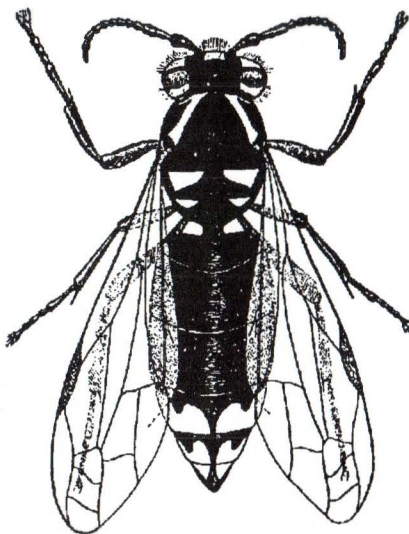

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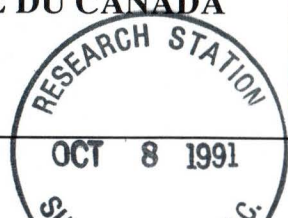
No. 3



BULLETIN



ENTOMOLOGICAL SOCIETY OF CANADA
LA SOCIÉTÉ D'ENTOMOLOGIE DU CANADA



**ENTOMOLOGICAL SOCIETY OF CANADA
LA SOCIÉTÉ D'ENTOMOLOGIE DU CANADA
BULLETIN**

VOL 23 (3) - September/septembre, 1991

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EDITORIAL

Has the *Biosystematics Research Centre* been thrown on the Compost Heap?

What did the name *Biosystematics Research Centre* mean to you? Start with the word *biosystematics*. Is it not the detection, description and categorisation (along phylogenetic lines) of diversity in the biological world? According to the *Oxford English Dictionary*, *research* means "endeavour to discover new or collate old facts etc. by scientific study of a subject". *Centre* is the place where people go to participate in a given activity, as for example, shopping centre - where folks go shopping, detention centre - where young offenders are detained, and research centre - where scientists do research. When the three words - *biosystematics*, *research*, and *centre* - are lined up one after another, I think it is clear what the people who work there are supposed to be doing!

Recently it was announced that the *Biosystematics Research Centre (BRC)* and the *Land Resource Research Centre (LRRC)* are to be amalgamated on September 3 1991 to become the *Land and Biological Resources Centre (LBRC)* of Agriculture Canada. Note that the word *research* has been expunged from the (combined) title. Apparently the scientists at the new *LBRC* will no longer be expected to do any research. Note also, that the old *LRRC* folks are still represented in the (combined) title by the descriptives *land* and *resource(s)*. But what has happened to the *BRC*'s frame of reference? Where has the word *biosystematics* gone? I, for one, find this new (combined) name to be totally unacceptable. It is un-descriptive and ambiguous. With the present emphasis on "green" alternatives, a combination of the words *land*, *biological* and *resources* conjures up images of environmentally friendly waste management. Omit *land* and we are left with *biological* and *resources*. This undoubtedly refers to the old *BRC*. In fact, rumour has it that originally the Director General's Office wanted *BRC* to be known as the *Biological Resource Division* of the new Centre! *Biological Resource* suggests a de-emphasis of systematics and of research. It smacks of data bases and information retrieval systems. With some imagination, one might even think it a euphemism for *Sperm Bank*. To be fair, let it be known that the division (within the new *Land and Biological Resources Centre*) to which the old *BRC* employees will belong is to be called the *Biosystematics Research Division*. We can be thankful that the words *biosystematics* and *research* have been salvaged; but we should not lose sight of the fact that they have suffered a demotion.

I wrote to J.M. Campbell (Acting Director) and he informed me that the changes are primarily administrative in nature: "The administrations of *BRC* and the *Land Resource Research Centre (LRRC)* will be combined. There will be no changes in the research program of either centre as a result of this change. The Director of the combined centres will be Dr. Richard Asselin, currently director of *LRRC*. Dr. Paul Marriage, current Program Director for Dr. J.-C. St-Pierre, Director General of the Research Branch, Central Experimental Farm will be the Executive Deputy Director, responsible for *BRC* research programs."

The submission deadline for the December issue is **November 1st 1991**.

Send all submissions to: Fiona F. Hunter, *Bulletin* Editor, Zoology Department, Brandon University, Brandon, Manitoba, R7A 6A9. Tel. (204) 727-9787 or (204) 727-9623; Fax. (204) 726-4573; E-MAIL Address: BUFFH @ UOFMCC.

"There will be no changes in the research program of either centre ..." This is indeed a relief! The private sector is generally not interested in funding long-term areas of research ... such as systematics ... which are "financially risky"; it is interested in funding those areas that can be commercialized! After all, would you give money to a group of grown men and women who run around with "butterfly" nets, stick pinned "bugs" into mothball-scented drawers, and delight in the minutiae of "naughty bits" [=insect genitalia *sensu* Dr. "C"]? It is important, therefore, that systematics research be given continued financial support by the Federal Government.

Given that there are to be "no changes in the research program", I wonder why Campbell mentioned the following: The "review [by the Program and Coordination Branch of Agriculture Canada] expressed concern for research and other activities funded by Agriculture Canada but which benefitted clients outside the department. To attempt to resolve the mandate of the BRC systematics programs, we plan to work with other interested departments, universities, and other major stakeholders to find ways of funding and administering research programs that meet the needs of the country, not just of one department."

The amalgamation of *BRC* with *LRRC* is not necessarily a bad thing, for it has reduced administration. But will the old *BRC* scientists be forced into collaborative research programs with other departments/divisions? The two divisions of the new *LBRC* may have separate budgets now, but I suspect that this, too, will change.

The new Director is a meteorologist, I believe. I hope that he recognizes the valuable contributions made by the systematists in the K.W. Neatby Building and that he fights on their behalf when it comes time to making funding and staffing decisions. I hear that the current budget for BRC is being used primarily for maintaining the insect collection (i.e., curation). Very few funds are available for field research and collection expansion. Of course, if we don't understand, or are ignorant of, the natural biodiversity that exists today, perhaps we won't miss it when it's gone tomorrow. At the rate things are going, we just might not have anyone capable of detecting, describing and categorising the diversity of the biological world tomorrow anyway (see Figure 1).

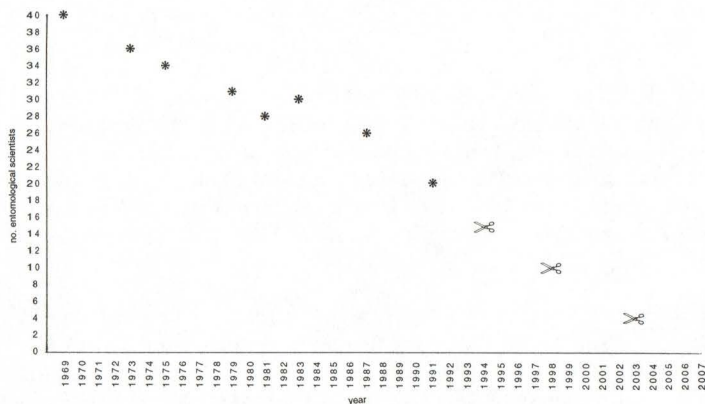


Figure 1. Entomological Scientists employed by Agriculture Canada in the last 22 years (based on staff lists in the Annual Research Branch Reports). (✂ = my predicted cuts)

Fiona F. Hunter
Editor

SOCIETY BUSINESS

Joint Annual Meeting of the Entomological Society of Canada and the Entomological Society of Saskatchewan 27 - 30 September 1992, Saskatoon, Saskatchewan - Second Notice.

Feature Symposium - "Sustainable Agriculture"

In the context of sustainable agriculture, workshops on *Brassica* Insects, Grasshoppers, Livestock Insects, and Aquatic Insects are planned. Ideas for other workshops are welcome and anyone interested in organizing a workshop should contact:

Dr. P. G. Mason, Agriculture Canada, Research Station, 107 Science Crescent, Saskatoon, Saskatchewan S7N 0X2 (Tel: (306) 975-7014, Fax: (306) 242-1839).

The 39th Annual Fall Meeting of the Entomological Society of Saskatchewan 1 - 2 November 1991, Agriculture Canada Research Station, Saskatoon

CONTACT: Dr. J. J. Soroka, Agriculture Canada, Research Station, 107 Science Crescent, Saskatoon, Saskatchewan S7N 0X2 (Tel: (306) 975-7014, Fax: (306) 242-1839).

Réunion Conjointe de la Société d'Entomologie du Canada et de la Société d'Entomologie du Saskatchewan le 27-30 septembre 1992, Saskatoon, Saskatchewan - La Deuxième Communication.

Le Grand Colloque - "L'Agriculture Soutenue"

Dans le contexte d'agriculture soutenue les ateliers sur les Insectes de *Brassica*, les Sauterelles, les Insectes du Bétail, et les Insectes Aquatiques sont planifiés. Les idées pour d'autres ateliers sont le bienvenues et les personnes qui désirent organiser un atelier devraient contacter:

Dr. P. G. Mason, Station de recherche, Agriculture Canada, 107 Science Place, Saskatoon, Saskatchewan S7N 0X2 (Tél: (306) 975-7014, Fax: (306) 242-1839).

La 39 Réunion de la Société d'Entomologie du Saskatchewan le 1 - 2 novembre 1991, Station de recherche, Agriculture Canada, Saskatoon

CONTACT: Dr. J. J. Soroka, Station de recherche, Agriculture Canada, 107 Science Place, Saskatoon, Saskatchewan S7N 0X2 (Tél: (306) 975-7014, Fax: (306) 242-1839).

President's Update

Usually, we do not reveal the numbers of students applying for awards, but this year I am making an exception. We have 17 applicants for the Graduate scholarships (a record, at least for the years I have been associated with the Scholarship Committee). I divulge this number because I think that it is a good indicator of the health of our discipline. We obviously are attracting a large number of excellent students into our graduate programs, and this bodes well for the field of entomology in the future provided that we, in the profession, ensure that there will be positions available for these bright young minds in the coming years.

A short update on the book "*Diseases and Insect Pests of Vegetables*" is in order. The book is essentially completed and by the time you read this, a printer for the publication will have been chosen. Production of the book and associated slide sets will begin on 1 January, 1992. The actual target dates for release of the publication are 1 April, 1992 and 1 July, 1992 for the English and French versions, respectively. The Joint Publication Committee headed by Drs. Ron Howard (CPS) and John Garland (ESC) have put a tremendous amount of effort into this endeavour and I am sure that all of you are looking forward, as I am, to seeing the finished product. I hope that we will have a display of parts of the book at the Annual Meeting this fall.

As I write this, we are at the half-way point in the summer "field season". I hope the year has been rewarding for each of you in terms of your research. The weather has been hot and sticky in our area. The result of this, a rapid development of many insect pests, necessitated a "hurry up approach" to data collection. The benefit of this is that many of us will have data to present at the Annual Meeting of the Society in Montreal during October! The Organizing Committee for the Joint Meeting of the E.S.C., E.S.O. and S.E.Q., hosted by the S.E.Q., has worked very hard to develop a number of symposia and an interesting meeting. I encourage all of you to join us in Montreal, present papers, hold informal discussions with your colleagues and get caught up with events in our discipline.

A larger-format, updated membership list has been promised for later this year (much welcomed for those of us with "45-year-old" disease). Eventually our membership list will contain not only addresses and phone numbers but also FAX and E-mail numbers. The latter, however, will likely have to wait for a future list. Peter Kevan has about 30 members using the Society's E-mail Bulletin Board and Jim Corrigan regularly communicates with student members using E-mail. It's fast, convenient and inexpensive - - and a sign of the times.

See you in Montreal.

John E. Laing
President

Achievement Awards Committee

The Gold Medal Award for 1991 has been awarded to Dr. Roger G. H. Downer of the University of Waterloo. Dr. Murray B. Isman has been awarded the C. Gordon Hewitt Award for 1991. The selections were made by the 1991 Awards Committee; the candidates were approved by the Governing Board.

P. Riegert
Chairperson, 1991 Awards Committee

Committees and Representatives Update

The following names should be added to the list of committee members which appeared in the March issue of the *Bulletin* (23(1):4-6):

Endangered Species Committee/Comité des espèces menacées

M. O'c. Guibord

Membership Committee/Comité des membres

P.J. Albert

Insect Common Names Committee/Comité des noms communs

L. Lesage

Scholarships Committee/Comité des bourses d'étude

D. Coderre

Elections Committee / Le Comité des Elections

The committee was comprised of C. H. Craig, R. H. Elliott, and A. B. Ewen. The committee met on 16 July, 1991, at the Agriculture Canada Research Station, Saskatoon, Sask., and examined ballots for the 1991 election of officers. A total of 261 ballots were received. The successful candidates were:

Le comité a compris C. H. Craig, R. H. Elliott, et A. B. Ewen. Le Comité a tenu une réunion le 16 juillet 1991 à la Station de Recherche d'Agriculture Canada à Saskatoon, Sask., où il a examiné les bulletins de scrutin pour l'élection des officiers pour 1991. Un total de 261 bulletins ont été reçus. Les candidats élus sont:

Second Vice-President / Le deuxième vice-président:

George Gerber

Directors-at-large / Directeurs nationaux:

Steve Marshall

Jean Turgeon

A. B. Ewen

Chair / le président du comité

Public Awareness Committee

There have been several comments in recent years about how the general level of public ignorance regarding science threatens support for research. The connection is very direct. Political support for science will only come about if the public insists on it. And the public will only insist on it if they are aware of the social and economic benefits which science provides.

There are other, less direct, consequences which will result from a lack of public awareness of science. Science programs in our public schools will continue to decline. The fact that this will lead to fewer future scientists and members for professional societies is the least of the impacts. More serious will be the further, overall decline in society's appreciation of the connection between science and what is going on in the world around us.

The problems arising from the lack of public education in science are obvious. It is the solutions which require some imagination. Historically, professional societies have not assumed a high profile in public and political issues. We are, after all, a somewhat closed club of like-minded professionals almost exclusively concerned with matters entomological. But unless we begin to be pro-active, it is unlikely that things will improve.

Several individuals have made use of the funds provided by the public education committee. Projects have included support for entomology clubs in schools and amateur newsletters. Important as these initiatives are, they remain isolated efforts. The ESC's recent affiliation with the Canadian Federation of Biological Sciences (CFBS) provides an opportunity to do something innovative and effective. The expanded membership of the CFBS and the fact that the federation now represents the many facets of biological sciences, from molecular to ecological biology, should give the federation added credibility and potential leverage with policy makers.

Last year, the chairperson of the CFBS Public Education Committee, Dr. Brock Fenton, circulated a proposal for affiliated societies to provide seed money to create a position which would co-ordinate a public education campaign for the CFBS. The proposal was silently received. Our public education committee supported the proposal in principal but the ESC executive voted against providing funds.

This year, Dr. Fenton is trying again. He is asking each of the affiliated societies to promise \$1000.00. With this promise, he is preparing a proposal for matching funds from Science Culture Canada. If the grant is successful, Dr. Fenton plans to support the following items:

- compile a directory of scientists willing to participate in local public education programs
- hire a full-time educator to work with scientists in preparing science packages for educational purposes
- prepare, print and disseminate the products.

The main theme of the educational packages would be science-conservation-environment. Clearly insects fit in there admirably and abundantly.

The public education committee would very much like to see ESC support for this initiative. As is often the case with society projects, there is an almost exclusive reliance on volunteers and this usually means that everything is done by a few willing but badly over-worked members. The idea of hiring another professional to dedicate himself/herself to this particular issue seems to me like an excellent investment.

In the meantime, Dr. Fenton has also suggested the desirability of a roster of members who are willing to work with this educator. Even if the proposal fails, a roster of members interested in public education would be a valuable resource for local educators, media and special interest groups; along the lines of the ESA's ENTNET. After all, we are the experts.

I put this idea out now and I plan to raise it at the general meeting this October in Montreal. So bring your ideas, your enthusiasm and a little commitment. We will see what we can come up with.

Vince Nealis
Public Education

Activities of the Canadian Federation of Biological Societies

I attended the two CFBS board meetings, as well as the Science Policy Committee meeting, held during the Annual Meeting of CFBS in Kingston from the 9-12 June, 1991. One of the most important points on the agenda at the Board Meetings was an increase in the fees, as outlined by CFBS President Kevin Keough in the spring CFBS Newsletter.

It is evident that CFBS has serious financial problems, at least in the short term, and the Executive came up with a series of cuts that would reduce the 1992 costs by approximately \$50,000. The recommendations were:

(i) No newsletter in the fall of 1991. It will be sent a little later, with the call for abstracts. This saves one mailing (15k).

(ii) No mid-term meeting. This saves the CFBS costs associated with the executive (5 k). It also saves the ESC costs associated with our representative(s).

(iii) The programme committee meeting will have reduced costs with Societies paying for their representative(s) (15 k). At this time the ESC is not really involved.

(iv) The programme (abstracts) for the annual meeting will only be sent to those members registered for the meeting (20k). Anyone else wanting the programme can buy it. An outline of the symposia, etc. will be in the Spring Newsletter, so everyone will have a general idea of the programme.

(v) Monies to the Equal Opportunities Committee and Canadians for Health Research will not be provided this year (6 k).

The Board approved these cuts that will be applied on a one time basis, although it is possible that some or all will be continued in subsequent years. However, despite these actions there will still be a significant short fall and the Board approved (by a reasonable majority) a \$10 increase (\$5 for students) for 1992. This will generate sufficient monies to provide a balanced annual budget. Needless to say this was debated at great length, with the BCC Societies being most concerned with the impact on their members and, given the implications for the ESC budget, I opposed the motion.

There were suggestions that dues be increased \$15 per full member in both 1993 and 1994. This was defeated for, as pointed out by many representatives, the CFBS needs to provide a well developed five year plan so that each constituent Society will be able to rationally discuss the merits of any proposed fees increase. It was therefore proposed and approved that each Society prepare a working brief, clearly stating their priorities for action through the CFBS. Obviously, Science Policy and Public Awareness of Science will rank high on everyone's list but the relative importance of issues such as animal rights and long-term biological surveys will vary from one Society to another. An ad-hoc committee, chaired by Past President Keough, will examine these briefs and come up with a long term strategy for CFBS, that will best meet the needs of all member Societies.

While I realise that a \$10 increase will have an appreciable impact on the ESC budget I would strongly urge that we support such action. In my opinion if we do not, and subsequently withdraw from CFBS, everyone would lose for at present Science needs all the support possible.

There is no question that in recent months the CFBS has been very active on several fronts and here I will make reference only to those that have a direct impact on ESC members.

The Canadian Long-term Ecosystem research programme developed by CFBS grew from a

working paper, written by Ian Smith, after the ESC funded a one day workshop in Ottawa in 1989. This document was sent to the Canadian Global Change Programme of the Royal Society and there was a meeting between the CFBS (Ian Smith, Clément Gauthier and Chuck Schom) and the Royal Society at Kingston. Since then CFBS submitted a request for funds to set up 14 workshops across Canada, as a first step in implementing the long-term programme and we are awaiting a response. It should be noted that in the last few years several individual Societies have unsuccessfully tried to obtain access to the Canadian Global Change Programme: a very concrete example of how the Federation has more clout than any of us on our own. Furthermore, as noted by Glenn Sutter, coordinator of the Canadian Global Change Program in June of this year "While some of us (members of CGCP) have been talking about the need of such a proposal, CFBS has been busy developing grist for the mill." There will be a symposium on Long-term Ecosystem Research at the 1992 CFBS annual meeting (Victoria).

The Science Council of Canada has a major project on sustainable agriculture, and intends to produce their final report in 1992. CFBS has been asked to provide a position statement, as well as provide comment and feedback on several working papers submitted to the Science Council of Canada on this subject. The Hon B. McKnight, the Minister of Agriculture has also asked to have CFBS's views on sustainable agriculture.

In a new initiative the Science Council of Canada will, over the next five years, produce an Annual Report assessing the contributions that science and technology have, and should be making to three strategic themes: competitiveness, internationalization and stewardship/sustainability. Dr. Janet Halliwell, President of Science Council of Canada has requested that CFBS support, and participate in, the process.

The CFBS was an active participant in the annual March lobbying of politicians in Ottawa. Given that there will be a Federal election in the not-too-distant future there will be a second lobbying period from 4-7 November, 1991. Post secondary education will be the major issue.

In preparation for next year's Federal election CFBS proposes that a multi-society committee (a representative from each of the CFBS Societies) be formed at each University and that a coordinated campaign strategy be developed. In this way it is hoped that our concerns will not only be transmitted to the different candidates, but also to the general public. Given the rather delicate position of federal scientists, they will not be asked to formally participate but their 'off-the-record' input must be sought. With respect to government scientists CFBS recognises that it now represents many individuals working in government and their interests/concerns must be addressed. A questionnaire will be sent to the different Societies in order to obtain a better idea of how CFBS may best meet such needs.

Brock Fenton, Chair of the CFBS Public Awareness Committee has prepared a proposal to apply for funds from Science Culture Canada. Furthermore, The CFBS Public Awareness Committee is preparing a list of lectures to be held across Canada during the National S & T week (18-27 Oct. 1991). If you wish to participate in either activity contact Dr. V. Nealis, Chair of our Public Awareness Committee.

CFBS has requested that the Presidents of all Societies write to different Ministers asking that the federal granting agencies be exempt from proposed maximum increase of 3% for S & T. Members are also strongly encouraged to write. Remember you do not even have to pay for a stamp when writing to members of the House of Commons! Send a copy of your letter to CFBS headquarters.

CFBS recently wrote to the Prime Minister concerning the report, submitted to the PM's office on 2 November 1990, by the Federal Science and Technology Expenditures Committee. It appears that NABST only intends to conduct an internal revision of the document, even though the committee underlined the need for persons outside government to be involved. CFBS recommended that appropriate non-government agencies formally participate in reviewing and reporting on the recommendations put forward in the report.

At the annual meeting in Kingston the CFBS organised a workshop "Communicate with power: Encountering the media" for a number of individuals from different member Societies. It was run by Barry McLoughlin Associates Inc., a media consultant company that has an international reputation in the field. All participants found it to be a most enriching experience and have been charged with transferring the information to members within their Societies.

Jeremy N. McNeil
ESC representative to CFBS

PERSONALIA

Bernard Landry and Brad Sinclair Recipients of the 1991 Graduate Research-Travel Grants



Recipients of the 1991 Graduate Research-Travel Grants were Bernard Landry (Carleton University) and Brad Sinclair (Carleton University). They are shown receiving their grants from John Laing (President of ESC) and Bob Footitt (Treasurer of ESC). From left to right: J.E. Laing, B. Landry, B.J. Sinclair, and R. Footitt.

Dr. Brian V. Brown
Recipient of the Governor General's Gold Medal



Dr. Brian V. Brown (at right) has been awarded "The Governor General's Gold Medal". The award was based, in part, upon the outstanding nature of Dr. Brown's Ph.D. thesis "Generic revision of Phoridae of the Nearctic Region and phylogenetic classification of Phoridae, Sciadoceridae and Ironomyiidae (Diptera: Phoridae)". His Ph.D. research was assisted by a Graduate Research-Travel Grant awarded to Brian by the Entomological Society of Canada in 1990, and to this extent, at least, the Society may bask in reflected glory. Dr. Brown is currently on a Post-Doctoral Fellowship at the University of Maryland and the Department of Entomology, Smithsonian Institution, Washington, D.C. Presenting the award to Brian, on behalf of the University of Alberta's Graduate Scholarship Committee, is Dr. George Ball, his proud former supervisor.

R. H. Gooding
Edmonton

CONDOLENCES

We extend our condolences to the families, friends, and colleagues of the following deceased members of the Entomological Community:

Mike Ivanochko (died January 2 1991)

Bob Glen (died February 26 1991)

Howard Tripp (died March 12 1991)

Larry Reed (died April 25 1991)

IN MEMORY

Douglas Keith McEwen Kevan

Keith Kevan may not have been born an entomologist, but his early environment must certainly have been conducive to his becoming one. His father, a medical doctor, was to become one of Scotland's leading amateur conchologists and coleopterists and his mother was an enthusiastic botaniser. It is little wonder that he quickly developed a bent for natural history and began collecting insects at the age of five.

He began his formal education at George Watson's Boys' College in Edinburgh, where he claims he performed creditably but not outstandingly. Although no Biology was then taught at the school, Kevan, the biologist, looks back on it with pride and affection as an institution which was excellent in almost every other way.

Just prior to entering the University of Edinburgh in 1937 to study Zoology, Botany and Chemistry, he paid a short visit to Canada with a Scottish schoolboys' organization. He saw Macdonald College only from a bus, but did have a short stay at the Ontario Agricultural College in Guelph, where he obtained a brief but perhaps significant glimpse of Agricultural Entomology in Canada.

At Edinburgh University he acquitted himself with great academic distinction. He won the Second-Year Class Medals in Zoology and Botany and the Third-Year Class Medal in Zoology as well as the Edinburgh University/Royal Botanic Garden Herbarium Gold Medal. In his final honours year he showed the beginnings of his abilities as an innovative educator by persuading the Faculty of Science to permit him to include in his curriculum all available courses in Entomology and Parasitology in lieu of parts of the regular Honours Zoology courses. By doing this he initiated what was in effect an Honours Entomology programme in a "pure science" stream. Prior to this, Entomology training had been approached only through the "applied" Agricultural Zoology programme.

He was recognized by his student peers by being twice elected President of the Biological Society, while still an undergraduate. This post was usually reserved for graduate students or final year undergraduates.

He completed this distinguished undergraduate career by graduating in 1941 with First Class Honours in Zoology and being awarded a Vans Dunlop Postgraduate Scholarship and a British Colonial Office Postgraduate Agricultural Scholarship.

At this time, however, Great Britain was embroiled in the Second World War and Kevan was already a member of the "Local Defence Volunteers" later the Home Guard. With call-up papers in hand it looked as if the distinguished graduand was destined to postpone his entomological career because of full-time service in his Majesty's Forces. Fortunately for Entomology, a change in government policy sent him, in October 1941, at the ripe old age of 20, as an Entomology Specialist Cadet of the Colonial Agricultural Service, to Imperial College, St. Augustin, Trinidad, for a two-year course in Tropical Agriculture and related subjects.

It was in the tropical environment that his earlier embryonic interest in orthopteroid insects developed, never to be lost. There also, he worked on the Neotropical Cornstalk borer and advanced his knowledge of soil zoology, influenced by one of his colleagues, Arthur H. Strickland.

In 1943 he was awarded the Associateship of the Imperial College of Tropical Agriculture and was granted a brief leave prior to being posted as Entomologist to the Kenya Department of Agriculture. As brief as the leave was, it was long enough for the biologically efficient Kevan to marry the equally efficient Private Kathleen E. Luckin, R. A., who, some months later, was discharged from H. M. Forces to await the birth of Peter, their first son. Kevan admitted that the leave was well spent as Kaye Kevan not only collaborated later in the production of two other fine sons, Martin and Simon, but throughout their married life aided mightily, if unobtrusively, in his life's work.

On arrival in Kenya, Kevan was attached to the East African Anti-Locust Directorate and was quickly involved in Desert Locust reconnaissance and control, mostly in Kenya, Ethiopia and the Somalilands. During his stay in East Africa, Kevan developed several of his well-known prejudices: against, for example, camels, Dodge 3-ton trucks, getting caught in cross-fire between frontier police and bandits, and the taste of BHC. This last was apparently consumed publicly by him to demonstrate its "harmlessness" (nobody had heard of "environmentalists" then!). To do him credit he did not demand the same dedication from younger entomologists.

Lulls in Desert Locust campaigns allowed him to gain experience with East African cotton pests in Uganda, and to work with mymarid egg-parasites of Eucalyptus weevil in Kenya Highlands; and whenever time allowed he collected and continued his studies of orthopteroid insects.

In 1948, he returned to the United Kingdom, resigned from the Colonial Service, and, at age 27, he became the first head of the new Zoology Section in the Faculty of Agriculture and Horticulture of the University of Nottingham. There he developed undergraduate teaching programmes in Entomology and other aspects of Agricultural, Forest and Veterinary Zoology. He continued his taxonomic studies of the orthopteroids, specializing in the Pyrgomorphidae, upon which he was the world authority. At the time he directed graduate students in the study of aphids, cutworms and thrips.

In 1955, he organized the First International Conference on Soil Zoology at the Sutton Bonington campus of Nottingham University, and published the proceedings of this, under the title "*Soil Zoology*", in the same year. The first edition of his book "*Soil Animals*" was also written at Sutton Bonington, but was not published until 1962, after he had left Nottingham.

As he was directing Ph.D. students he felt it might be appropriate to have such a degree himself, so he embarked on a staff Ph.D. programme and graduated at Nottingham in 1956, his thesis being "The *Chrotogonini*: A Critical Revisional Study of the Injurious Pyrgomorphine Acridid Genus *Chrotogonus* and its Allies (Insecta: Orthoptera)".

In 1957, he was offered and accepted a full professorship and the Chairmanship of the Department of Entomology, McGill University, Macdonald College, and took up the post in February 1958. He was then, at 37, one of the youngest full professors at McGill and it is thought the youngest Chairman at that time. Almost simultaneously with taking up his new duties at Macdonald he was elected a Fellow of the Royal Society, Edinburgh.

He served as Chairman of Entomology from 1958 until 1971, when he relinquished the chair for health reasons. He also was Chairman of the Department of Plant Pathology from 1959 until 1964, during which period that department was joined with Entomology.

During his stay at Macdonald he contributed to Canadian Entomology in many different ways. He

has directed the research of 22 M.Sc. and 23 Ph.D. graduates in Canada alone, and has been associated with 12 Postdoctoral Fellows and Associates. He introduced modern concepts of Soil Zoology into North America, and gave the first formal courses on that subject there. He established the first postgraduate School of Zoology within the Department of Entomology at Macdonald. He taught all aspects of Entomology except (in Canada) Insect Physiology and "Economic Entomology", but including Veterinary and Medical Entomology (and at one time, Helminthology and Protozoology). Early in the 1960's he initiated the first fully student-run graduate evening seminar series.

Kevan was known as an astute administrator, who knew and used every legitimate avenue to ensure that his group obtained the best funding and facilities available. In 1961, he was instrumental in transferring the Lyman Entomological Collections from the Redpath Museum in Montreal to their logical association with the University's Department of Entomology. At the same time he insisted on provision for a fully qualified curator. These moves led to the growth and development of the collections into the internationally recognized Lyman Entomological Museum and Research Laboratory, of which Kevan became the first Director in 1971.

During his tenure as Chairman, Kevan identified and remedied a deficiency in the teaching and research operations of his department by successfully establishing an academic position for a fresh-water biologist. He was an active and effective Director at the Lyman Museum and as such, established the Museum Memoir Series, of which 17 volumes have been published.

His research has been mainly in the field of systematics (including experimental taxonomy and cytogenetics), morphology and biology of the orthopteroid insects, and on the ecology and biology of soil- and litter-inhabiting microarthropods, but he also published in the field of fresh-water biology. In later years he succeeded in integrating the science of Entomology with the Humanities. He refers to this field as "Cultural Entomology" or Ethnoentomology", and at one time he was unique in holding both National Research Council and Canada Council (Humanities) grants simultaneously. In these studies he investigated early historical and literary areas of entomology, particularly poetry and other verse of all ages and regions, in any language. Besides those related to these latter topics, his research has resulted in more than 500 scientific publications including a number which are of book length, and his productivity continued until his death.

Kevan was active in many organizations and was honoured by a number of them. He was a Director (1963-65) and President of the Entomological Society of Canada (1972-73), and was made a Fellow in 1977. The shield bearing the insignia of the Society (presented by the Entomological Society of Quebec in 1967) was of his devising. Together with J. A. Downes and E. G. Munroe he was an initiator of the drive for the Biological Survey of Insects of Canada on behalf of the Society, and he contributed extensively to the continuation of the project.

Other Society affiliations were: The Royal Society, Edinburgh (Fellow 1958); Royal Entomological Society of London (Fellow 1942); Entomological Society of Quebec (President Montreal Branch 1963-64); Entomological Society of Ontario; Entomological Society of America; American Entomological Society; Entomological Society of Finland (Hon. Fellow 1975); Acarological Society of America; Canadian Society of Zoologists; Society for Systematic Zoology; Systematics Association; Institute of Biology; Association of Applied Biologists; Association for Tropical Biology (founder-member); Pan/American Acridological Society, now The Orthopterists' Society (founder-member and Hon. Member 1976); Association d'Acridologie (Council 1974-77); International Union for the Study of Social Insects; Quebec Society for the Protection of Plants; Society for the Bibliography of Natural

History; Sigma Xi; Canadian Association of University Teachers; McGill Association of University Teachers; Watsonian Club of Montreal (President 1973-87).

In 1981 the Entomological Society of Canada awarded him the Society Gold Medal for outstanding leadership in entomological research, education and social affairs, and on his retirement in 1986 he was awarded Professor Emeritus status. In the same year, he received a life membership in the Institute of Biology, United Kingdom, and in 1990 he received the Special Award at the International Symposium on Agro-ecology and Conservation Issues in Temperate and Tropical Regions in Padua, Italy. After his "retirement" he continued his prodigious productivity in research and publication until the time of his death.

Kevan had considerable theatrical talent, having trod the amateur boards on many occasions as well as writing and directing several productions. His sense of humour was quick, although sometimes mordant, and his colleagues and students all recognized that he barked better than he bit.

He is survived by his wife, Kathleen, three sons, Peter (Sherene), Martin and Simon (Brenda) and four grandchildren, Colin, Katie, Jordan and Andrea.

Vernon R. Vickery and
Robin K. Stewart

M. André Doyle

M. André Doyle, ancien entomologiste provincial de la province de Québec, est décédé le 9 mai 1991 à l'âge de 75 ans. Il a été un membre actif de la Société d'entomologie du Québec, dont il assume la présidence en 1964-1965.

Charles Vincent

Lawrence Daniel Nairn (1922-1991)

Laurie Nairn died suddenly on 28 May 1991 in Winnipeg, Manitoba. He was born in Scotland on 26 September 1922 and grew up in Montreal, Quebec. After serving as a navigator with the R.C.A.F. in the Second World War, he studied at the University of New Brunswick, graduating with a B.Sc. in forestry in 1953. He moved to Winnipeg to work with the Forest Entomology Division of Agriculture Canada (later part of the Canadian Forestry Services). Laurie was a member of the larch sawfly population dynamics group for many years, studying the effects of defoliation on the host trees and the role of stand factors. He also contributed to studies of other forest pests, e.g. root collar weevil and white grubs. During this period he learned to know and love the forests and lakes of Manitoba and enthusiastically joined his friends and colleagues in hunting and fishing.

Laurie was a long-term and active member of the Entomological Society of Manitoba (President, 1976), the Entomological Society of Canada, and the Manitoba Section of the Canadian Institute of Forestry, and was a member of the Fort Garry Legion #90.

After retirement, Laurie worked several summers as an adjustor for the Manitoba Crop Insurance Corporation, learning a new trade and thoroughly enjoying his contacts in rural Manitoba. Ill health led to a second retirement but he continued to enjoy curling, camping, hunting and fishing.

Long an active curler with the "Ag. Row" Curling League of federal and university staff, he most recently curled with the Pembina Old Timers and Pembina Seniors leagues. In the last few years he equipped a workshop and took up woodworking.

As a cheerful and helpful colleague, Laurie was always willing to give an extra effort to finish the job and then to enjoy a party. He maintained contact with many of his former colleagues. He is survived by his wife, Betty, two sons, a daughter, and 3 grandchildren. He was a good friend. We miss him.

W.J. Turnock and
A.G. Robinson

Richard M. Prentice (1920-1991)

Richard M. Prentice passed away on 11 March 1991. Dick was born on 7 September 1920 and spent his childhood in Souris, Manitoba.

He received an undergraduate BScA from the University of Manitoba in 1950 and an MSc from the University of Minnesota in 1954. Dick started a Ph.D. program at the University of Manitoba, but did not complete it.

From 1941-1945, Dick served in the Royal Canadian Navy including overseas for three years on a Corvette. He worked in Forest Biology, Agriculture Canada, in Winnipeg from 1950 to 1954; he then returned to university. From 1954 to 1962 Dick was head of the Forest Insect Survey in Winnipeg. In 1960 the forest entomology component and others were placed in a different department (since then the name of this department has changed several times!).

Dick moved to Ottawa in 1962 and for the next 11 years he was the program coordinator for FIDS (Forest Insect & Disease Survey). From 1976 to 1985 he was back in Agriculture Canada as a Research Coordinator (Entomology), Crop Protection. Dick was the national coordinator and scientific advisor for the crop and animal protection programs. As such, he had a leadership role in planning and evaluation of these programs at the 14 Research Stations in the Research Branch, Agriculture Canada. Dick was also the Canadian liaison officer to the Commonwealth Agricultural Bureau.

In 1980, Dick was named as a Fellow of the Entomological Society of Canada, and he was very proud of this honour.

After 35 years in the public service, Dick retired on 4 June 1985. In his retirement and with the same intensity that he showed in his professional career, Dick became an avid golfer and gardener.

Dick and Doreen were married in Thunder Bay, Ontario, in 1945 and they celebrated their 46th anniversary on 5 March 1991. Besides Doreen, Dick is survived by five children, Jan, Jill, Judi, JoAnn, and John; 10 grandchildren; and 1 great grandchild. The children are in the Ottawa area except JoAnn, who is in Massachusetts.

Dick is probably best remembered for his sense of humor, and he very, very seldom said an unkind word. He was very proud of his family and his work. Put another way, Dick was a great husband, father, grandfather, colleague, and friend.

Edward C. Becker

NEWS OF ORGANIZATIONS

Biological Survey of Canada (Terrestrial Arthropods) Survey Report

The Scientific Committee met in Ottawa on 18-19 April 1991. A fuller account of the meeting appears in the Fall 1991 issue of the Newsletter of the Biological Survey of Canada (Terrestrial Arthropods).

Notes on Selected Scientific Projects

1. *Arthropod fauna of the Yukon*

Chapters for a book on the Yukon fauna are due by a final deadline of December 1991.

2. *Arthropods of peatlands in Canada*

A symposium on the arthropods of peatlands in Canada will be held as planned at the 1991 ESC meeting in Montréal.

3. *Arthropods of springs*

A memoir containing papers on a variety of aspects of spring arthropods was published after the meeting. (Williams, D. D. and H. V. Danks (eds.). 1991. Arthropods of springs, with particular reference to Canada. *Mem. Ent. Soc. Can.* 155. 217 pp.)

4. *Arctic invertebrate biology*

The Survey's new arctic newsletter, *Arctic Insect News*, has been well received, stimulating further international contacts among those interested in arctic biology. Some joint field parties are planned during the summer of 1991.

Other scientific priorities

1. *Arthropods of soils*

Dr. V. M. Behan-Pelletier outlined recent developments in approaches to soil biology. For example, considerable emphasis is now being placed on the effectiveness of soils as carbon sinks in the context of global change. Various people continue to call for short cuts to understand complex systems like the soil, but without looking at the fauna there is little hope of avoiding detailed analysis by finding "indicator species".

2. *Climate change, the environmental agenda, and long-term ecological research*

Dr. I. M. Smith reported on attempts initiated through the Biological Survey of Canada, and involving the Canadian Federation of Biological Societies and the Entomological Society of Canada, to develop a scheme for a long-term ecosystem research program.

3. *Arthropod ectoparasites of vertebrates*

The Survey's brief on arthropod ectoparasites published in the March issue of the *Bulletin* has been well received. (Galloway, T. D. and H. V. Danks. 1991. Arthropod ectoparasites of vertebrates in

4. Collections

The Survey's brief on arthropod collections was completed at the meeting and is published as a supplement to the June issue of the *Bulletin*. (Wiggins, G. B., S. A. Marshall, and J. A. Downes. 1991. The importance of research collections of terrestrial arthropods. *Bull. Ent. Soc. Can.* 23(2), Suppl.)

Secretariat activities

The 1990 round of visits to entomological centres by Dr. H. V. Danks allowed informal discussions about the Survey and its projects with many entomologists and other biologists. Formal seminars on many different subjects also were given.

Liaison and exchange of information with other organizations

1. Canadian Museum of Nature

Changes continue in the Museum, associated with its change of status to a crown corporation. Part of the collections and research branch will move this year to a building in Aylmer, Québec.

2. Biosystematics Research Centre

Dr. Smith, on behalf of Dr. R. Trottier, Director, reported that the Biosystematics Research Centre is in the process of reacting to a recently released review of the centre, and hopes soon to have a response in the form of an action plan. Future developments therefore are uncertain.

3. Entomological Society of Canada

Dr. J. E. Laing, President of the ESC, reported on some information from a recent interim board meeting of the Society. The Society is financially healthy, is functioning well, and several items of general interest will soon be published.

4. Canadian Parks Service

Mr. D. McBurney and Mr. D. Rivard attended the meeting on behalf of the Parks Service. Mr. McBurney reported on relevant developments, including the general nature of Parks' submissions under the Green Plan. The proposed Memorandum of Understanding between Parks and the Survey, concerning entomological research in parks, had been received by Mr. McBurney's regional counterparts. The Survey and the Parks Service continue to refine the MOU.

5. Forestry Canada

Dr. B. H. Moody, Forest Insect and Disease Survey, reported that the complement of Forestry staff has been reduced. However additions are hoped for under the Green Plan, and Dr. Moody outlined the general nature of Forestry's submissions under the Plan.

6. Natural Sciences and Engineering and Research Council

Ms. T. Scott, Programs Officer, NSERC, discussed with the Committee some matters related to the Grant Selection Committee for Systematics, Evolution and Ecology.

7. Geological Survey of Canada

Dr. J. V. Matthews, Terrain Sciences Division, GSC, reported that the GSC now has three global

change observatories, in the Palliser Triangle, the Fosheim Peninsula, and the Mackenzie Delta.

8. *Canadian Society of Zoologists*

Dr. D. Cone and Dr. H. Arai, members of the steering committee for a proposed parasitology module of the Survey, attended the meeting as observers. Dr. Cone reported on the various plans and activities of that steering committee.

9. *Other organizations*

The Survey remains in touch with the Association of Systematics Collections, the Society for the Preservation of Natural History Collections, and other agencies and societies.

Other Items

1. *Regional developments*

Information from various parts of the country was provided by members of the Committee. Among many other items, it is apparent that jobs in entomology are being lost in many provinces through provincial government layoffs, and retirement without replacement of entomology faculty and federal government research scientists.

2. *Other Matters*

Among other items, the Committee discussed the Survey's draft Annual Report to the Canadian Museum of Nature, and the Biological Survey Foundation, and it developed ideas about the erosion of systematics expertise in universities and related matters as a basis for discussions with the Commission of Inquiry on Canadian University Education.

H. V. Danks

International Commission on Zoological Nomenclature

Applications published in the *Bulletin of Zoological Nomenclature*

The following applications were published on 27 June 1991 in Vol. 48, Part 2 of the *Bulletin of Zoological Nomenclature*. Comment or advice on these applications is invited for publication in the *Bulletin of Zoological Nomenclature* and should be sent to the Executive Secretary, I.C.Z.N., c/o The Natural History Museum, Cromwell Road, London SW7 5BD.

Case 2791 *Chelifer museorum* Leach, 1817 (currently *Cheiridium museorum*; Arachnida, Pseudoscorpionida): proposed conservation of the specific name

Mark S. Harvey

Western Australian Museum, Francis Street, Perth, Western Australia 6000, Australia

Abstract. The purpose of this application is the conservation of the specific name of *Chelifer museorum* Leach, 1817 which is consistently used for a common, often synanthropic, pseudoscorpion recorded from Europe, Africa, India and North America. *C. museorum* is the type species of *Cheiridium* Menge, 1855 but the name is threatened by the unused senior synonym *Chelifer nepoides* Hermann, 1804.

Case 2759 *Goniosoma conspersum* Perty, December 1833 (currently *Mitobates conspersus*; Arachnida, Opiliones): proposed conservation of the specific name

Adriano B. Kury

Departamento de Zoologia, Universidade Federal do Rio de Janeiro, CCS
bloco A, Ilha da Cidade Universidade, Rio de Janeiro, RJ, 21941, Brazil

Abstract. The purpose of this application is the conservation of the specific name of *Mitobates conspersus* (Perty, 1833), a Brazilian laniatorid harvestman, by the suppression of its unused senior synonym *Mitobates triangulus* Sundevall, April 1833.

Case 2292 *Histoire abrégée des insectes qui se trouvent aux environs de Paris* (Geoffroy, 1762): proposed conservation of some generic names (Crustacea and Insecta)

I.M. Kerzhner

Zoological Institute, Academy of Sciences,
Leningrad 199034, USSR

Abstract. Geoffroy's *Histoire abrégée des insectes qui se trouvent aux environs de Paris* (1762) was rejected for nomenclatural purposes and placed on the Official Index in 1954 (Opinion 228). Many of the 59 new generic names proposed by Geoffroy are in current use and 16 names with authorship from Geoffroy (1762) have already been conserved and placed on the Official List. The purpose of this application is to conserve the following 24 additional names from Geoffroy (1762): Crustacea: *Asellus*; Hymenoptera: *Diplolepis*, *Eulophus*, *Urocerus*; Lepidoptera: *Pterophorus*; Coleoptera: *Altica*, *Anthrenus*, *Anthrribus*, *Bostrichus*, *Cerocoma*, *Copris*, *Crioceris*, *Cryptocephalus*, *Diaperis*, *Galeruca*, *Gyrinus*, *Hydrophilus*, *Notoxus*, *Omalisus*, *Platycerus*, *Prionus*, *Ptilinus*, *Pyrochroa* and *Stenocorus*.

Case 2757 *Rhinapion* Beguin-Billecocq, 1905 (Insecta, Coleoptera): proposed conservation

M.A. Alonso-Zarazaga

Sección de Entomología, Museo Nacional de Ciencias Naturales, J. Gutiérrez
Abascal 2, 28006 Madrid, Spain

M. Wanat

Muzeum Przyrodnicze, Uniwersytet Wroclawski, Sienkiewicza 21
50-335 Wroclaw, Poland

Abstract. The purpose of this application is to conserve the name *Rhinapion* Beguin-Billecocq, 1905 for a subgenus of weevils by the suppression of the senior homonym *Rhinapion* Motschulsky. *Rhinapion* Beguin-Billecocq includes species which are seed predators of leguminous plants (wild or cultivated) in sub-Saharan Africa and Madagascar.

Case 2737 *Brahmaea* Walker, 1855 (Insecta, Lepidoptera): proposed confirmation of *Bombyx certhia* Fabricius, 1793 as the type species.

W.A. Nässig
Zoologisches Institut der Universität, Siesmayerstrasse 70,
D-6000 Frankfurt, Germany

I.W.B. Nye
Kilronan, The Avenue, South Nutfield, Surrey RH1 5RY, U.K.

Abstract. The purpose of this application is to confirm that the nominal type species of the moth genus *Brahmaea* Walker, 1855 is *Bombyx certhia* Fabricius, 1793. Walker misidentified this species when describing *Brahmaea*, but the genus has been interpreted in the sense of *B. certhia* being the type.

The following Opinions were published on 27 June 1991 in Vol. 48, Part 2 of the *Bulletin of Zoological Nomenclature*:

Opinion 1637. *Aphonopelma* Pocock, 1901 (Arachnida, Araneae): given precedence over *Rhecostica* Simon, 1892.

Opinion 1638. *Holostaspis subbadius* var. *robustulus* Berlese, 1904 (currently *Macrocheles robustulus*; Arachnida, Acarina): specific name conserved.

Opinion 1641. *Carcinochelis* Fieber, 1861 (Insecta, Heteroptera): *Carcinochelis alutaceus* Handlirsch, 1897 designated as the type species.

Opinion 1642. *Chlorophanus* Sahlberg, 1823 (Insecta, Coleoptera): conserved.

Opinion 1643. *Ceratopogon puncticollis* Becker, 1903 (currently *Culicoides puncticollis*; Insecta, Diptera): given precedence over *Ceratopogon algecirensis* Strobl, 1900.

Opinion 1644. *Culex stigmatosoma* Dyar, 1907 and *C. thriambus* Dyar, 1921 (Insecta, Diptera): specific names conserved.

Opinion 1645. *Musca heraclei* Linnaeus, 1758 (currently *Euleia heraclei*; Insecta, Diptera): specific name conserved.

Opinion 1646. *Coccobius* Ratzeburg, 1852 (Insecta, Hymenoptera): not suppressed.

PUBLICATIONS BOOK NOTICES

Harrison, Roy A. 1990. Bibionidae (Insecta: Diptera). *Fauna of New Zealand*. No. 20. DSIR Plant Protection, Auckland, New Zealand. 28 pp. \$14.95.

Part 20 of this carefully designed and produced series treats the small family Bibionidae. Those species known from New Zealand are revised, and their taxonomic affinities are discussed. Eight extant species (three of them new) and one fossil species in the genus *Dilophilus* are recognized as valid. All of the extant species are endemic. Seasonality and geographic distribution are indicated. A key to identification is given and characters helpful in species discrimination are illustrated. Plant species with bibionid associations are also listed.

F. W. Harrison (Ed.). *Microscopic Anatomy of Invertebrates*. Wiley-Liss, New York, etc. [Vols. 1-3, 1991: Hardcover US \$150.00 each].

This series of fifteen volumes, to be published over the next several years, treats the microscopic anatomy of all of the invertebrates in detail, from the perspective of functional morphology. Volume 8 (Chelicerate Arthropoda) and Volume 11 (Insecta) - not yet published - will be of the greatest potential interest to readers of the *Bulletin*. Volumes 1-3, Protozoa (508 pp.), Placozoa to Ctenophora (452 pp.), and Platyhelminthes and Nemertinea (364 pp.), are currently available. The volumes each consist of a number of chapters by different authors, treating the various taxa dealt with in that volume. The books are printed on high quality paper and are well bound, and hence, are expensive.

BOOK REVIEWS

Gerson, Uri and Smiley, Robert L. 1990. *Acarine biocontrol agents - an illustrated key and manual*. Chapman & Hall, London, New York. ISBN 0-412-36060-8. ix + 194 pp., 4 pp. colour & halftone plates. Hard cover, Can. \$107.50, US \$89.50.

This timely little book addresses the need for an introduction to the actual or potential use of mites in biological control of arthropod pests and weeds. Presented in a readily accessible format, it contains two parts. Part One includes brief introductory material, an illustrated key to relevant acarine families, and 29 brief chapters with diagnoses and summaries of biological data and references concerning each of the families of mites recorded as having a known or postulated detrimental effect on pest populations. The introductory material is inconsistent or inadequate. Terminology for acarine structures, stated to be given in figure 1, is given instead in figure 17 in the middle of the keys. Table 1 compares some systems for naming and arranging higher acarine taxa but ignores recent important cladistic concepts that propose classificatory arrangements radically different than those shown. Ticks are alluded to being included only in this table, yet they are also treated in the key.

The format of the illustrated key has merit but its contents are sufficiently erroneous and inconsistent as to be ineffective for various families. At least half of the key couplets to the families of terrestrial Prostigmata contain inaccuracies. For examples, eriophyids must be said to have stigmata, cunaxids and pterygosomatids to lack a palpal claw, tydeids to lack globular prodorsal sensilla, and gravid tarsonemids to lack saclike hysterosomas. More readily discernible and dependable characters could have been chosen instead of some of those used in the key. Laelapid mites are keyed erroneously as having ventrianal shields and truncated genital shields; in this case the family diagnoses are no more helpful than the key for distinguishing laelapids from ascids, as some ascids have both a posteriorly rounded genital shield and an anal shield. Illustrations accompanying the keys are mostly useful, but some are either too faint or too small; two are identical (15B, D); and a few are inaccurate (e.g., palpal segmentation shown in 7B, egg size shown in 9C, caption of 17F).

Among the chapters for each family of mites, the biological information and references are generally well presented and selected. Some lapses include: omission of Acarophenacidae, a family of documented parasitoids of insects (*Adactylidium*, erroneously treated under Pyemotidae, belongs in this group); exclusion of Tenuipalpidae, yet inclusion of the generally less host-specific Tetranychidae;

and no reference to the many taxonomic works on Cunaxidae by den Heyer, which are the best available for this family. Assessment of the need for taxonomic revisions is noted for only 4 of the 29 families treated; readers will not realize, for example, that available literature on such conspicuous predators as *Anystis* and *Balaustium* are so inadequate as to render species identifications unreliable.

Part Two consists of 10 chapters, half of which discuss mites as natural enemies of nematodes, grasshoppers and locusts, scale insects, aquatic Diptera of medical importance, and arthropods in stored products. There are no separate treatments of mites as natural enemies of other mites, of thrips, and of weeds, though these aspects are covered to a considerable extent under the families Phytoseiidae and Eriophyidae in Part One. The five concluding chapters, dealing with influence of host plants and the effect of pesticides of the efficacy of acarine biocontrol agents, rearing and shipping, demonstration of efficacy, and attributes of efficient acarine biocontrol agents, are well presented. Unfortunately, there is no discussion of mites as parasites in distinction to predators, or as parasitoids, especially as these apply to pyemotids and some tarsonemids. A short chapter about the many close associations between mites and fungi, and mites as vectors of fungal propagules that may have potential in biocontrol research, would also have been useful.

The authors' hope, that this book will promote further research on the potential of mites in biological control of pests, is partly met by the chapters of Part Two and the biological data summarized for the families of mites in Part One. However, the illustrated keys and diagnoses are not sufficiently reliable to be recommended. The information compiled in this book will be of value to students and workers in the biological control field. The book's high price for such modest size may dissuade some individuals from purchasing personal copies.

Evert E. Lindquist
Ottawa

Brusca, R. C. and G. J. Brusca. 1990. *Invertebrates*. Sinauer Associates, Sunderland, Mass. 922 pp. US \$47.50.

This large book takes a particular comparative approach to organizing the enormous amount of basic information available about the invertebrates. It emphasizes three themes: functional body architecture (or Bauplan) which dominates the book's orientation; developmental patterns and life histories; and evolutionary and phylogenetic relationships. The importance of this new approach has been underscored by setting the preface that introduces it in larger type than the rest of the book. The authors point out that "most of the evolutionary history of life has been a protracted period of adaptive specialization and exploitation of these fundamental body plans, or Baupläne".

After a very basic introduction to invertebrates and their environments, these three themes and background terminology and concepts are developed by chapters on: Classification, systematics and phylogeny; Animal architecture and the Bauplan concept; and the development, life history and phylogeny of the Metazoa.

Nineteen chapters then deal in turn with the major groups of invertebrates, for each briefly reviewing its taxonomic history and classification, documenting the elements of its Bauplan (body wall, support and locomotion, feeding and digestion, circulation and gas exchange, excretion and osmoregulation,

nervous system and sense organs, reproduction and development) and briefly discussing its phylogeny. A final chapter provides broader perspectives on invertebrate phylogeny. A substantial but not overwhelming number of references is provided for each chapter.

The treatments of overall themes are generally sensible and balanced; the treatments of the various phyla are informative. However, as in most texts of this sort, the insects and mites are given relatively little space. For example, Uniramia (insects and myriapods) are listed here as having 860,000 species, nearly three-quarters of the total invertebrates listed, but among the 743 pages devoted to treatments of the various groups they occupy only one chapter of 51 pages.

Development of ecological aspects is dispersed under the various functional elements of the Bauplan, so that despite the modern concept of the book, some parts of it have the feel of an older treatment: forced to cope with overwhelming taxonomic diversity, most invertebrate zoology texts have in the past simply documented structure, and function, in a succession of taxa.

Nevertheless, on the whole the book is well written, well organized, well illustrated, and well produced, and is among the best texts available to introduce students to the overwhelming diversity of the invertebrates, especially if supplemented by a separate treatment of the commonest and most diverse terrestrial groups, the insects and mites.

H. V. Danks
Ottawa

Ananthakrishnan, T. N. 1990. *Reproductive Biology of Thrips*. Indira Publishing House, Oak Park, Mich. ix + 158 pp., 50 figs., 7 tables, generic, species, and subject indices. No price indicated.

The last two decades have witnessed a deluge of new information on Thysanoptera with Prof. Ananthakrishnan and students contributing significantly to the flood. He has worked on thrips for over 40 years and has written numerous papers and four small books on them (including *Bioecology of Thrips* reviewed in the *Bulletin* in 1984, 16: 139-140). Recently, his interests have turned to reproduction in these fine little insects and this small book is one result.

It contains seven chapters, an Epilogue and 222 references, is well printed on high quality paper, is strongly and attractively bound between hard, yellow covers, is up to date in its coverage of the literature, and contains well chosen and often original photographs and drawings. Chapter 1 (11 pp.) treats adaptive strategies and species survival; 2 (22 pp.), the structure and ontogeny of male and female reproductive systems; 3 (10 pp.), sexual dimorphism and sex-limited polymorphism; 4 (11 pp.), mating behaviour, oviposition and fecundity; 5 (22 pp.), host influences on life cycle, fecundity and longevity; 6 (12 pp.), habitat effects on fecundity; 7 (25 pp.), gametogenesis and embryogenesis; and the Epilogue (3 pp.), suggestions for future research.

Of particular interest to me is new information on reproduction in several, tropical, fungus-feeding, phlaeothripids. Adults of these large thrips can be highly polymorphic either in one sex (usually the male) or both sexes can be oviparous, ovoviviparous or viviparous, depending upon environmental conditions experienced while immature, and may exhibit territoriality, maternal care of offspring, parasocial behaviour, fighting between males over females and/or their territories, and female choice of mate.

Each ovary in an oviparous female, as in most thrips, has four "neopanoistic" ovarioles (i.e., they are probably secondarily derived from the polytrophic ovarioles of a psocopteroid ancestor as evidenced by clonal proliferation of oogonia in the germarium with subsequent separation of progeny into individual oocytes -- see Pritsch and Büning, 1989-reference included in bibliography), each producing, sequentially, several relatively large, yolk-rich, and strongly chorionated eggs. These are ovulated into a short lateral oviduct, are fertilized (or not - most species are haplodiploid), and are immediately deposited; embryogenesis and eclosion occurring after deposition. Ovarioles in each ovary of ovoviviparous females are slightly shorter and open into a much longer lateral oviduct in which several, otherwise normal, eggs are stored while undergoing early embryogenesis; these too are deposited well before they hatch. However, ovarioles of viviparous females lack most of the vitellarium, and release tiny, nonchorionated, pre-vitellogenic oocytes into an extremely long lateral oviduct in which they are stored and in which embryogenesis and eclosion take place. How this occurs, in the absence of obvious structures providing sustenance, has not been investigated, but each embryo develops a grotesquely enlarged pair of pleuropodia on its first abdominal segment which may function as a trophamnion in uptake of nourishment from maternal haemolymph, suggesting their viviparity to be of the pseudoplacental type.

Ananthakrishnan and his colleagues have evidence to suggest that oviparity in these thrips occurs when food availability is optimal, while ovoviviparity and, particularly, viviparity are adaptations to the frequent ephemeral nature of their food - both functioning to shorten the life cycle.

He has evidence too (Table 5), that female fecundity, in *Adelothrips craoens* (both sexes polymorphic) is highest when wingless, major males copulate with wingless, major females (such males have relatively larger testes) and lowest when winged, minor males do so with winged, minor females.

A third startling discovery is that the spermatheca in females of the large, mycophagous phlaeothripid, *Tiarothrips subramanii*, varies in size depending upon the number of times she has successfully copulated and, hence, on the number of sperm capsules it contains. Each capsule is filled with spermatozoa and is said (p. 34) to have walls consisting "... of thick muscle layers ..." [this would be the first example of muscular spermatophores in the animal kingdom, if true - which I doubt] "... which appear cuticularized!". As the sperm of these is used to fertilize eggs, the capsules gradually collapse but persist within the spermatheca. To my knowledge, these observations constitute the first record of spermatophores in tubuliferous thrips.

In spite of its plethora of interesting new observations, the book has weaknesses and errors rendering it untrustworthy for neophytes. First, it is so badly written as to be incomprehensible. For example, on the bottom of p. 99 Ananthakrishnan writes: "It would therefore be of interest to examine in depth the nature of the patchiness of the resources available whether distributed contiguously in space and time and remain (sic) constant over time (clumped) or distributed at random or evenly distributed, keeping in mind that the changes in resource patch distribution could occur due to diverse ecological processes, independent or dependent on the species population utilizing the resources (Gould and Stinner, 1984)." Believe it or not, this sentence is not exceptional. The entire book reads like this, just as did his 1984 tome (see review referred to above)!

Ananthakrishnan, in addition, appears to have little appreciation for detail or consistency, seems unaware of much of the literature concerning reproduction in insects other than thrips (except for the trendy, bandwagon, evolutionary behaviour stuff), has misunderstood much of what he has read, makes ringing statements about significance and function without supporting evidence, misinterprets practi-

cally every aspect of male gametogenesis, and seems not to realize the importance that replication, statistical analysis and environmental conditions have in studies of fecundity and longevity.

Others? The book is filled with typographical errors. There is no indication of size on most figures and some of the light micrographs are not in focus. Other figures he fails to refer to in the text (Figs. 27, 41, 42, 46 or 47) while Fig. 3A is printed upside down. And Fig. 16 illustrates the male external genitalia of a thripid, *Frankliniella fusca*, not that of the phlaeothripid, *Haplothrips verbasci*! Other drawings, indicated in their captions as being "after" a particular author, seem actually to have been photocopied from the original and apparently without permission of the publisher!

On page 34, where he outlines the ontogeny of the female reproductive system, he omits a similar treatment of the male even though such information is available (Heming, 1970b. *Misc. Publs. Entomol. Soc. Amer.* 7: 235-272). And the anterior ovipositor valves in female terebrantians are borne by segment 8 not 9 (p.37, line 8). In Fig. 22 are 6 photomicrographs of 3 pairs of thrips that were slide mounted while copulating. These cannot possibly indicate the true mating postures of these beasts as stated in the caption, since they are now flatter than pancakes! And, in spite of his statement to the contrary (p. 77, lines 23-24), no phlaeothripid eggs are known to have a micropyle at the anterior end. Only that of *Neoheegeria verbasci* has been described and it is V-shaped and ventrally located at the posterior end of the egg (Heming, 1979).

The antennae of larval panchaethripine thripids are 7- not 6-segmented (p. 78, line 11) (see Figs. 28.61-28.64 in Stehr's [1991] *Immature Insects*. Vol 2). And statements about the time required for postembryogenesis are meaningless unless details of temperature and relative humidity extant at the time the numbers were recorded are included (p. 78, bottom; neither are these provided in Table 4). And why did he not test for significance the differences in fecundity recorded for progeny resulting from the union of different combinations of male and female morphs in Tables 5 and 6 (p. 97)?

"Embryological studies offer sufficient evidence for phylogenetic interpretation of insect groups and Thysanoptera are no exception" (p. 101, top). Bull! And, in spite of what he says on p. 101 (lines 12-15), blastokinesis does occur in all thrips embryos investigated (unfortunately, of only 5 species) whether they be terebrantians or tubuliferans - see Table 5 in the last chapter (this should be Table 7) and Figs. 31 and 46.

The oocyte shown in Fig. 34D is pre-vitellogenic not post-vitellogenic as is indicated. The vitelline membrane is not part of the shell as he states (p. 111, lines 19-20) but is a separate membrane of quite different chemical composition deposited by the follicular cells prior to choriogenesis. No evidence is supplied, either, to support the existence of an operculum in phlaeothripid eggs (p. 113-114); and the structure he calls the operculum is an aeropyle! (The only evidence for opercula in thrips eggs is that of Kirk [1985] for those of several terebrantians).

Ananthakrishnan seems totally confused by male gametogenesis. On pages 37 and 117, thrips testes are said to each contain a number of sperm tubules or follicles even though they are well known to have only one - as clearly indicated in Figs. 10B, C, 11-13, and 41A, B. Also, only phlaeothripids are known to have numerous cysts in each testicular follicle, each containing germ cells at a progressively later stage of development from apex to base of the follicle. In investigated terebrantians, each follicle contains only one cyst of germ cells so that an entire life cycle must be examined to unravel the details of gametogenesis (Bournier, 1956). Fig. 43 illustrates early spermatids of *Arrhenothrips ramakrishnae* not spermatogonia (note the undivided *Nebenkernen*) and in Fig. 44B, only spermatids are illustrated not

spermatogonia, spermatocytes and spermatozoa. Neither are male thrips known to have Sertoli or nutritive cells (p. 118, lines 6-10) although these may well exist (Bournier, 1956). (Unfortunately, Ananthakrishnan fails to mention one of the most interesting facts about spermatogenesis in thrips: the reduced meiosis occurring in males. Each primary spermatocyte has only a single, vestigial meiotic division yielding one normal and one aberrant spermatid, the latter subsequently degenerating [Bournier, 1956]. Thus, no thrips are known to have secondary spermatocytes in spite of his statements to the contrary).

Figure 49C is a longitudinal section through the elongate, immersed, embryo following its anatrepsis, not the blastoderm. The pleuropodium is not "... the persisting first abdominal segment ..." (p. 125, lines 13-15); rather, each develops from the vestigial abdominal appendages of this segment that temporarily appear in the embryo.

Finally, the reference list of the book is unreliable. Journal abbreviations are inconsistent, volume and page numbers are sometimes incorrect or are left out, author names are out of order or incorrectly spelled, and words are omitted from some book titles. Also, certain uncited references are included and cited ones (sometimes incorrectly so) are left out.

All these errors could have been caught had Ananthakrishnan and the publisher had the manuscript reviewed by those in a position to judge it rigorously prior to publication. However, I made the same comments in my review of his 1984 book and even sent a copy to the publisher. . . and this is the result. So don't hold your breath for perfection when Ananthakrishnan's next book appears!

Bruce Heming
Edmonton

Chaudonneret, J. 1990. *Les Pièces Buccales des Insectes. Thème et Variations*. Edition Hors Série du Bull. Scient. de Bourgogne. Dijon. viii + 255 pp., 459 figures, taxonomic index. Paper. 166 French francs.

The author of this marvelous new book on insect mouthparts is Professor Emeritus at the University of Bourgogne in Dijon and was awarded the first (1984) 'International Award in Insect Morphology and Embryology' at the XVIIIth International Congress of Entomology in Vancouver in 1988 for his lifetime contributions to knowledge of arthropod structure. It is easy to see why. The book is outstanding in its comprehensiveness, in its clarity of thought and writing, and in its clear, fully labeled illustrations.

The book first appeared as a series of nine papers in the *Bulletin Scientifique de Bourgogne* beginning in 1982. In Part I (22 pp., 46 figs.), Chaudonneret considers the ground plan structure of the head in hexapods, its segmental composition, and the skeletomusculature, innervation, and function of the gnathal appendages of unspecialized, biting and chewing insects. (Chaudonneret is probably best known among insect morphologists for his long time support of J.-R. Denis' hypothesis that the insect head comprises seven segments rather than the six mentioned in most entomology textbooks. He has accumulated detailed, comparative, neuroanatomical evidence for the presence of a seventh, tetrocerebral metamere between the tritocerebral and mandibular metameres of insects and crustaceans whose neuromere innervates the superlingual appendages in certain primitive insects and the paragnaths of crustaceans - see Chapter 1, pp. 3-26, in Gupta. 1987. *Arthropod Brain: Its evolution, development, structure and function*. J. Wiley & Sons, Inc.).

In **Part II** (216 pp., 413 figs.), he treats, in great detail, variations in the structure and function of the mouthparts of: A), specialized biting and chewing insects (adult scorpionflies and weevils, larval mosquitoes, entognath apterygotes, and insects in which certain parts have been reduced or lost (larval hymenopteran and higher flies, male strepsipterans, the subimagos and adults of mayflies and male scale insects); B), selected predatory insects (larval dragonflies and damselflies, *Stenus* [Coleoptera, Staphylinidae] adults, and the piercing-sucking mouthparts of larval dytiscids, gyrinids, lampyrids and neuropterans); C), selected biting and licking insects (adult hymenopterans, and certain meloid beetles); D) licking insects (adult butterflies, caddisflies, crane flies and blow flies); and E) piercing and sucking insects (certain entognath apterygotes and adult beetles, sucking lice, terebrantian thrips, the adults of fleas and of certain hematophagous flies [tabanids, mosquitoes, ceratopogonids, black flies, stable flies and robber flies], and, very extensively, those of various bugs). Thus, his book is organized according to feeding mode rather than phylogenetic relationship even though phylogenetic aspects are well covered.

Although many of his descriptions are based on published information, most include extensive reinvestigation and reinterpretation of structure, homology and function and others summarize the results of original research (e.g., the peculiar piercing and sucking mouthparts of adult *Jentozkus plaumanni* [Coleoptera, Eucinetidae] and those of the tabanid, *Tabanus sedeticus*). Even though most descriptions concentrate on a single species (unfortunately, identified only by genus name in most instances), almost all provide a general summary of the life style of taxon members and brief comparison with other members of that group.

Chaudonneret is careful also to indicate where knowledge of structure and ontogeny is suspect or insufficient, and is highly critical of the observations and interpretations of others, particularly of statements based solely on knowledge of embryology or of external or internal structure. Also, he indicates where his own interpretations are unsure because of lack of information.

The book is written for students. The writing is in the active voice, is clear, concise and often vivid, and is unencumbered by reference to literature. (Chaudonneret provides a short [173] list of important papers on insect mouthparts arranged by order but does not refer to them in the text even though it is obvious that he has read them all).

All descriptions are illustrated with clear drawings of uniform style arranged into 59 plates. The more comprehensive treatments include illustrations of the whole insect, of the entire head and its appendages, of transverse and sagittal sections (including, where appropriate, the complex coadaptations linking parts together), 3-D reconstruction, and mechanical diagrams illustrating the movements of structures in relation to each other during feeding. Two of them (on larval flies [Figs. 72-78] and sucking lice [Figs. 257-261]) also contain diagrammatic transformation series illustrating the supposed derivation of the highly specialized mouthparts of these insects from those of a prognathous, biting and chewing ancestor. Almost every structure in each drawing (including muscle fibres in the sections) is labeled with an abbreviation and these are gathered together at the end of the book in an alphabetical list on five pages, the same abbreviation being used throughout for homologous structures. In addition, these abbreviations are inserted in the text at appropriate places to facilitate use of the figures and some of them in a list at the foot of the captions for the figures of each plate.

The complexity of this labeling and the large number of sections he includes confirms Chaudonneret's intimate knowledge of the systems he describes and the effectiveness of his rigorous approach to study of arthropod structure. He believes that for an investigation to have lasting value, one should: 1), describe

precisely the total structure and function of the tagma being examined, including its skeletomusculature, innervation, central nervous system, glands, etc. using every method available but, particularly, carefully prepared, triple-stained sections and 3-D models reconstructed from these; 2), compare these structures with those of other species in the taxon to which it belongs; 3), establish the ground plan for this tagma in this taxon (Chaudonneret recommends intensive study of unspecialized, relict species); 4), investigate the ontogeny of the structures including their embryology, molting and metamorphosis and, finally, 5), interpret one's findings in terms of known phylogenetic relations of the animal being considered. Although Chaudonneret has done little embryology himself, it is obvious that he has a thorough understanding of it.

Throughout the text, Chaudonneret makes frequent cross reference to structures of other insects treated elsewhere in the book and to his general account in Part I. He also makes frequent use of his knowledge of other arthropods, particularly of Crustacea, when discussing theoretical points.

Unfortunately, the book is not perfect. As he fully admits, many, more or less specialized gnathal mechanisms are not included (e.g. those of psocids, biting lice and tubuliferous thrips). And, in spite of his emphasis on phylogeny, Chaudonneret does not include diagrams illustrating known evolutionary relationships of the orders and families of insects he considers even though the presence of these would facilitate a reader's synthesis of the complex data he provides. In his treatment of bugs, he uses an old classification system not the recent, widely accepted ones of Schlee (1969. *Stuttgart. Beit. zur Naturkunde No.210*) and Stys and Kerzhner (1975. *Acta Entomol. Bohemoslov. 72: 64-79*). In his bibliography, he omits the single most comprehensive monograph on the mouthparts of true bugs (Cobben. 1978. *Meded. 289. Landb. Hooges. Wageningen*) and a recent review (Smith. 1985. pp. 33-85. in Vol. 4. of *Comparative insect physiology, biochemistry, and pharmacology*. Pergamon Press) emphasizing the quantitative aspects of insect feeding (a topic omitted from his book).

And, in his treatment of thrips (pp. 127-137), he places the genus *Haplothrips* in the suborder Terebrantia, not in the Tubulifera where it belongs. He states also that female tubuliferans have no ovipositor when it is well known that they use an extensible, chute-like structure to deposit eggs homologous to the anterior ovipositor valves of other female insects (Heming. 1970. *Misc. Publ. Entomol. Soc. Amer. 7: 199-234*). Finally, Chaudonneret fails to indicate the positions and angles of his transverse sections either on drawings of the entire head or of sagittal sections and is rather sporadic in indicating size.

I consider this to be the single best textbook on insect mouthparts. Although it is not as comprehensive as the late R. Matsuda's 1965 book (*Mem. Amer. Entomol. Inst. 4: 1-334*), lacks the latter's treatment of embryology and its tabular comparison of structures between taxa and has abbreviations rather than full labels on its figures, it is far more authoritative. (To my knowledge, Matsuda published only two papers on the insect head prior to his book [on a snakefly and a sawfly] while 39 of Chaudonneret's 61 papers treat aspects of the arthropod head). In addition, most of its illustrations are original while those of Matsuda were mostly redrawn from previous publications. The book is a particularly valuable resource for teaching and I hope it will be translated into other languages to facilitate its use world-wide.

Students often complain that textbooks on biology have too much detail. In this book, Chaudonneret shows that such detail is absolutely essential if one is to comprehend how structures work. I hope it has wide sales and that it succeeds in re-establishing an interest in a fascinating and important subject.

Bruce Heming
Edmonton

SCHOLARSHIPS AND GRANTS / BOURSES D'ÉTUDES ET SUBVENTIONS

Entomological Society of Canada Graduate Research-Travel Grants Invitation for Applications

Preamble

To foster graduate education in entomology, the Entomological Society of Canada will offer two research-travel grants, awarded annually on a competitive basis. The intent of these grants is to help students increase the scope of the graduate training. These grants, up to a maximum of \$2,000, will provide an opportunity for students to undertake a research project or to do course work pertinent to their thesis subject that could not be carried out at their own institution.

Eligibility

To be eligible, a student must:

- 1) be enrolled as a full-time graduate student
- 2) be an active member of the Entomological Society of Canada

Format of the Application Form

The application form will be in the format of a grant proposal, where the applicant will provide the following information: 1) the subject of the thesis; 2) a pertinent review of the literature in the field; 3) a concise presentation of the status of the ongoing thesis research; 4) a description of the research or course work to be undertaken, clearly indicating a) the relevance to the overall goal of the thesis, b) an explanation of why such work cannot be carried out at the student's own university and c) the justification of the site where the research/course work will be carried out; 5) a budget for the proposed project; 6) anticipated dates of travel and date on which grant money is needed.

The application form should also be accompanied by: 1) an up-to-date C.V.; 2) a supporting letter from the senior advisor; 3) When appropriate, a support letter from the scientist or Department Head at the institution where the applicant wishes to go.

Evaluation Procedure

The scientific merit of each application will be evaluated by a committee that has the option of sending specific projects out for external review by experts in the field. A constructive written report, underlining the positive and negative aspects of the proposal, will be returned to the applicant.

Timetable and Application Procedure

Application forms, which may be obtained from the Secretary of the Society, must be completed and returned to the Secretary of the Society by **15 February 1992**. The committee will evaluate all applications by 30 April 1992 and determine if, and to whom, grants will be awarded. The successful applicants will be informed immediately, thereby providing sufficient time for students wishing to start in the fall to make necessary arrangements. Grants must be used in the 12 months following the award.

Recipients must provide a short final report, as well as a detailed list of expenses, in the three months that follow the trip. Any money not spent must be returned to the Society.

La Société d'entomologie du Canada Allocations de Voyage pour Étudiants Diplômés

Appels pour Allocations

Préambule

Afin de promouvoir les études diplômées en entomologie, la Société d'Entomologie du Canada offrira deux bourses de voyage associées à la recherche. Celles-ci seront décernées annuellement sur une base compétitive. Le but de ces bourses est de permettre aux étudiants diplômés d'élargir les horizons de leur formation. Les bourses, d'une valeur maximale de \$2,000 permettront à des étudiants de réaliser un projet de recherche, ou de suivre des cours pertinents à leur sujet de thèse qui ne peuvent être entrepris dans leur propre institution.

Éligibilité

Afin d'être éligible, l'étudiant doit:

- 1) être inscrit à temps plein comme étudiant diplômé
- 2) être un membre actif de la Société d'Entomologie du Canada

Format du Formulaire de Demande

Le formulaire de demande sera dans le style d'une demande d'octroi et l'étudiant devra fournir les renseignements suivants: 1) le sujet de la thèse; 2) une présentation de la littérature pertinente au domaine d'étude; 3) une présentation concise du statut du projet de recherche en cours; 4) une description de la recherche ou des cours qui seront entrepris, indiquant clairement a) la pertinence des objectifs généraux de la thèse, b) les raisons pour lesquelles ce travail ne peut être entrepris à l'université où l'étudiant est inscrit, et c) une justification concernant le choix de l'endroit où la recherche/les cours seront entrepris; 5) un budget pour le projet proposé; 6) dates prévues pour le voyage et date pour laquelle la bourse sera requise.

La demande devra aussi être accompagnée: 1) d'un C.V. complet mis-à-jour; 2) d'une lettre de recommandation du directeur de thèse; et 3) lorsque convenable, une lettre d'appui d'un administrateur de l'institution dont le candidat désire fréquenter.

Évaluation

La valeur scientifique de chaque demande sera évaluée par un comité qui aura l'option d'envoyer des demandes spécifiques pour évaluation par un lecteur externe, expert dans le domaine. Un rapport écrit, contenant une critique constructive, faisant ressortir les aspects positifs et négatifs de la demande, sera retourné à chaque candidat.

Échéances et Procédures

Les formulaires de demande, qui peuvent être obtenus du Secrétaire de la Société, doivent être remplis et retournés pour le **15 février 1992** au Secrétaire de la Société. Le comité évaluera toutes les demandes pour le 30 avril 1992 et déterminera si, et à qui, les bourses seront décernées. Les candidats choisis seront contactés immédiatement, cela afin d'allouer suffisamment de temps pour les préparatifs nécessaires à un départ possible à l'automne. La bourse doit être utilisée dans les 12 mois suivant l'octroi.

Les récipiendaires devront préparer un court rapport final, en plus d'une liste détaillée de leurs dépenses, dans les trois mois suivant le voyage. Tout argent non dépensé devra être remis à la Société.

International Society of ARBORICULTURE

Grants for Shade Tree Research and Educational Projects

Each year since 1975, the International Society of Arboriculture has awarded grants to encourage scientific and educational research on shade trees. Horticulturists, plant pathologists, entomologists, soil specialists and others are invited to submit brief outlines of proposed projects where a grant might help buy supplies or equipment, hire technical or student help, or otherwise aid the work. For the last four years (1988 through 1991) 10 grants (@\$2000) have been awarded per year. The number and size of 1992 grants has not yet been decided.

Individuals self-supported or privately or publicly employed are eligible. There is no restriction by religion, race, sex, age, nationality or residence of applicant. The grants are not expected to cover all research costs but to aid, stimulate and encourage scientific studies of shade trees. ISA requires that administrative overhead **NOT** be deducted from grants it awards. Recipients will be asked to publish their results in ISA's "Journal of Arboriculture".

The candidate should send **no more than 2 pages** (in English) outlining:

- (1) Name, address and telephone number of **one** Principal Investigator
 - (2) Institution(s) and date(s) of Investigator's college and/or graduate degree(s)
 - (3) Title of project
 - (4) Purpose of project
 - (5) Research plan
 - (6) Intended use of grant money
 - (7) Names of other individuals involved in the research
 - (8) Citations to 2 relevant publications by the researcher (Do not send reprints)
 - (9) Importance of Research: How will your results help every arborist do daily tree-care work?
 - (10) Cost of the **entire*** project
 - (11) Duration of the **entire*** project
- * whether or not an ISA grant is awarded

To be considered **proposals must arrive by December 1st 1991**. Proposals received after December 1st are considered one year later.

For more information write to:

Dr. Francis W. Holmes
Chair of ISA Research Committee
24 Berkshire Terrace
Amherst, MA 01002-1302

Tel. 413-549-1226

The Canada-Germany Research Award

The Canada-Germany Research Award, valued at \$75,000 will enable a distinguished German scholar to spend up to 12 months in Canada to pursue research in any of the disciplines of the natural sciences, health sciences, engineering, social sciences, and humanities. Funded for the first three years by the Donner Canadian Foundation, this award will be administered by the Canada Council in collaboration with the Alexander von Humboldt Foundation. The Canada-Germany Award also includes a travel grant of up to \$20,000.

This award will be adjudicated by a multidisciplinary Canada Council selection committee. Candidates may not apply for these awards, but must be nominated by university departments or research institutes in Canada. Nominations must be submitted by **15 October 1991**, for research periods beginning in 1992. Full details about the award, including nomination procedures, may be obtained from the Canada Council.

According to the terms of an agreement with the Canada Council, the Alexander von Humboldt Foundation will reciprocate by offering similar awards to enable distinguished Canadian scholars to spend extended periods in Germany to pursue research. This reciprocal interchange of distinguished scholars is intended to benefit scholarship in both countries, as well as contribute to the enhancement of international scholarly cooperation, the free exchange of ideas, and the further development of mutual understanding between Canada and Germany.

For more information about the Canada-Germany Research Award, including nomination procedures, contact Mel MacLeod, the Canada Council, at (613) 598-4310. The Canada Council accepts station-to-station collect calls.

Notice of this award was provided by:

The Canada Council
99 Metcalfe Street
Post Office Box 1047
Ottawa, Ontario K1P 5V8
Telephone (613) 237-3400
Telecopier (613) 598-4390

Conseil de Arts du Canada
99, rue Metcalfe
Case postale 1047
Ottawa (Ontario) K1P 5V8
Téléphone (613) 237-3400
Télécopieur (613) 598-4390

POSITION AVAILABLE

University of Saskatchewan Bioinsecticide Research Laboratory Professional Research Associate

Duties:

The research focus is on insect epizootiology, laboratory formulation and field application of microbial insecticides.

Qualifications:

Preference is given to Ph.D.'s with research expertise in entomopathogenic fungi.

Appointments will be made as soon as possible and will be for one year and renewable for up to five years.

Salary:

Salary including the fringe benefits package \$28,000 to \$44,000 per annum.

Applications including a full C.V., reprints, plans for future research and three letters of reference should be mailed to:

Dr. George Khachatourians
Department of Applied Microbiology and Food Science
University of Saskatchewan
Saskatoon, Saskatchewan
S7N 0W0

Posted July 9, 1991

The University of Saskatchewan is committed to the principles of Employment Equity.

EMPLOYMENT WANTED

Qual. Bsc (Agr.), MSc (Ent.). Interested in cont./perm. work in: IPM, Bio Control, lab. & field work, product testing, rearing & dissecting insects. Contact Chris Maund (416) 642-2631, 62 Yorkleigh Ave., Etobicoke, ON, M9P 1Y5.

UPCOMING MEETINGS / RÉUNIONS À VENIR

47th Annual Meeting of the Entomological Society of Manitoba

November 7 - 8, 1991

The Freshwater Institute, Winnipeg, Manitoba

In addition to the paper and poster sessions, the Scientific Programs will include a symposium of special interest: "Pest Management: Are There Any Alternatives?" The theme speaker will be Dr. Gordon Surgeoner of the University of Guelph. Symposium speakers will include: Ms. JoAnne Buth, Manitoba Agriculture; Dr. Bob Lamb, Agriculture Canada; Dr. Sandy Smith, University of Toronto; Mr. Ernest Dankwa, Abbott Laboratories; and Dr. Michael Weiss, North Dakota State University.

CONTACT: Mr. R. M. Gadawski, Chair, ESM Scientific Program Committee, 2799 Roblin Blvd., Winnipeg, MB, R3R 0B8. Tel. (204) 986-3794, Fax: (204) 832-7134.

International Conference on Agriculture and the Environment

November 10-13, 1991

Columbus, Ohio

Conference highlights will include the following issues: Global Aspects of Agriculture and the Environment; Integrated Pest Management; Food Safety; Sustainable Agriculture; and Water Quality.

CONTACT: Dr. Clive Edwards, c/o Pat Gardner, Department of Conferences and Institutes, International Conference on Agriculture and the Environment, The Ohio State University, P.O. Box 2701, Columbus, Ohio 43216-2701. Tel. (614) 292-3786.

44th International Symposium on Crop Protection

May 5, 1992

Faculty of Agricultural Sciences, State University of Ghent (Belgium)

The following topics will be treated: Insecticides, Entomology, Nematology, Applied Soil Zoology, Fungicides, Phytopathology, Phytovirology, Phytobacteriology, Herbicides, Herbology, Plant Growth Regulators, Biological and Integrated Control, Residues, Toxicology, Formulations, Application Techniques. Summaries of papers will be made available to the participants in English. The proceedings will be published in the "Mededelingen Faculteit Landbouwwetenschappen Rijksuniversiteit Gent".

CONTACT: Dr. ir. W. Steurbaut, Faculty of Agricultural Sciences, Coupure links 653, B-9000 Gent (Belgium). Tel. 32 (0)91 64 60 11; Fax. 32 (0)91 64 62 49.

XIX International Congress of Entomology

June 28 - July 4, 1992

Beijing, China

CONTACT: Prof. Z.L. Zhang, Secretary-General, XIX International Congress of Entomology, 19 Zhongguancun Lu, Beijing 100080, China. Tel. (861) 256-3011; Fax. (861) 256-5689; Telex 222337 ICCST CN

XII International Congress of Arachnology

July 12 - July 18, 1992

Brisbane, Australia

CONTACT: Valerie Davies, Secretary, Organising Committee, XII International Congress of Arachnology, Queensland Museum, PO Box 300, South Brisbane, Qld 4101. Tel. 61-7-840-7700; Fax. 61-7-846-1918

VII International Conference on Ephemeroptera

August 3 - August 6, 1992

Orono, Maine

CONTACT: K. Elizabeth Gibbs, Department of Entomology, University of Maine, Orono, Maine 04469

Joint Meeting of the Entomological Societies of Canada and Saskatchewan

September 27-30, 1992

Saskatoon, Saskatchewan - SECOND NOTICE

CONTACT: Dr. P. G. Mason, Agriculture Canada, Research Station, 107 Science Crescent, Saskatoon, Saskatchewan S7N 0X2. Tel: (306) 975-7014, Fax: (306) 242-1839.

MISCELLANEOUS

Registration of Insects and Nematodes Sold Commercially for the Biological Control of Pests in Canada

Pesticides Directorate has commissioned me to prepare lists of biological agents (insects, mites and nematodes) currently in use in Canada and those that may be introduced for commercial use in the next 5 years. This will be followed by a workshop in Ottawa to discuss whether these products need to be regulated and, if so, on what grounds.

I will be contacting as many researchers, producers, distributors, and users as possible but would appreciate hearing from anyone who might wish to make comments on this subject or who may wish to attend the workshop at their own expense.

J. S. Kelleher
Biosystematics Research Centre
Agriculture Canada
Room B159, K. W. Neatby Bldg.
Ottawa, Ontario
K1A 0C6

Fax (613) 995-1823

Laboratory Cultures of Insects and Other Arthropods in Canada

The 1991 revision is now available to members who request it. Please contact the compiler at the address below.

Contributors will be contacted or sent a copy directly.

J. S. Kelleher
Biosystematics Research Centre
B - 159 K. W. Neatby Bldg.
Agriculture Canada
Ottawa, Ontario
K1A 0C6

Fax (613) 995-1823

Attention Old-timer Entomologists!

Ed Becker has recently published the fourth issue of the *Newsletter for Old-timer Entomologists, Secretaries, and/or Spouses, etc.* He is trying to find information on 3 "lost" old-timers: Sterling and Lorraine McLeod (interior BC); Mrs. Dick Painter (Lethbridge); and Hec Richmond (Nanaimo). Anyone with information is asked to write to:

Dr. E.C. Becker
c/o CanaColl Foundation
K.W. Neatby Building, Rm. 4058
1010 Carling Avenue
Ottawa, Ontario, K1A 0C6

NOTICE

Please note that the correct address for the Entomological Society of Canada is:

E.S.C./S.E.C.
393 Winston Avenue
Ottawa, Ontario
K2A 1Y8

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