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**ENTOMOLOGICAL SOCIETY OF CANADA**

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# *Bulletin*

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**VOLUME 4**

**NUMBER 1**



## ENTOMOLOGICAL SOCIETY OF CANADA

President:	P. S. Corbet, Dept. of Biology, University of Waterloo, Ontario
President-Elect:	D. K. McE. Kevan, Dept. of Entomology, Macdonald College, P.Q.
Past-President:	W. F. Baldwin, Atomic Energy of Canada Ltd., Chalk River, Ontario
Secretary:	D. M. Davies, Dept. of Biology, McMaster University, Hamilton, Ont.
Treasurer:	E. C. Becker, K. W. Neatby Bldg., Carling Ave., Ottawa K1A 0C6
Editor:	D. P. Pielou, Dept. of Biology, Dalhousie University, Halifax

### NEW APPOINTMENTS

Chairman of the Science Policy Committee: W. F. Baldwin has replaced  
A. S. West

#### APPOINTMENT OF SECRETARY

Professor Douglas M. Davies, Department of Biology, McMaster University, Hamilton, Ontario has accepted the appointment as Secretary of the Entomology Society of Canada, in succession to Mr. D. G. Peterson who resigned at the end of 1971.

Philip S. Corbet  
President

Contributions and correspondence should be sent to: D. C. Eidt, Editor, Bulletin of the Entomological Society of Canada, P.O. Box 4000, Fredericton, New Brunswick. Inquiries about subscriptions and back issues should be referred to the Treasurer, Entomological Society of Canada.

The deadline for the next issue Vol 4, No. 2 for June 1972 is 15 May.

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K. W. Neatby Building, Ottawa

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W. R. Thompson, Honorary Member since 1958 and Editor of the Canadian Entomologist from 1947 to 1957, died at Ottawa 30 January 1972.

R. D. Bird, Honorary Member since 1970, died suddenly at Ganges, B.C., 1 March 1972.

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## LETTERS TO THE EDITOR

### WANTS CORRESPONDENCE

Sir:

Would you be willing to print this letter in your newsletter for members? I should like to get in touch with entomologists and amateurs who are interested in insects from New Guinea, North Australia and adjoining Asia. I should also appreciate it if you could forward me a sample copy of your scientific journal.

Trusting to hear from you I am very truly yours,

Karl Ströder  
c/o Post Office  
Mount Hagen, Western Highlands  
Papua, New Guinea

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### ADVISORY COMMITTEE ON ENTOMOLOGICAL RESEARCH

Sir:

Following the organization of the Defence Research Board (DRB) in 1947, it was decided that there were disciplines in which specialists' advice, particularly to assist with DRB's extramural research programme, would be beneficial. Among other groups was formed the Entomological Research Panel, later known as the Advisory Committee on Entomological Research (ACER), which held its first meeting on 27 February 1948. The Chairman was Dr. W. E. van Steenburgh, the Secretary was Mr. A. C. Jones and the membership included Dr. R. Glen, Dr. C. R. Twinn and a number of others who were to make significant contributions to military entomology in Canada. Subsequent Chairmen included Dr. Glen, Dr. B. N. Smallman and Dr. G. P. Holland. As a result of the great variety of subjects discussed (these ranged from fundamental biting-fly biology to the requirements for protective clothing and insect repellents) and because many of the members and associates conducted practical studies and tests on behalf of DRB, the ACER gradually became in effect a national forum for the discussion of biting-fly problems in Canada. One of the Committee's best-known achievements, both nationally and internationally, was the production of three editions of the "Armed Forces Manual on Pest Control", edited by Dr. B. Hocking and Dr. Twinn.

Recently, under the Chairmanship of Dr. P. S. Orbet, the ACER held its fiftieth meeting. The contributions which the ACER, its Sub-Committee on Pesticides under Dr. J. J. Fettes, and its many associates have made towards solving the entomological problems of the Canadian Armed Forces are immeasurable.

I. S. Lindsay  
Secretary  
Advisory Committee on Entomological  
Research

# LETTER TO THE EDITOR

## SCOPE

Sir:

SCOPE (Scientific Committee on Problems of the Environment) was established in 1970 by the International Council of Scientific Unions (ICSU) to (a) advance knowledge of man's inter-relationships with his environment with particular attention to those influences and effects which are either global or shared in common by several nations; (b) to serve as a non-governmental, interdisciplinary and international council of scientists to provide advice on environmental problems for the benefit of governments and intergovernmental agencies.

SCOPE's present programme includes:

- 1) A commission on monitoring charged with preparation of a design for a coherent Global Environmental Monitoring system;
- 2) A commission on an International Registry of Chemical compounds to provide a wide range of information to encourage and facilitate research in environmental toxicology and to function as an early-warning system on environmental hazards;
- 3) A committee on Chemical Analytical Methodology for materials put out by man which may significantly alter the biosphere;
- 4) A working group on Modified Ecosystems to assess present scientific knowledge and public policy affecting tropical ecosystems;
- 5) A working group on Institutional Arrangements to consider organizational frameworks for the period following the United Nations Conference on the Human Environment, Stockholm, June 1972.

SCOPE has been asked for non-governmental scientific advice by the Secretariat of the Stockholm Conference and it is likely that the provision of scientific counsel and advice to intergovernmental and governmental agencies will continue in the post-Stockholm period. SCOPE's primarily non-operational role will include the identification of research needs, the design and promotion of research programmes, and carrying out special studies (including studies in depth). SCOPE's international framework lends itself readily to the adaptations required for this assignment whereby the world's scientific community will be able to bring knowledge, science and technology to bear in a concerted attack on priority problems of the environment.

There is a Canadian National Committee for SCOPE (CNC/SCOPE) with members from industry, universities and government. As Secretary of CNC/SCOPE, I have been directed to inform all organizations and associations in Canada composed of scientists, engineers, and certain other professionals interested in problems of the environment, about the liaison role of SCOPE and CNC SCOPE. We might like to ask your members certain questions from time to time in fulfilling this role, but we are not soliciting views on environmental matters in general.

I. Hoffman, Secretary,  
CNC/SCOPE

## W. A. REEKS RETIRES



*Dr. M. L. Prebble presented Dr. Reeks with an automatic slide projector on the occasion of his retirement. Mrs. Reeks was given a bouquet of red roses.*

Wilfred A. Reeks retired 5 November 1971 after 39 years of continuous service with the Canadian Forestry Service, Department of the Environment and antecedent units including the Entomology and Pathology Branch, Department of Forestry and the Forest Biology and Entomology Divisions, department of Agriculture.

He was born at Round Hill, Annapolis County, N.S. in 1906, where he attended public and high schools. After leaving school, Ed tried his hand at teaching and in business but apparently not finding his "niche", he entered Macdonald College in 1927. He obtained the B.Sc. in 1931 and the M.Sc. from McGill in 1932. In 1937 he married Marie Parks of Plainfield, Ontario. They have two children and five grandchildren.

During his student days, Ed worked with the Canada Department of Agriculture first at the Plant Inspection Office, Saint John, N.B. (1929), next on the biology and control of field crop and garden insects at Fredericton, N.B. (1930) and in 1931 began his career in forest entomology, carrying out biological studies on the European spruce sawfly in the Gaspé.

After leaving university, Ed continued working on the sawfly, a major threat to the spruce forests in eastern Canada. From 1934 to 1935, he worked in cooperation with the Dominion Parasite Laboratory, Belleville - spending his winters at Belleville rearing parasites for liberation against the sawfly, his summers at Park Reserve, Que. studying their establishment. From 1937 to 1944, he conducted field investigations out of the Fredericton Entomological Laboratory on the biological control of major forest insects in the Maritime Provinces, including the satin moth, larch sawfly, balsam woolly aphid and beech scale. In 1944, he became Head of the Forest Insect Survey in the Maritime Provinces and Newfoundland, a position he held until 1955. Ed was then appointed Office-in-Charge of the Forest Biology Laboratory, Winnipeg and in

1960 to a similar position at the Forest Insect Laboratory, Sault Ste. Marie. From 1965 until his retirement, he was Program Coordinator (Entomology) on the headquarters' staff in Ottawa. In this capacity, Ed served on many national committees and also committees of international organizations such as the International Union of Forest Research Organizations and the North American Forestry Commission of FAO.

Ed was the author or co-author of about 80 scientific or technical publications, many of them dealing with biological control, a field in which he is a recognized authority. It is of interest to note that his first and last papers dealt with biological control, reflecting his career-long interest in this field of study.

Everyone who has been associated with Ed either as a colleague or friend has fully recognized his fine personal qualities and his kind and generous nature. We are sure all will join us in wishing Ed and Marie a happy retirement at their home in Ottawa at 2080 Strathmore Blvd.

R. M. Prentice

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## ENTOMOLOGICAL SOCIETY OF CANADA GOLD MEDAL awarded to Doctor Reginald W. Salt

The Entomological Society of Canada Gold Medal for Outstanding Achievement in Canadian Entomology has been awarded to Reginald W. Salt of Lethbridge, Alberta. The formal presentation will be made in November when the Society holds its Annual Meeting at Montreal.

Dr. Salt retired in 1971 from the Canada Agriculture Research Station at Lethbridge where he has pursued his research since 1930. He won international recognition for his research on diapause in the wheat stem sawfly and went on to win world recognition again for his pioneering work in cold-hardiness. The principles he has established have basic implications not only for animal and plant cold-hardiness but also in physics and meteorology.

Dr. Salt is the eleventh recipient of the Society's Gold Medal which may be awarded annually to a scientist who is considered to have made an outstanding contribution to the science of entomology in Canada.

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### 1972 SPENCER MEMORIAL LECTURE

Each year a prominent biologist is invited to deliver a lecture in memory of the late Professor George J. Spencer. This year Professor M. Loche, Department of Zoology, University of Western Ontario, will lecture on "Insect Cells and the Study of Basic Problems in Cell Biology". You are invited to attend at 8 p.m., 29 March 1972, in Room 2000, Biological Sciences Building, University of British Columbia, Vancouver.

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**WANTED TO BUY OR EXCHANGE:** Complete set of Annual Review of Entomology; "The Physiology of the Insecta", Rockstein (ed.); and "Insect Physiology", Roeder. Philip S. Corbet, Department of Biology, University of Waterloo, Waterloo, Ontario.



## THE POPULATION PROBLEM: A VITAL CANADIAN POLICY ISSUE

*This article, which recently appeared as a letter in Science Forum 5(1), is reproduced here with the permission of the Editor. It constitutes further action on the resolution of the Entomological Society of Canada on Population Limitation and Resource Use (Bulletin 2:68).*

In the December 1971 issue of Science Forum mention was made of a letter that had been sent to the Prime Minister by a number of biological scientists. It expressed concern about the need for a national policy to limit the size of Canada's population and its pattern of resource-use to the long term availability of resources to this population. The letter endorsed the recent statement of this problem made by Dr. Omond Solandt, Chairman of the Science Council of Canada.

The letter to the Prime Minister ran as follows:

In this year's annual report of the Science Council of Canada the first and larger part of the Chairman's Report<sup>(1)</sup> is devoted to a subject that we, as professional ecologists, regard as being the most urgent problem of our day.

Some of us have already expressed our views on this subject both to you<sup>(2)</sup> and to the Biological Council of Canada<sup>(3)</sup>. The purpose of this letter is to make explicit our deep concern for the issues that the Chairman of the Science Council has identified in his report, and also to tell you that we unreservedly support both his analysis of the problems and the action he proposes as a step towards their possible solution.

The task of limiting the size of Canada's human population and its pattern of resource-use to a level at which a reasonable standard of living can be preserved for future generations is in our view the most urgent and awesome challenge of our time.

The undoubted fact of its political sensitivity does nothing to diminish its reality or urgency; nor are Canadians one or two generations hence likely to view tolerantly our reluctance to deal resolutely with a problem that becomes more intractable with every day that it is left unrecognized.

Though several of us have, on various occasions, prepared statements calling for action in this area, our agreement with Dr. Solandt's recent statement is so close that we consider that our objective will be better served if we simply endorse what he has said. This we do enthusiastically and unreservedly, and in addition we confirm our willingness to provide assistance or support towards the early development of a national policy on population limitation and resource-use in Canada.

Documents cited in the letter were: (1) Solandt, O.M. 1971. Annual Report of the Chairman. Population and Policies for the Future. Science Council of Canada. Annual Report 1970-71, Information Canada, Ottawa. (2) Entomological Society of Canada: Need for a National Policy that will Relate Human Demands on the Environment to the Resources that will be Needed by Future Generations of Canadians. Brief submitted to the Prime

Minister, 19 September 1970. (3) Biological Council of Canada: Letter from the President to the Hon. Jack Davis, Minister, Department of Fisheries and Forestry, 8 February 1971.

Before submitting the letter to the Prime Minister, we sent the above text to 25 biological scientists whom we thought might wish to associate themselves with Dr. Solandt's statement. Of the 24 who could be contacted in time, all but one signed the letter. These signatories play leading and diverse roles in Canadian science. They include among their number senior members of many national and international advisory groups concerned with the management of natural resources as well as former or current presidents of eleven national organizations, including SCITEC and the Biological Council of Canada.

Names of the signatories and their present occupations are as follows:

**T. H. Anstey**, Ph.D., Assistant Director-General (Western), Research Branch, Canada Department of Agriculture; **J. B. Armstrong**, M.D., F.R.C.P.(C.), F.A.C.C., Executive Director (Medical), Canadian Heart Foundation; **Louis Berlinguet**, D.Sc., F.C.I.C., F.A.S.C., Vice-President (Research), University of Quebec; **P. M. Bird**, Ph.D., Senior Assistant Deputy Minister (Health), Department of National Health and Welfare; **J. J. Cartier**, Ph.D., Research Coordinator (Entomology), Research Branch, Canada Department of Agriculture; **D. A. Chant**, Ph.D., Professor and Chairman, Department of Zoology, University of Toronto; **Phillip S. Corbet**, Ph.D., D.Sc., F.I. Biol., Professor and Chairman, Department of Biology, University of Waterloo; **André DesMarais**, L.Sc., Ph.D., F.R.S.C., Assistant Secretary (National Scientific Activities), Ministry of State for Science and Technology; **Virginia I. Douglas**, Ph.D., Fellow: Canadian Psychological Association, Professor, Department of Psychology, McGill University; **B. Hocking**, Ph.D., A.R.C.S., F.R.S.C., Professor and Chairman, Department of Entomology, University of Alberta, Edmonton; **Crawford S. Holling**, Ph.D., F.R.S.C., Professor and Director, Institute of Animal Resource Ecology, University of British Columbia; **E. J. LeRoux**, Ph.D., Assistant Director-General (Institutes), Research Branch, Canada Department of Agriculture; **A. H. Macpherson**, Ph.D., Fellow: Arctic Institute of North America, Western Regional Director, Canadian Wildlife Service, Environment Canada; **W. G. McKay**, B.Sc., Chairman of the Board, Underwood McLellan and Associates, Ltd., Winnipeg; **I. McTaggart Cowan**, Ph.D., LL.D., F.R.S.C., Dean of Graduate Studies and Professor of Zoology, University of British Columbia; **B. B. Migicovsky**, Ph.D., D.Sc., F.C.I.C., F.A.I.C., Director-General, Research Branch, Canada Department of Agriculture; **Eugene G. Munroe**, Ph.D., F.R.S.C., Research Scientist, Entomology Research Institute, Canada Department of Agriculture; **D. G. Peterson**, M.Sc., Research Coordinator (Crop Protection), Research Branch, Canada Department of Agriculture; **Michael Shaw**, Ph.D., F.R.S.C., Dean of Agricultural Sciences, University of British Columbia; **David Spurgeon**, LL.D., Editor, *Science Forum*, Science Writer, The Globe and Mail; **Roy L. Taylor**, Ph.D., Director of the Botanical Garden, Professor of Botany and Professor of Plant Science, University of British Columbia; **W. J. Turnock**, Ph.D., Science Advisor, Ministry of State for Science and Technology; **K. E. F. Watt**, Ph.D., LL.D., Professor, Department of Zoology, University of California, Davis; **Harold E. Welch**, Ph.D., Professor and Head, Department of Zoology, University of Manitoba, Winnipeg; **W. G. Wellington**, Ph.D., Professor of Plant Science and Resource Ecology, Department of Plant Science and Institute of Animal Resource Ecology, University of British Columbia.

Present trends in Canada of population growth, environmental destruction, energy consumption, and resource depletion leave little doubt that, unless existing attitudes towards economic and industrial growth are changed rapidly, Canadians will experience a serious reduction in the quality of life during the next two or three decades.

In Canada the Federal Government has, on several occasions, been made aware of the nature and dimensions of this problem by concerned individuals and organizations. Ministers have been told, for example, that the principal causes of environmental stress (i.e. pollution) are the numbers of people, their standard of living, and their pattern of resource-use. It is clearly imperative that this casual relationship be recognized and reflected in official

policy if pollution is to be contained in the years ahead. Yet official government statements on this question (e.g. Jack Davis, News Release, "Shaping Our Environment in the 70's", October 15, 1970, Speech on Bill C-207, January 27, 1971; and Canada's so-called "Provisional national report for the United Nations Conference on the Human Environment, Stockholm, 1972") continue to focus only, or mainly, on the short-term alleviation of the symptoms of pollution — meanwhile studiously avoiding mention of its causes, or else dismissing their alleged relevance with ambiguous or disparaging asides. One does not contain a smallpox outbreak by applying band-aids to the pustules; one tries instead to remove the causes of the infection and thereby prevent the symptoms spreading. The analogy with environmental problems is a valid one; so long as we in Canada permit or encourage growth in population, human expectations, and resource-use, we shall be generating environmental problems more rapidly than we shall be "solving" them.

Ecologists have been familiar with this causal relationship for many years. Recently, with the time that remains available for corrective action becoming critically short, they have been voicing their deep concern lest this question be ignored or explained away until it is too late for man to exercise control over the way in which the problem is resolved. So far, their concern has been well founded. Despite the submission of explicit briefs and offers of professional assistance, there has been no evidence that the government is willing or able to take this problem seriously. Hence this current attempt to show, by our group support of Dr. Solandt's statement, that this concern is widespread among Canadian biologists now holding responsible positions in teaching, research, management and administration.

We are convinced of this: Although the decisions needed will demand all the talent, wisdom, courage, and statesmanship that our elected representatives possess, to postpone them further will constitute a serious abrogation of responsibility towards the needs and aspirations of the people who will be living in Canada 20 to 30 years from now, and of those in other less fortunate countries who might stand to benefit from our counsel and initiative.

Our letter to the Prime Minister was sent 5 November 1971, and acknowledged formally by his office 18 November. Since then one reply has been received — from John E. Osborne, Assistant Deputy Minister, Welfare Research, Planning and Evaluation, Department of National Health and Welfare. This letter, dated 8 December 1971, contains the following passages:

We agree with Dr. Solandt that systems analysis and planning are essential if we are to develop policies that are suited to "the drastic changes that the future must hold". This is the more important as there is, at present, no consensus in respect of, for example, the population problem in Canada, which, as Dr. Solandt points out, is defined radically differently by different Canadians. While he and you and many other scientists see the problem as one of overpopulation, others, including leading scientists, consider it a problem of underpopulation.

We believe that the recently established Canadian Policy Research Institute could address this and other important questions as its envisaged functions appear quite similar to those of the proposed "Futures Canada" Institute.

In any case the development of a population policy in Canada is something to which this department can and will actively lend support.

Our reply to Mr. Osborne, dated 21 December 1971, was as follows:

We find it encouraging that your Department agrees with the high value that Dr. Solandt places on systems analysis and planning in the context of his statement, and particularly we are heartened that your Department can and will lend active support to a population policy in Canada.

Regarding the different viewpoints that are held concerning the nature of the population problem, our collective experience (which involves encounter with many scientists in Canada and elsewhere) leads us to conclude that, among those whose special knowledge lies in the fields that are closely relevant to this question, there is indeed a consensus that Canada's problem is one of over- rather than underpopulation. Furthermore we have remarked that many of the persons who contend that Canada is underpopulated are individuals who, by their occupation, are already committed to the extraction or utilization of a non-renewable resource, or to the continued growth of industry and energy consumption, and moreover are accustomed to focus on short-term, rather than long-term consequences of human actions. This being so, we regard it as significant and compelling that such uniformity of interpretation and concern is found among scientists who, by virtue of their special knowledge, are best equipped to comment on problems related to population dynamics and the carrying capacity of the human environment.

Our object in stating this view is not to start an exchange by correspondence, but rather to affirm our strong conviction that there is no serious difference of opinion on this issue among the scientists who are qualified to express an opinion. Be this as it may, if there is indeed a lack of consensus on a matter with implications so vital for future Canadians, the arguments for and against should be subjected to ruthless analysis, in public, without delay. The consequences of postponing resolute action or of acting on the wrong assumptions are surely too dangerous for such uncertainty to be allowed to persist.

We consider that by submitting the joint letter of 5 November 1971, and by publishing this letter, we have left the appropriate Ministries in no doubt about the strength of biologists' concern regarding the urgent need for a population policy in Canada. It is consistent with our intention to express these views openly that our submission, and the responses it receives, will be published in *Science Forum*. Meanwhile we again state our willingness to assist the Government in every way possible towards the development of a population policy for Canada.

It is with reference to this last intention that we ask that you send us details concerning the Canadian Policy Research Institute, an establishment with which we are unfamiliar. In particular, we should like to have the name and address of the Director.

PHILIP S. CORBET, President  
E. J. LEROUX, Past-President  
Entomological Society of Canada

## BOOK REVIEW

*Ecology and physiology of parasites*, A symposium, A. M. Fallis, editor. University of Toronto Press. 1971. LC 70-151365. x + 258 pp. + many Figs. Cloth bound. \$15.00 Can. (\$9.50 if bought when first announced.)

This book contains 12 articles on various parasites from protozoans to insects, with 13 authors contributing. The discussion following each article was written by a preselected respondent who had access to the article before it was presented at the symposium, and who was able to pick out the main points of the article, make a few comments and additions, and start the question period with (often) very penetrating questions. Of the discussion, only that first presented by the respondent is published.

The purpose of the symposium was to "assemble a group of experts to discuss their diverse researches", and "to emphasize the diversity of parasitism from protozoa to arthropods . . ."

Hammond starts the book with development and ecology of coccidia and related intracellular parasites, and uses information obtained by use of electron microscope and *in vitro* cultivation. He emphasizes the stages beginning with oocytes or sporozoites and ending with the first generation merozoite, and exits with some speculations on host-parasite relationships. The respondent is Marquardt. The second article, by Lawson and Shaw, is about epidemiological considerations of leishmaniasis with particular reference to the New World. They discuss briefly Old World "kala-azar", or visceral leishmaniasis, and "oriental sore", or cutaneous leishmaniasis, then deal with the New World leishmaniasis. The respondent Stauber added a number of interesting facts. The third article, by Vickerman, is on morphological and physiological considerations of extracellular blood protozoa, with emphasis on *Trypanosoma brucei*. Wallace, the respondent, adds a number of pertinent facts, and poses some interesting questions.

The fourth article, by Vavra, covers physiological, morphological, and ecological considerations of some microsporidia and gregarines. The respondent is Laird. The fifth article, by Lee, mentions helminths as vectors of microorganisms, with Wright as respondent. The sixth, by Ulmer, covers site finding behaviour in helminths in intermediate and definitive hosts. Ulmer gives a large and very useful list of references. Freeman is the respondent. The seventh, by Kearn, mentions the physiology and behaviour of the monogenean skin parasite *Entobdella soleae* in relation to its host, *Solea solea*. The respondent, Margolis, presents two penetrating questions to Kearn.

The eighth article, by Read, mentions the microcosm of intestinal helminths. The length of discussion, opened by respondent Mettrick, is almost the same as that of the article by Read. Mettrick suggests that the quantity and molar ratios of amino acids in the small intestine are not so remarkably stable as has previously been thought, and gives tables in support of his contention. The ninth, by Wallace, mentions the movement of nematodes in the external environment. He develops several formulae for effective movement of nematodes in different media (e.g., soils, water films). He discusses primarily plant-parasitic and free-living nematodes. Levine, as respondent, discusses animal-parasitic nematodes and comments that there are a number of major differences between animal-parasitic and other nematodes. In the tenth article, Duke discusses the ecology of onchocerciasis in man and animals. Anderson is the respondent.

The eleventh article, by Reeves, mentions mosquito vector and vertebrate host interaction: the key to maintenance of certain arboviruses. DeFoliart is the respondent.

The twelfth and final article, by Downes, concerns the ecology of blood-sucking Diptera: an evolutionary perspective. He discusses the findings of other workers, comments on these works, then adds his own findings, many of which are new. Hocking is the respondent.

I am happy to see a book on ecology without the usual statistical parameters so frequently seen these days. There are few numbers and many facts and speculations. It is pleasing to see so many speculations — points upon which others may ponder and eventually do something about. In several cases, I found the discussion more thought-provoking than the article itself.

The article by Duke mentions the *Simulium* — *Onchocerca* cycle in West Africa (p. 216-217), and after reading it, I am made aware of the 3-dimensional approach that is needed to tackle some parasite problems. Anderson (p. 222) hints at perfect vs. imperfect host-parasite relationships — a subject which could be the theme of another symposium. The brief summaries or conclusions presented in several cases (e.g., Vavra, Wallace, Downs) are much appreciated, but I would like to have seen overall conclusions or a summary drawn from all the material presented.

The quality of the printing and the many photographs is excellent, though many of the outline drawings and graphs could have been much reduced with no loss of information. There are few typographical errors (I found three - 2 on p. 211, and one on p. 218). The binding is good, and if you decide to take off the attractive dust cover, the outside spine has large, clear printing that is readable from some distance.

Robin Leech

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## BOOK REVIEW

**As we live and breathe: the challenge of our environment.** The National Geographic Society, 1971. 235 pp. Price \$4.25.

The National Geographic Society is well known for the excellence of its publications. One of the most recent additions to the list, this first-class publication should be in the hands of all biologists, whether they are actively involved in or indifferent to environmental matters. In ten chapters, the publishers have managed to cover in a very concise way the major problems of the day: food production, population growth, waste disposal, the energy crisis, transportation and urbanization, and various forms of pollution particularly associated with western "civilization". Leading environmentalists like R. F. Dasmann and P. B. Sears have contributed articles to this more-than-needed reminder of our deteriorating environment.

Although a good proportion of the text is devoted to environmental problems presently existing in the United States, enough information is given to make every one of us aware that this is basically a world-wide problem. As pointed out in the last chapter of the book, the key to tomorrow is primarily with concerned people. And it is really hard not to be concerned after having read through the pages of what is probably one of the most significant contributions of the National Geographic Society.

Bernard J. R. Philogène

## INTERNATIONAL ODONATOLOGICAL SOCIETY

Dragonfly workers attending the First European Symposium on Odonatology, (held at Ghent, Belgium) on 22-23 October 1971, decided to found an international society, SOCIETAS INTERNATIONALIS ODONATOLOGICA (S.I.O.), and an international journal, *Odonatologica*. The first issue of the journal is scheduled to appear in March 1972.

*Odonatologica* will publish original research papers on all fields of odonatology and from any part of the world. It will feature review articles, short communications, preliminary research notes, news and a bibliography of current odonatological publications with abstracts in English. The journal will appear quarterly, and a four-part volume will comprise about 130 pages. There is an international Editorial Board; and an International Referee Board is being formed. *Odonatologica* will be complementary to the Japanese journal *Tombo*, which was founded in 1958 by the Society of Odonatology, Tokyo. Instructions for contributors have already been prepared and potential contributors are encouraged to obtain them from the Editors.

Manuscripts and enquiries concerning the journal should be addressed to the Editors and applications for Society membership to the Treasurer:

Societas Internationalis Odonatologica,  
Institute of Genetics,  
University of Utrecht,  
Opaalweg 20, Utrecht, The Netherlands.

There are four subscription rates (per volume of four issues): (1) Ordinary (S.I.O. membership including journal) Hfl. 20.00; (2) Libraries and institutes Hfl. 40.00; (3) Members of Society of Odonatology, Tokyo Hfl. 10.00 (journal only) or Hfl. 12.50 (S.I.O. membership including journal); and (4) Collective (societies and student organizations) Hfl. 10.00 per person (minimum 10 persons). Subscriptions should be paid to the Postal Account 2900 of Amro Bank, Utrecht, The Netherlands: "in favour of Account No. 4561.43.467 of Dr. J. M. van Brink - *Odonatologica*."

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## THE CLASSIFICATION SOCIETY BIBLIOGRAPHY PROJECT

The Classification Society began a Bibliography Project in 1969, in response to a need for an awareness of common classification problems and approaches among anthropologists, economists, geographers, geologists, librarians, biologists, linguists, mathematicians, medical researchers, psychologists, sociologists, statisticians, urban planners, etc. The Project will aid members in keeping up with current literature and, more important, help to introduce viewpoints and methodologies originating outside their disciplines.

A basic list of references dealing with theory and methods of classification has been submitted to the Institute for Scientific Information, which also published Current Contents and the Science Citation Index. The Institute provides punched cards for references on our list of articles published each week. At six-month intervals the cards will be computer-sorted, and a list of references will be mimeographed and distributed to the members.

The cost of the service, currently on a 1-year trial basis for North American branch members only, is being borne through a \$3 surcharge on the basic \$3 membership fee. Potential applicants may obtain forms from the Treasurer, L. Orloci, Department of Plant Sciences, University of Western Ontario, London 72, Ontario.

# Entomological Society of America



# Entomological Society of Canada



# Entomological Society of Quebec



will hold for the first time a joint meeting  
in MONTREAL, Quebec  
28 to 30 NOVEMBER 1972  
at the HOTEL THE QUEEN ELIZABETH

## Symposia

Several Symposia, Informal Conferences and Invitation papers will be presented on various entomological subjects.

## Submitted Papers

A formal call for papers will go out soon.

## Social Events

Social events will include Mixer, Banquet, post-conference hours, and activities for ladies.

Visit Montreal, the Paris of North America.

Further details on the program will be sent to members of the three Societies.

## The General Program Committee:

Roger A. Morse  
Department of Entomology  
Cornell University  
Ithaca, N.Y. 14850

S. B. Vinson  
Department of Entomology  
Texas A & M University  
College Station, Texas 77843

J. L. Auclair  
Département des Sciences biologiques  
Université de Montréal, Montréal, Canada



## ACTIONS OF THE GOVERNING BOARD

### 23-24 February 1972

- |                         |   |
|-------------------------|---|
| Appointments            | 1. Appointed D. M. Davies Secretary of the Society. Noted the President's appointment of representatives A. Hamilton on the Canadian Committee on Water Pollution and A. E. R. Downe on the Canadian Council on Animal Care.  |
| Plaque                  | 2. Decided to present a miniature of the Society plaque to all Past-Presidents, Secretaries, Treasurers and Editors since 1950 (founding year of E. S. C.), and to continue this practice as the officers retire.   |
| Annual Meeting          | 3. Recommended guidelines for possible publication of future symposia at annual meetings.<br>4. Increased to \$1500 the level of support for the annual meeting with special assistance available for overseas speakers if requested in advance.<br>5. Noted that plans for joint ESA-ESC-ESQ meeting in Montreal were well in hand. Suggested a retired members' function similar to one held at Victoria in 1971. |
| Secretarial Assistance  | 6. Recognized the principle that the Society must provide secretarial assistance if necessary to members of the Managing Council.   |
| Achievement Award       | 7. Announced that Reginald W. Salt was named recipient.   |
| Finance Committee       | 8. Requested that the committee estimate, in terms of total budget, monies the Society can use for support of other projects (SCITEC, BCC, symposia, etc.).   |
| 14th Int. Ent. Congress | 9. Noted that the ESA had asked the President to recommend of up to 5 medically-oriented, Canadian entomologists to receive support to attend Congress.<br>10. Resolved that the Society contribute air-fare for the President to attend the Congress as the Society's representative.  |
| Election                | 11. Decided that provision will be made on the ballot for members to rank their choice for President-Elect.   |
| Fellowships             | 12. Proposed that the next ballot poll members' opinion on the adoption of fellowships and to include with the ballot a proposal for implementation.  |
| Memoirs                 | 13. Instructed the treasurer to poll members and student members to determine if they want all Memoirs or separate numbers on request.  |
| Board Meeting           | 14. Recommended a three-day mid-winter meeting for heavy agenda such as this one.   |

## EMPLOYMENT

Please direct all inquiries and correspondence to:

S. R. Loschiavo, Chairman,  
Employment Committee,  
Entomological Society of Canada,  
c/o Research Station,  
25 Dafoe Rd.,  
Winnipeg 19, Manitoba.

DO NOT direct inquiries to the Bulletin.

### POSITIONS AVAILABLE

Post-doctoral fellow, preferably a French-speaking Canadian or one desiring to work in a French-speaking locale. The work is with artificial diets to determine the effects of certain elements on duration of life cycle, size, weight, survival, fecundity, etc. of insects that feed on conifers. National Research Council standards. One or possibly two years. For details, contact Dr. L. C. O'Neil, Département de Biologie, Université de Sherbrooke, Sherbrooke, Québec.

Biologist with broad entomological training is required for university teaching and research. An interest in field methods of studying natural control processes is essential. A fresh approach to biological control problems (via a genetic route, for example) would be preferable to the more usual, stereotyped approach. Teaching responsibilities will include an undergraduate course in economic entomology, primarily for students in Agriculture, and a more advanced course, possibly on various aspects of biological control. The appointment will carry the rank of Assistant Professor, Salary Range \$9,000 - \$12,000, and should commence July 1, 1972. An application, with curriculum vitae and three letters of reference, should be sent to: The Director, Institute of Animal Resource Ecology, The University of British Columbia, Vancouver 8, B.C., before 30 April 1972.

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## PERSONALIA

### POST GRADUATE DEGREES

Paul J. Albert, Ph.D., University of New Brunswick, 1972. Thesis: Head and neck musculature and aspects of the olfactory system of the spruce budworm, *Choristoneura fumiferana*. Supervisor: Professor W. D. Seabrook.

Dr. Albert took up a post-doctoral fellowship in the Department of Biology, University of Saskatchewan, Regina, in February.

Beverly K. Mitchell, Ph.D., University of New Brunswick, 1972. Thesis: Aspects of the neuromusculature, morphology and sensory mechanisms of the spruce budworm *Choristoneura fumiferana*. Supervisor: Professor W. D. Seabrook.

Dr. Mitchell took up a post-doctoral position in February in the Department of Entomology, Agriculture University, Wageningen, The Netherlands.

## PERSONALIA

A. J. McGinnis has been appointed Director of the C.D.A. Research Station at Vineland, Ontario. A native of Alberta, Bud has a B.Sc. from the University of Alberta, an M.S. from Montana State, and a Ph.D. in biochemistry from Oregon State. He joined the Canada Department of Agriculture in 1947, carried out research on insect nutrition at Lethbridge, and in 1966 became Head of the Cereal Crop Protection Section at Winnipeg.

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Our apologies to Peter Kevan whose name was misspelled in the previous issue of the Bulletin. He spells his name exactly as does our President-Elect, and for good filial reasons.

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Robin Leech has been appointed a postdoctorate fellow for a second year at the Entomology Research Institute, Ottawa, where he will continue taxonomic study of North America ant-mimicking spiders.

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E. J. LeRoux, Assistant Director-General (Institutes), Research Branch, C.D.A., presented the 1971 Grace H. Griswold Lecture in Entomology at Cornell University, Ithaca, N.Y., 6 December 1971. His lecture was entitled "Insect Population Explosions: Models for Man." Afterwards, Dr. LeRoux met and discussed this key problem with staff and students of the university. It is expected that the text will be published in *The Canadian Entomologist* at some future date.

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Dr. Erich Städler of the Federal Research Station, Wädenswil, Switzerland has taken up a Canada Council Post Doctoral Fellowship at the Department of Biology, University of New Brunswick. He is working jointly with Professors W. D. Seabrook and Uno Paim on the behaviour and sensory physiology of the spruce budworm with respect to oviposition stimuli.

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F. W. Bellamy, graduate student, University of Saskatchewan, Regina Campus, and Vice-Principal, Weyburn, Sask., High School, was the 1971 recipient of the Arthur R. Brooks Memorial Prize in entomology.

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## POST GRADUATE DEGREES

David D. Shaw, Ph.D., University of Southampton, 1971. Dissertation: Factors affecting chiasma phenotype in acridid grasshoppers. Supervisor: Professor B. John.

Dr. Shaw is with the Canadian Forestry Service, Fredericton, where he is studying the genetics of endemic and epidemic populations of the spruce budworm, and the genetics of insecticide tolerance.

Bryan D. Frazer, Ph.D., University of California. Dissertation: Biological control and population dynamics of the walnut aphid, *Chromaphis juglandicola* (Kalt.). Dr. Frazer has returned to the entomology section at the C.D.A. Research Station, Vancouver, where he will study the population dynamics of vector species of aphids.

**OFFICERS**  
**ENTOMOLOGICAL SOCIETY OF SASKATCHEWAN**  
**1971-72**

**President:** D. M. Lehinkuhl

**Vice-President:** R. H. Burrage

**Address of Secretary-Treasurer:**

**Secretary-Treasurer:** P. C. Kroeger

**ESC Regional Director:** K. S. McKinlay

Canada Agriculture,  
Research Station,  
University Campus,  
Saskatoon, Saskatchewan.