic Trichoptera. He served as research coordinator of the insect biocontrol project for Eurasian Water Milfoil suppression and is co-ordinating a survey of the diversity of terrestrial arthropods in the coastal old-growth forest of the Caramanah Valley of Vancouver Island. The rearing of Trichoptera to establish larval-adult associations and the cataloging of an expanding ichneumonid collection, hones his entomological expertise. Neville has served on many committees of the Entomological Society of B.C. and was the organizer of a workshop on insect cold tolerance at the XIII International Congress of Entomology in 1988.



WINSTON, Mark Leslie

B.Sc. (1971), M.Sc. (1975) Boston; Ph.D. (1978) Kansas

Born: 7 April 1950

New York, N.Y., U.S.A.

Address: Dept. Biol. Sciences
Simon Fraser University
Burnaby, B.C.
V5A 1S6

After graduating from the University of Kansas, where he had studied under the tutelage of O.R. Taylor, and had served as an N.S.F. Post Doctoral Fellow, Mark became a consultant to the Agricultural Ministries of Trinidad, Tobago, Mexico, Panama, and Guatemala. His expertise lay in the management of Africanized (killer) bees. In 1980 he joined the staff of Simon Fraser University where his research involved studies of the systematics and behaviour of social bees, the biology of native and domestic bee pollinators, bee pheromones, effects of pesticides, and bee management programs. Mark is an inspiring lecturer who has developed new courses of instruction on the biology of bees. His applied research on the behaviour of honeybees has notably increased the effectiveness of anti-swarming and bee production methods used by apiarists. He has written a book on the biology of honey bees. Mark was the recipient of the C. Gordon Hewitt Award of the Entomological Society of Canada in 1985, and a Fulbright Award in 1986-1987.

Zuk, Peter

B.Sc. (1948); M.Sc. (1950) U.B.C.

Born: date unknown

Prudhomme, Saskatchewan

Retired: yes

Address: 2924 West 32nd Avenue
Vancouver, B.C.
V6L 2B7

After his elementary education in Prudhomme, and his High School in Trail, Peter spent three years in the Canadian Army (1942-1945) during World War II. At the University of British Columbia (1945-1948) he was exposed to the spicingly enthusiastic lectures of G.J. Spencer in entomology. This science became the major topic of study enabling him to gain employment with the Plant Protection Division of Canada Agriculture in 1948. The work involved inspection of imported plant material to prevent the entry of foreign insect pests into Canada. He transferred to a position with the Stored Products Insect Laboratory, Vancouver, to assist Jim Folwell in the detection, suppression, and control of pest insects present in ship's holds, warehouses, and terminal grain elevators. When Folwell returned to Ottawa in 1952, Peter took charge of the Laboratory until it became part of the Research Station in 1959. He continued the inspection-control work until he retired.