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D.M. Davies — Bulletin Editor

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EDITORIAL

This is the fourteenth year for publication of the Bulletin. At the 1967 annual meeting, the members approved the recommendation of the Directors to publish a newsletter and the first issue of the Bulletin appeared in March 1969 with Dr. D.P. Pielou acting as editor, adding this to his responsibilities with The Canadian Entomologist. In his first editorial he wrote that the Bulletin "is not intended as a medium for publication of the results of scientific research"...and "will be concerned not so much with problems of entomology as with problems of entomologists. It will be a forum for the discussion of controversial matters that affect entomologists personally - for instance, the sort of things that are often argued about, sometimes heatedly, at coffee breaks, but are rarely put in print. At the same time, the Bulletin will provide a permanent record of many of the decisions, reports, and minutes concerning the organization and activities of our Society". At the 1969 annual meeting, Dr. D.C. Eidt was chosen to relieve Dr. Pielou of the Bulletin editorship, and with his dedication, flair and humour developed the Bulletin into an integral organ of the Society. In January 1976 he relinquished his position to Dr. B.J.R. Philogène in order to assume the editorship of The Canadian Entomologist. Dr. Philogène ably continued the excellent standard set by his predecessor until December 1979.

During the last three years I believe that interest by members in the Bulletin has grown as evidenced by increased volume size. Also I have perused various newsletters and journals for special items about members, and entomological meetings. I have encouraged information from regional societies and amateur entomologists. I hope that this approach may illicit increasing awareness of what the ESC is doing for entomology in Canada and may encourage all Canadian entomologists to use the Bulletin as means of exchanging information and ideas that will be of interest and help to all.

Dr. Helen Liu will begin as editor with the September Bulletin. I know that she will enjoy the same ready cooperation given me by the directors and members of the Society, for which I am most grateful.

D.M. Davies

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"Insects serve better than other groups of animals to emphasize the vastness of the oceans of new knowledge which man may hope to explore. Of the million or so that are known by name and appearance, probably no more than one percent have revealed the secrets of their life histories and habits. And each species for which these facts are known has some interesting or exciting feature. Who's coming for a sail on this exhilarating ocean? There's room for everybody - but it may end up as a swim". From a radio address entitled "The Elephant's Scientific Child" by Brian Hocking.

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NOTICE OF ANNUAL BUSINESS MEETING

The Annual Business Meeting of the Entomological Society of Canada will be held Friday, December 3, 1982, at the Royal York Hotel, Toronto, Ontario from 8:30 to 10:00 am.

Matters for the consideration of this meeting or of the Governing Board meeting, to be held on November 28 and 29, 1982 at Toronto, should be sent to the Secretary, Dr. H.G. Wylie, Research Station, Agriculture Canada, 195 Dafoe Road, Winnipeg, Manitoba, R3T 2M9.

La Réunion Annuelle d'Affaires de la Société Entomologique du Canada aura lieu le mercredi, 1 Decembre 1982 a l'Hôtel Royal York, Toronto, Ontario. Ceux qui désirent soumettre des propositions pour cette Réunion ou au Conseil de Direction, voudront bein les envoyer à l'addresse donnée plus haut.

The Executive Council held the mid-term meeting in Ottawa on 27-28 April. Several developments reported by Committee chairmen, together with other recent items, will be of interest to members.

With this issue, Bulletin Editor D.M. Davies will step down from the post which he has held for the past 2½ years. The Bulletin has become indispensable to support the Society's growing need for internal communication, and to those who have served in the demanding role of editor, all members are indebted. I am pleased to convey the gratitude of the Executive, Governing Board, and membership to Dr. Davies for his dedicated editorial work. I am pleased also to welcome as new Bulletin Editor, Helen J. Liu of the Alberta Environment Centre, Vegreville, Alberta. Dr. Lui received her training at the Universities of Nottingham and Guelph and thereafter spent three years at Guelph on pest management research on carrots and onions in the Holland Marshes. She is now engaged in research and extension as a field-crop entomologist specializing in crop protection for the Alberta Government. In the Publications Committee, which includes the Bulletin among its several responsibilities, some other changes are taking place. R.J. Lamb has assumed chairmanship of this committee, replacing R.P. Bodnaryk who is taking study leave in Japan; and a new member, T.D. Galloway, has been added to the Committee. The Publications Committee has been asked to undertake the new task of developing an advertizing and merchandizing programme for the Society's publications - in particular Arctic Arthropods by H.V. Danks, the first book published solely by the Society. If publishing of Memoirs and books is to become a self-sustaining activity, the Society must accept the additional onus of informing the entomological community of what it has to sell. This charge has been taken up by the Publications Committee. I am also pleased to advise members that the Society's application to the NSERC for a grant to defray costs of publishing The Canadian Entomologist has again been funded for $27,000, which is expected to maintain the page charge at approximately the current rate of $35 until spring 1983.

The Executive Council is now prepared to initiate a review of biological control of insect pests in Canada leading to recommendations for new initiatives in research in this application of entomology to natural resource development. J.E. Laing has agreed to chair a small steering committee to draw up a proposal for short-term contract funding from the Federal Government in support of a Scientific Committee to undertake the review, the proposal to be ready for consideration by the Governing Board when it meets toward the end of this year.

Under the chairmanship of First Vice-President G.E. Ball, the Science Policy Committee met in Ottawa just before the Executive Council meeting. Work continues on the brief in support of permanent government-supported research concerned with the role of insects in development of renewable natural resources in Canada, and on the review of entomological curricula in Canadian universities. New initiatives were also discussed at length.

The Public Education Committee under chairman A.D. Tomlin has completed a list of several important current entomological projects and knowledgeable entomologists prepared to discuss their work with media reporters; and this list has been placed in the hands of the Science Writers' Association of Canada. The objective is to connect professional science writers directly with these entomologists, encouraging production of informative articles about Canadian entomology in the popular press. Members will recall that Directors representing affiliate societies now serve on the Public Education Committee to facilitate this and other co-operative ventures in popular education between the national and affiliate societies, co-operation that is proving to work effectively.

The Biological Survey's Scientific Committee, in an attempt to add to its publications in the face of static funding, has sanctioned a new unsolicited proposal Ecological synthesis of insect dormancy for approval by the Executive. If funded, the proposal would enable Secretariat entomologist H.V. Danks to devote one-half of his time for 18 months to the new project, while freeing that half of his contract salary from the National Museum of Natural Sciences to support a junior entomologist to continue the clearing-house activities of the Secretariat.

Funding for the Society's proposed Review of Entomoloigcal Manpower in Canada 1976-1986 was refused by DSS, on the grounds that this survey was not a new project

but a continuation of the previous manpower review. However, the full amount requested, $15,040, will be provided jointly by Agriculture Canada and Environment Canada (Canadian Forestry Service), and this project will proceed as soon as the necessary contract has been processed.

The Membership Committee now has all materials ready to begin a mailing campaign for new Canadian members late in 1982, taking full advantage of the publicity to be generated for the joint ESA-ESC-ESO meeting in Toronto.

Negotiations recently completed with the Entomological Societies of British Columbia and Manitoba, and with the Acadian Entomological Society enable these Societies to collect their annual membership fees independently of the ESC. These arrangements now make complete the independent collection of fees initiated by some affiliates several years ago, and while the ESC is willing to continue this service if deemed genuinely useful, a consistent policy is simpler for all. The ESC will publish in the Bulletin once each year a list of the addresses of treasurers of affiliate societies for the information of members wishing to join a regional society.

Since assuming office last October I have represented the Entomological Society of Canada at the annual meetings of the Entomological Society of American in San Diego and of the the Acadian Entomological Society in Fredericton, and at the official opening of the new Biological Control Laboratory of the University of Guelph. I attended two Executive Board meetings of the Biological Council of Canada, and two meetings of the Scientific Committee of the Biological Survey of Canada (Terrestrial Arthropods), and the Executive meeting of SCITEC. Past President S.R. Loschiavo was our representative at the annual meetings of the Entomological Societies of Saskatchewan and of Ontario; and at the annual meeting of the Entomological Society of Manitoba we were represented by First Vice-President G.E. Ball.

Planning for the 1982 joint annual meeting of the ESA, ESC and ESO in Toronto is becoming increasingly active. This joint meeting is an unusual event in North American entomology - occurring about once in every decade. Toronto prices are not the lowest in the country, but they are payable in Canadian dollars, which will make the 1982 meeting one of the most cost-effective investments in entomological diversity for years to come. Members planning to attend are advised to arrange hotel accommodation as soon as possible after reservation forms are available.

Glenn B. Wiggins, President

THE CANADIAN ENTOMOLOGIST
INSTRUCTIONS TO AUTHORS / DIRECTIVES AUX AUTEURS

In the January 1982 issue of The Canadian Entomologist (Can. Ent. 114 (1): i-ii) instructions are given for the preparation of manuscripts. These are also pertinent to the Memoirs.

We hope that the new "Instructions to Authors" are found to be more explicit and as convenient as before. Three errors occurred. Please note that the title of the book by G. B. Wiggins is "Larvae of the North American Caddisfly Genera (Trichoptera)". When there are three or more authors to a paper cited, et al. is used in the text, but not in the list of references. "Harris, C. R. et al." in the instructions should read "Harris, C. R., R. A. Chapman, and C. Harris." Also the statement that a French translation of the abstract is desirable and will expedite publication is not meant to imply that a French translation is obligatory, but rather that no time will be lost in translating.

Dans The Canadian Entomologist de janvier 1982 (Can. Ent. 114 (1): iii-iv) directives sont présentées pour la préparation de manuscripts. Ces directives sont aussi pertinent des Mémoires.

Nous espérons que la disponsibilité des "Directives aux Auteurs" encouragera plus de soumissions de bons manuscrits en français. Et al. est utilizé seulment dans un texte, alors dans les directives "Maire et al." doit lire "Maire, A., C. Tessier, et L. Picard."

We apologize for these errors. Nous nous excusons pour ces erreurs.

D. C. Eidt
Scientific Editor

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Opposite page: Faces and events of the 1981 Annual Meeting in Banff, Alberta - "Appetizer for the 1982 Toronto Joint Meeting"; from left in rows from the top- 1. The Reason, The Way, The Place, The Meeting; 2. Wild Game and Wine Social (Mrs. McAlane, Ted Heming and wife?, Frank McAlpine), Insect Collection Contest, "The Society Must Keep Active";3. Bill Charnetski (Program Chairman), Dick Prentice and Joe Shemanchuk, Jeremy McNeil (attracts insects and students), Eager entomologist!, art; 4. Doug Barnes, To the B-B-Q... we went!, George and Kay Ball (en route), Budding entomologist?; 5. Keith Kevan sings his grasshopper song at B-B-Q, Good old-time music; Dancing at B-B-Q (Dolf Harmsen et al.); 6. John and Shereen Anderson (up from California), Dolf Harmsen, Jane Wright, Marilyn Steiner, ? and Aki Braimah, Sam Loschiavo (ESC President).

ACHIEVEMENT AWARDS FOR 1982

The Achievement Awards Committee has recommended and the Governing Board has approved that the recipient of the Entomological Society of Canada's Gold Medal for outstanding achievement in Entomology in 1982 be:

EUGENE GORDON MUNROE

DUNROBIN, ONTARIO

and the recipient of the C. Gordon Hewitt award for 1982 be:

STEPHEN SOLOMON TOBE

ZOOLOGY DEPARTMENT, UNIVERSITY OF TORONTO

TORONTO, ONTARIO

Further details will appear in the September Bulletin.

FELLOWS OF THE ENTOMOLOGICAL SOCIETY OF CANADA 1982

The Fellowship Selection Committee has nominated, and the Governing Board has approved the nominations of the following persons as Fellows of the Entomological Society of Canada.

W.J. Turnock	Winnipeg, Manitoba.
H.V. Danks	Ottawa, Ontario
A.R. Forbes	Vancouver, British Columbia
G.B. Wiggins	Toronto, Ontario
J.A. Shemanchuk	Lethbridge, Alberta

PERSONALIA

Stephen S. Tobe, Associate Professor of Zoology, University of Toronto has been awarded one of the four E.W.R. Steacie Memorial Scholarships for 1982-83 by the Natural Sciences and Engineering Research Council of Canada. He received his undergraduate and graduate training at Queen's University and York University in Ontario and at McGill University in Montreal. After postdoctoral work at the University of Sussex, U.K., he joined the University of Toronto in 1978. He is Associate Editor of the Canadian Journal of Zoology and on the editorial board of the Journal of Insect Physiology.

His current research deals with insect hormones, particularly the regulation of biosynthesis and metabolism of hormones involved in insect reproduction, moulting and metamorphosis. The structure and function of the glands synthesizing these hormones is being studied emphasizing the role of nervous connectious and the central nervous system in regulating these glands.

Gold Medal for Outstanding Achievement in Canadian Entomology
and
The C. Gordon Hewitt Award
1983

Nominating procedure

Members of the Society are invited to nominate entomologists whom they believe deserving of these awards. Nominations should be sent in an envelope marked "Confidential" to the

Achievement Awards Committee
Entomological Society of Canada
1320 Carling Avenue
Ottawa, Ontario K1Z 7K9

Nominations should comprise: (1) the name and address of the nominee(s); (2) an outline of the major achievements on which the nomination is based; and (3) the names of the nominator and at least one seconder. Nominations should provide complete documentation on the candidate, explaining the value of the achievements to be considered and not merely the general competence of the nominee. To be considered by the Achievement Awards Committee nominations must bear a postmark no later than November 30, of the current year.

Eligibility of nominees

Recipients of the awards need not be members of the Society, nor need they be domiciled in Canada, providing that their contribution is judged to have had a major impact on entomology in Canada.

The objective for the C. Gordon Hewitt Award is to recognize excellence among younger entomologists; nominees for this award must be under 40 years of age throughout the calendar year in which the award is both announced and made.

The awards shall be made annually, save when the Achievement Awards Committee or the Governing Board deem that no awards should be made. No more than one Gold Medal and no more than one Hewitt Award shall be awarded each year, but, where circumstances warrant, more than one individual may be cited in connection with a single award. The award may be made on different occasions to the same recipient(s), but only for distinctly different contributions to entomology in Canada.

Criteria for the awards

Recipients shall be judged to have made an outstanding contribution to entomology in Canada on the basis, not only of demonstrated competence, but also of one or more of the following special criteria:

a) Superior research accomplishment, either as a single contribution or as a series of associated endeavours, in entomology or in a related field in which the results obtained are of great consequence for entomology in Canada;
b) Meritorious contribution to entomological scholarship or literature, whether or not this be based upon the recipient's own original research, and whether or not it be based upon the recipient's own original research, and whether or not it be based upon predominantly Canadian material, providing that the contribution be identifiably Canadian in origin;
c) Unusually valuable practical application of scientific or technological expertise in or to the credit of entomology in Canada;
d) Outstanding contributions in the fields of advisory, extension, industrial or public relations work in or to the credit of entomology in Canada;
e) Long, dedicated, and fruitful service in affairs of the Society or of an Affiliate, entomological education or administration in Canada.

PROBLEMS IN PUBLISHING

by

D.C. Eidt, Scientific Editor, ESC

This article is adapted from the text of a talk given to a seminar at Macdonald College of McGill University at the invitation of the entomology stuents.

First I spoke about The Canadian Entomologist and the Society that publishes it. The Society had made it possible for me to give the talk because it paid most of my travel costs, which were included in a trip to the Ottawa head office. The Maritimes Forest Research Centre allowed me time from my regular duties.

I also discussed scientific writing under four headings. First in a general way, giving a few tips that might be helpful; second, criteria for the acceptance of papers; third, publishing theses; and finally how we train (or don't train) our students in scientific writing.

THE CANADIAN ENTOMOLOGIST

The Canadian Entomologist is Canada's oldest scientific journal, and the first issue of The Canadian Entomologist in 1868 and those that followed, were very different from those of today. Today we would regard the writing as quaint. Early numbers contained narrative accounts, casual observations, news of members, and serial argument and repartee among members, as well as scientific, mostly taxonomic, papers because this was the age of descriptive entomology. The Can. Ent. was essentially a club magazine.

If the early numbers are available to you I suggest you read volume IV, number 1, pp 14 to 16 "Notes on a cowcatcher ride through Nebraska" for a stimulating example. Briefly, the article describes how a man riding a cowcatcher captured grasshoppers as they flew up in front of the moving train.

If this paper were received today it would be classed as a methods paper. It would be rejected because only subjective evidence of the efficacy of the method was given and there were no comparisons with the currently accepted methods. The list of species would be of no interest because it did not identify new records or any ecological associations. A section on birds was irrelevant and levity at the end would be unacceptable. The author would be advised to provide more facts, less speculation and tighten up the language.

Volume 52 in 1920 was the last published in London, Ontario, where the Society had its beginnings. Each issue had a green paper cover with the contents listed on the front. This basic form of cover is still used. By this time, display advertising was being accepted. Entomology was thriving. One number, selected at random, announced Blatchley's books on Orthoptera of Northeastern America, the Rhynchophora or Weevils of Northeastern America and the Coleoptera of Indiana. Others announce what are now the classics - by Peterson, Comstock and others.

In 1935, the journal hadn't changed much outwardly but carried ads from the "bad guys", the insecticide companies. I was once assured by Prof. R.H. Ozburn, who was Secretary-Treasurer, that all the ads were screened to ensure that they did not make false claims.

In 1952 the Old English masthead was dropped for a more modern type face, the one we still use today. Insecticides were in their heyday: one company apologized that their product was only 1/20 as powerful as DDT, but would kill some things that DDT would not. A toxaphene ad was notable for the insects not in the long list that it was effective against. By 1966 the journal looked much as it does today. I don't know when the last change took place because only bound copies are available to me at Fredericton and the covers have been removed. The 1948 and at least one earlier volume were exceptional because publication of the journal was a whole year behind, and the entire volume was in one issue. Special numbers have been issued on occasions such as for the 1956 Montreal International Congress in volume 88 and for the 1963 Centennial of Entomology in Canada Proceedings in volume 96. Most of the changes through the years probably had practical reasons but they

ink instead of green at the request of Current Contents to facilitate copying.

In the last two years we have asked for, or provided, abstracts in French for all English articles and vice versa. This is not a rule, but there has never been any objection from authors even though they must pay for the space. This year the instructions to authors are published in French as well as in English, a move rather long delayed. This is not just a translation because different examples and writing guides are cited. French papers have been few, and early numbers contained none. In the 50's I found only two. We are doing better now, but not good enough. I do not mean that we want French for the sake of having it, but I can assure authors of French papers that language is not a barrier to publishing in The Canadian Entomologist.

MEMOIRS OF THE ENTOMOLOGICAL SOCIETY OF CANADA

As the journal grew, an outlet was needed for long papers and treatises. In 1955 the first Memoir was published as a supplement to The Canadian Entomologist. The name Memoirs of the Entomological Society of Canada was not adopted until no. 31 in 1963. To date there have been 118 published and there are 5 in the mill. Dr. Oswald Peck's (1963) chalcid catalogue was over 1000 pages long, and some, such as the spruce budworm Memoir edited by Dr. Frank Morris (1963), are still in demand and have become landmark works.

When you publish, your choice of journal will depend on whom you wish to reach. The Canadian Entomologist has a circulation of about 2000 and goes all over the world. Papers are accepted in all entomological fields; therefore it is considered in most routine literature searches. It has high page charges, but this is the price of independence. It is owned by the Society members, and receives no direct subsidies. A government publication grant in 1981-82 made it possible to reduce the basic page charge of $59 according to need, and under certain circumstances of genuine hardship page charges can be waived and paid out of the Society's general revenue.

SCIENTIFIC PUBLISHING

Publication of results is the final step in any research. Without it of course, the effort is wasted. However self-evident, this final important step is often overlooked both by grantors and grantees of research support.

It is usually the researcher who publishes his own findings because he wants to avoid misunderstanding and distortion such as we see in the mass publication media. (The spruce budworm controversy for example, is largely a contrived issue of the media with well-meaning but often subjective cooperation of some activist citizen's groups.) This brings me to what I believe should be the first principle in publishing in science. "Don't just write to be understood, write so you cannot be misunderstood". I first heard this from the late Dr. J.G. Rempel when he was my PhD advisor at the University of Saskatchewan. I'd like to think it began with him. It is irrelevant that the author likes his writeup; he already knows the work. Only the reader is important. The principle should be remembered when writing the text and in selecting and preparing the accompanying figures and tables. Above all, it should be borne in mind when a reviewer misinterprets your meaning - odds are it was your fault and you should restate it. Frequently a third way, rather than yours or the reviews, is best. When you've made a great discovery, it's very discouraging if nobody can understand you.

Canadian Entomologist reviewers are asked by the Editor if the paper is understandable by people outside the author's field. I could build a complete seminar on understanding but there are a few basic rules that may help avoid problems:

1) Follow the instructions to authors for the journal you have selected.
2) Omit all material not essential to the theme. (For example, biological notes in a morphological paper should be omitted, unless you are discussing form and function.)

3) Use a reputable dictionary. For the Canadian Entomologist Webster's New International, Oxford, Larousse, or Le Petit Robert.

4) Use short sentences. Your composition need not sound like a Dick and Jane primary reader, but sentences over 25 words become increasingly difficult to understand.

5) Avoid elegant variation. Choose the best word or phrase and don't change it so that we don't have to guess if you're still talking about the same thing. Don't try to invent new words or expressions because there is almost always a good one already extant. Simple Anglo-Saxon words are best, unless you're writing in French.

6) Use verbs not abstract nouns. Don't "make some collections of insects", "collect insects". If you "analysed the data" you can easily hide the idea if you write "performed an analysis of the data" or worse "carried out an analytical process on the data bank".

7) Avoid noun clusters.
"Pest management control procedures were used" equals "something was controlled". Does "potential major pest outbreak" mean the outbreak, the pest, or the seriousness was potential; does "major" refer to the pest or the outbreak?

8) Don't speculate or hedge excessively. Look for the key words: may, could, would, might, seem, possibly, probably, and so on. Some passages contain so many such words that they say virtually nothing.

9) Use no more statistics than necessary. If two substantial populations of data have discrete peaks with no overlap, why would anybody feel compelled to use a statistical measure of significance? How much evidence is necessary to prove a difference is real? I've seen it done with head capsule data. On the other hand, people have gone so far as to claim differences or similarities among years with fewer than 10 observations per year, and no statistical analysis.

10) Use illustrations of high quality. Use these judiciously, and only when they explain something better and more economically than can be done with words alone.

11) Tables and graphs should stand alone. This doesn't mean one could throw everything else away and still understand the paper. It means that it should be unnecessary to search elsewhere to understand the tables and graphs.

12) Cite references judiciously. There is a strong temptation to review everything ever written on the subject, especially among novice writers. Resist the urge and cite only those that bear directly on on your theme. Older references are often cited by the more recent ones. Also bear in mind that something isn't necessarily true because it appears in print. One of the commonest errors in scientific papers, and the hardest to trace is the mis-citation.

13) Forget the goodie points (brownie if you prefer). Peer judgement, the kind that matters, it is not based on the number of papers, the number of pages, the big words, number of references etc. Let's not allow the publish or perish syndrome to compromise scientific principles. Recognition may come later, but it will mean more when it does.

Scientific writing is a far cry from creative writing. A friend who writes novels once told me he could never write the way I do. I didn't have to think about it before I replied that I couldn't write the way he does. We both write English, but the objectives are totally different. His is to convey moods, mine, and yours, is to convey facts.

For those of you who have read any of my papers, it is a lot easier to criticise a paper than to write one.

The criteria for acceptance of scientific papers are that the information be new, true, important and comprehensible. I found these criteria stated by the Council of Biology Editors. Some explanation may be needed.

New Newness is imperative in scientific papers. Review papers may not present new data but the perspective is new and new conclusions may be presented.

True Obviously lies aren't acceptable, but more is meant. In science it is necessary to provide authoritative references for, or evidence of the truth of any statement not generally recognized as common knowledge. Indeed, research feeds on doubt and curiosity.

Important This is the least of the criteria of acceptability because it is a matter of opinion. Something that merely excites somebody's intellectual curiosity is important enough if it adds to the pool of knowledge.

Comprehensible A certain literary standard has to be maintained. I see three main elements:

1. Simple direct language
2. Freedom from jargon and colloquialisms
3. Objectivity

Recently I reviewed a number of papers rejected by The Canadian Entomologist seeking examples of what can go wrong:

1) The objectives of the paper were not achieved, nor were negative results obtained. It's surprising how often an author fails to state clearly what the objectives are.

2) In two papers the subject was not entomology. In one, the subject was biometrics - the method would work as well for frogs. The author was advised to select a biometrics journal. The other was plant physiology - a study of the consequences of artificial defoliation with no inferences for insect defoliation.

3) The subject was of regional, foreign interest. Papers should be of Canadian or cosmopolitan interest. Papers of regional Canadian interest are acceptable, but sometimes authors are advised that a regional journal may be more suitable. (Sometimes it is suggested that another journal may reach a more appropriate audience. This is not so much a rejection, as an attempt to help the author reach the right readership.)

4) The information was not new. Somebody else had already reported it. Sometimes a paper is a repeat of something already published elsewhere by the same author (double banking). Sometimes a paper is just a recombination or synthesis of older material without introducing new information or conclusions.

5) The statistical test was not appropriate to the data. The conclusions were therefore not necessarily true.

6) The paper was essentially a list of insects from a species of tree. Associations and relationships were not established.

7) Long and wordy, contained little new information and overdid the literature review and discussion.

8) Subject acceptable but the manuscript was not. This paper was from a thesis; it was detailed, padded, verbose, and contained much information not relevant to the theme. It read as if the author was trying to write all he knew. The composition was disjointed and full of redundancy.

9) Original ideas, but the sample sizes were too small (8 observations/yr for 3 yrs).

10) Presence of microorganisms in an insect were described. No relationships, pathogenic or other were implied.

11) In two papers the organism was not identified. In one it was called "Whatsit spp. no. 5" without specifying who gave it the no. 5. Both papers were later accepted. In one case the taxon was described in a companion paper; in another the deposition of voucher specimens was stated.

12) Inadequate replication. Only one year's field results do not allow for seasonal differences. Authors sometimes argue that financial support only allowed one season's study and the investigator has moved on. Excuses don't compensate for bad science.

13) Serious age bias in the experimental animals. The females live an average of 22 days yet 18-day-old animals were used in a study of reproductive capacity.

14) Careless writing contained incorrect citations, misquotes, bad English, etc.

15) Not enough new information to constitute even a scientific note. It should have been saved until there was enough significant new information to do so.

Some of these papers were subsequently rewritten or corrected and accepted. Many of the pitfalls and the disappointment of rejection can be avoided if you have colleagues read your paper before you submit it. Generally authors from institutions with a hierarchal system and a staff editor have the best record of acceptance and authors who are isolated (sometimes by choice) have the poorest. There are exceptions of course. It is also a kindness to have your work critically reviewed by specialists before you submit it because journal editors and reviewers are usually not paid, and must take time from their own work to review yours. The Entomological Society of Canada is a non-profit organization.

PUBLISHING A THESIS

In my opinion, which is widely shared, the most difficult way to publish a paper is to write it as a thesis first. The reason is simple; the objectives of theses and scientific papers are different.

A thesis is the evidence that proves a person is able to carry out independent research and is sufficiently knowledgeable and wise to receive a graduate degree. It must therefore contain every detail necessary for the examining committee to decide if he or she used sound experimental methods, knows the background literature, used the equipment properly, selected and used correctly the most appropriate statistical tests, and expressed himself well. All these are taken as evidence that the candidate has learned the scientific method, has learned the skills of the branch of science involved, is able to learn new skills, and has learned and accepts the ethics of science. The purpose of the scientific paper is simply to transmit knowledge.

The thesis tends to contain everything the candidate knows about the subject. The scientific paper contains only those things directly relevant to the theme. Adapting a thesis to journal format is indeed difficult.

There are two ways to write a paper from a thesis, which have medical parallels in cure and prevention. The cure is to go back to the data base and start all over again. Keep before you the instructions to authors of the journal and perhaps some examples of well-written papers.

Prevention is best. In preparing a thesis the details of statistics, the bibliographic literature review, and other peripheral material should be kept separate. If the research is written up as a scientific paper and all the detail required by the examining committee is appended, it becomes relatively simple to extract the publishable part. Good planning can save you time after graduation

The rules for thesis format provided by a graduate school may not permit this approach. If that be the case, I can only advise bending the rules as far as you can, with the concurrence of your advisor.

Recalling the reasons papers may be rejected, it is important when planning a thesis to ensure that the schedule allows enough time to properly investigate the hypothesis. One almost always underestimates. One or two seasons' observations may not be enough to satisfy your peers that you have discounted differences among years.

TRAINING IN SCIENTIFIC WRITING

I will only give a few tips on how to write a scientific paper because there are many good guides available. Woodford (1968) is a teaching manual for a graduate course in scientific writing, but I think it very appropriate. It is published by the Council of Biology Editors, so it has multiple authorship and was thoroughly reviewed before publication. It refers to several excellent sources of information on writing - writing that is direct and simple, brief, vigorous, lucid, and precise.

A more recent book is one by Day (1979). I don't recommend it over others but I mention it because it postdates Woodford's book. I suggest you ask your librarian for advice, and if you are a student, your faculty advisor.

If you're interested in how scientific editors operate, DeBakey (1976) is the definitive book. It could help you anticipate problems. This book was also sponsored by the Council of Biology Editors, and involved seven collaborators.

At most universities there is no course in scientific writing and students have to acquire the skill by a process akin to osmosis. Sometimes we don't realize our limitation until we submit something to a journal. I repeat that a study is not complete until it is reported and reporting should be regarded as an integral part of a research plan. Language is therefore a vital tool in the pursuit of our chosen profession, just as is mathematics. Why is it then that scientific writing is not taught?

In my opinion it is shameful that our language departments teach creative writing and literary forms suitable for history and similar disciplines where opinion looms large, but do not teach scientific or technical writing. One of the results is that technical jargon tends to run wild and the language of some subjects is a fortification that must be breached to gain an understanding of something that may not be so mysterious after all. Just as statistical methods are taught in the mathematics department, I believe that scientific writing should be taught in the English (or French) department. Language, like mathematics is rarely an end in itself.

Have you ever heard the famous last words "No problem, I've got it all done but the writeup"?

I thank Margaret Cameron, Scientific Editor, Maritimes Forest Research Centre, Fredericton, N.B., for suggestions on content, and for assistance in adapting my text for publication.

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BIOLOGICAL SURVEY OF CANADA (TERRESTRIAL ARTHROPODS)

Invertebrate Zoology Division, National Museum of Natural Sciences

Ottawa, Ontario K1A 0M8

Meeting of the Scientific Committee

The Scientific Committee for the Biological Survey met in Ottawa on April 22-23, 1982. This report summarizes the results of the meeting. Current membership of the Committee is listed in the March Bulletin (Bull. Ent. Soc. Can. 14(1): 6).

General Development of the Biological Survey

Dr. Wiggins, President of the Entomological Society of Canada, reported that the Society had approved the memorandum of agreement with the National Museum of Natural Sciences. Together with the statement by the Museum on a Natural History Survey of Canada, this was published in the March Bulletin (Bull. Ent. Soc. Can. 14(1): 2-5). Mr. Schultz, Acting Director of the N.M.N.S., assured the Committee that although the previous Director, Dr. Lemieux, had retired, they could count on continued support and enthusiasm for the Biological Survey from the Museum.

Scientific Projects

Scientific priorities of the Survey were discussed by the Committee. Discussions centered on the following topics:

1. Illustrated keys to the families of insects in Canada.

Most of the keys have been drafted, and sections are now undergoing expert review. The preparation of final illustrations has just begun, and is expected to take about one year.

2. Insect fauna of the Yukon.

A scientific prospectus about the Yukon fauna, intended for publication, is nearing completion. Active fieldwork continues this year from University of British Columbia, Royal Ontario Museum, Biosystematics Research Institute, and elsewhere. Collections made in previous years have revealed many interesting features of the fauna, especially range extensions, and evident affinities in several different groups with the fauna of the palearctic region. Some liaisons with Soviet and with Scandinavian scientists have been established. The first publication (one of four parts) from the National Museum of Natural Sciences' Yukon refugium project has recently appeared (Arctic 34(4): 329-365).

3. Arthropod Fauna of Canadian Grasslands.

A background paper on this project is being prepared. The preliminary suggestion that a small number of sites should be selected for study has proved to be unworkable, and instead an inventory of sites (which characterizes more or less "undisturbed" grassland areas) is being developed. A newsletter on the project will be available before the 1983 field season. Some discussion of work in National Parks revealed that studies in the Grasslands Park are not currently feasible, because the Park is not yet as firmly established as was expected.

The value and feasibility of developing graduate student projects on the grassland fauna in appropriately located Universities was also emphasized.

4. Aquatic Insects of Freshwater Wetlands.

Responses to the item introducing this project (Bull. Ent. Soc. Can. 13(4): 151-153) have allowed a short preliminary registry of participants to be circulated. Ideas for cooperation have been discussed, but existing interests appear to be rather diffuse. A proposal to hold a workshop on wetlands, perhaps in 1983, to try to focus this interest is being investigated.

5. Arthropod Fauna of Springs.

This project, which was delayed by membership changes on the Committee, is now ready to proceed again under the leadership of Dr. D. D. Williams. Plans will be discussed in more detail at the next meeting of the Committee.

The Committee discussed some ideas related to the boreal fauna and forestry-related projects. Previous discussions had failed to define a program that was broad enough to profit from the involvement of the Biological Survey, yet limited enough to be feasible with existing resources. A project of study to produce a comprehensive handbook on the immature insects, including "non-economic" species and parasites, found on a species or genus of trees was thought to be both feasible and of general interest to the Canadian Forestry Service and the Biological Survey, if a leader could be identified.

7. Attempts to Expand Work on the Arthropod Fauna of the Soil.

The Committee discussed ways to follow up the brief on the status and needs for research on Canadian soil arthropods, published as a supplement to the March Bulletin. The brief will be mailed to university and government departments interested in biology, together with a covering letter. Some personal contacts with government officials are planned. A subcommittee has been set up to discuss with interested individuals the value and advantages of a career in soil biology, at the 1982 Annual Meeting of the Society (see the separate notice in this issue of the Bulletin).

8. Queen Charlotte Islands.

This area is of great zoogeographical interest as a likely Pleistocene refugium. Initiatives from various individuals (both inside and outside British Columbia) will probably result in a particularly significant expedition to the area in 1983.

9. Review of Insect Dormancy.

Preliminary work for a review of insect dormancy indicated that a treatment of wider scope than originally anticipated is called for. A contract proposal to support the work was therefore developed, and this has been approved in principle by the Entomological Society of Canada. The Scientific Committee is now moving forward with the proposal.

General Activities of the Secretariat.

1. Clearing House Role; Newsletter.

The Secretariat has continued to respond to numerous queries that have been received about collections, individuals interested in particular projects, and so on. This communication role was consolidated by launching the "Newsletter of the Biological Survey of Canada (Terrestrial Arthropods)", the first issue of which has been mailed to entomologists interested in the systematics and ecology of Canadian insects. This issue included the annual list of requests for cooperation in studies of the fauna. The Newsletter will appear twice a year.

2. Visits to Entomological Centres.

Visits during 1981 to entomological centres, to exchange information on the Survey and on ongoing research, were completed with visits to Victoria, Vancouver (B.C.), Calgary, Edmonton, Lethbridge (Alta.), Regina, Saskatoon (Sask.), Winnipeg (Man.), Fredericton (N.B.), Halifax, Kentville (N.S.), and St. John's (Nfld.). Most major centres have been visited, but some intended visits were postponed because travel funds had been substantially eroded by inflation and cost increases since budgets were established. A new round of visits will begin this fall.

Survey-Related Activities at the 1982 E.S.C./E.S.A. Joint Annual Meeting

1. Symposium.

Arrangements for the Biological Survey symposium on "Origins of the North American Insect Fauna" are well advanced. It is hoped that the proceedings will be published.

2. Display About the Biological Survey of Canada.

Plans for a display about the Biological Survey in general, as well as the active scientific projects of the Survey, have now been defined more clearly.

3. Special Conference.

The Biological Survey of Canada has been invited to participate in a Special Conference, organized by the Committee on Systematic Resources of the Entomological Society of America, on the possibility of developing a project on the insect fauna of North America, or of the United States of America.

Dissemination of Information

Packages of information about the Survey, including its recent publications in the Bulletin, are being sent to appropriate University, Provincial, Federal, and private organizations in Canada and elsewhere. Distribution of the brief on the soil fauna has already been noted. Events planned at the 1982 ESC/ESA Annual Meeting will also help to inform entomologists about the Survey.

Other Items

Other matter discussed by the Committee included: the disposition of certain valuable collections which otherwise might be discarded; the status of Survey initiatives for a national series of faunal publications, which have been prevented for the time being by changes in government policy that remove the long-term economic basis on which the series might be established; and the 1982 Annual Report from the Entomological Society of Canada to the National Museum of Natural Sciences, which outlines the work of the Survey.

ARTHROPOD FAUNA OF THE SOIL

INFORMATION FOR GRADUATE STUDENTS AND POSTDOCTORAL CANDIDATES

In its recent discussion, the Scientific Committee for the Biological Survey of Canada (Terrestrial Arthropods) found that there is a serious shortfall in study and expertise on the arthropod fauna of the soil.

A brief was therefore prepared (Bulletin of the Entomological Society of Canada 14(1), March 1982, Supplement) to outline the roles of soil arthropods and the current state of knowledge of these animals in Canada. The brief shows clearly that there are too few taxonomic specialists and soil ecologists to support active projects that might ameliorate the situation.

The Committee intends to follow up the brief in several ways, and in particular invites students and postdoctoral candidates who have not yet fully determined the direction of their future career to discuss the value and opportunities provided by work on soil arthropods. A group consisting of Dr. V. M. Behan-Pelletier (Ottawa), Dr. E. E. Lindquist (Ottawa), Dr. A. D. Tomlin (London), and Dr. H. V. Danks (Biological Survey Secretariat), has been established to meet with interested individuals at the 1982 Annual Meeting of the Entomological Society of Canada and Entomological Society of America in Toronto (November 29 - December 3).

Anyone interested in talking informally with this group about research or career possibilities related to the need for work on soil arthropods is invited to write to: Dr. H. V. Danks, Biological Survey of Canada (Terrestrial Arthropods), Invertebrate Zoology Division, National Museum of Natural Sciences, Ottawa K1A 0M8.

INSECTS IN TRAVELLING NATURAL HISTORY EXHIBIT

The National Museum of Canada recently notified the Manitoba Museum of Man and Nature that they were successful in gaining a grant of $56,400 to circulate nationwide the exhibit entitled "Collecting Manitoba's Natural Heritage". In the past, few natural history exhibits have been prepared for circulation by Canadian museums because of difficulties in transporting fragile specimens. A significant portion of the funds will be used to research new curatorial techniques, production methods, and means of transportation. Entomological specimens will form part of the travelling exhibit.

W.B. McKillop
Newsletter, Vol.9 No.1
Entomological Society of Manitoba

SOCIETY OF CANADA PUBLICATIONS

In view of the increasing prevalence of the use of both French and English versions of notices, news items and abstracts in both the Bulletin and The Canadian Entomologist, it is time that a definite policy be set that meets the needs of the readers, considers space requirements, publication costs, and is agreed to by the members of the Society.

There are obvious needs for bilingual notices and articles, but it would be extreme to have everything in both French and English. In the Bulletin it has been good to have meeting notices, calls for papers and scholarship or awards notices in both languages. I have not seen job opportunities except in English, and they might be considered useful in bilingual form if time permitted. Some brief articles are given in both English and French but this has not been consistent. It may simply be just what is submitted.

My main concern is the promotion of both a French and an English abstract for every scientific paper in The Canadian Entomologist. The Scientific Editor says "there has been no change in policy", yet the instructions to authors changed from not mentioning a French abstract (December 1981), to stating that a French abstract is desirable, or in the case of a paper with a French text, an English abstract. Correspondence with the Chairman of the Publications Committee confirms that "the Entomological Society of Canada does not require a French language Résumé for English language papers." Both Dr. Eidt and Dr. Bodnaryk expressed the opinion that employees of Agriculture Canada and Environment Canada had to have a French résumé as part of their papers. No directive has been issued to that effect, nor would it be desirable, since we publish in many different journals and they have different requirements.

The only argument I have heard in favour of a bilingual abstract is that it would be of benefit to students who could only read French. The benefit is limited, since all the rest, including the title, is in English. Such students should quickly learn to read English if they hope for employment as entomologists outside of Quebec.

Objections to bilingual abstracts are numerous. If the addition of a French abstract causes the paper to run to a quarter or a half page more, then it is directly costing someone an additional $59.00 for publication, and possibly extra for reprints. For example, the first paper in the May issue cost $59.00 more because of the French abstract, but fortunately it stayed in the 9 - 12 page category for reprint charges.

Secondly, the need to have a translation can result in a 2 or 3 week delay in publication. Besides, someone is saddled with that job. Do the authors want prepublication release of an abstract outside of the confidentiality of the Editor and reviewers?

The purpose of an abstract is to give readers an indication of whether they want to look at the text of the paper, to serve as a source of key words for indexing, and to convey the important conclusions. Bilingual abstracts will not assist these purposes. They will add to the cost of publication, the number of pages in an issue (subsidized by membership dues), antagonize contributors who are not bilingual, and probably give the linotypists at the printers a headache!

The inclusion of an abstract in the alternative language to that of the text should be the option of the author(s) with no penalties, or inducement, or encouragement from the Editorial Board. Any policy contrary to this should have a vote at the annual meeting of the Society. Bring your ideas to Toronto this fall.

Robert J. McClanahan
Harrow, Ontario

STUDENT ENTOMOLOGY?

It is answers such as this that break the monotony of marking examinations: "Stridulation [is] found also in grasshoppers which drag [the] female across the tegmen giving off another characteristic sound".

Note: For the Bulletin, the editor prints the alternative language (French or English), if it is submitted. Usually, calls for nominations for election or awards, and notices about annual meetings and calls for papers are given in both languages. The annual President's Report appears in both English and French. Certain meeting announcements, "Personalia" and book notices appear in French only or in both languages, but most in English. Announcements for job opportunities seldom appear in French but notice of the booklet on "Entomologists Available" appears in both languages (this issue). The write-ups of "L'association des entomologistes amateurs du Québec" appears only in French (this issue and vol.12(4) 102, December 1980).

Editor

1982 JOINT MEETING OF THE ENTOMOLOGICAL SOCIETIES OF AMERICA, CANADA AND ONTARIO

"Nearctic Entomology: Continental Cooperation" is the theme for this joint meeting to be held from 29 November through 3 December, 1982 at the Royal York Hotel, 100 Front Street West, Toronto, Ontario M5J 1E3, Canada.

Contacts are:
1) Freeman L. McEwen, Program Chairman, Department of Environmental Biology, University of Guelph, Guelph, Ontario, N1G 2W1.
2) Susan B. McIver, Local Arrangements Chairman, Department of Zoology, University of Toronto, 25 Harbord Street, Toronto, Ontario, M5S 1A1.
3) Stanley D. Beck, President, ESA, Department of Entomology, University of Wisconsin, Madison, WI53706, U.S.A.
4) Glenn B. Wiggins, President, ESC, Department of Entomology, Royal Ontario Museum, 100 Queen's Park, Toronto, Ontario, M5S 2C6.
5) Rudolph Harmsen, President, ESO, Department of Biology, Queen's University, Kingston, Ontario, K7L 5C4.

PERSONALIA

Lawson Drake is one of seven recently appointed to the 30-member Science Council of Canada for 3-year terms. The Council assesses Canada's scientific and technological resources, requirements and potential. It promotes co-operation between various sectors in developing and using science and technology, and encourages public awareness of science issues. Dr. Drake is an Associate Professor of Biology, University of Prince Edward Island with interests in insect fauna, insect fine structure, and insect virology.

Ring T. Cardé, formerly of the Department of Entomology and Pesticide Research Center, Michigan State University, has been appointed head of the Department of Entomology at the University of Massachusetts, Amherst. He has a B.S. from Tufts and a Ph.D. from Cornell, and is well known for his research on chemical communication in Lepidoptera. Dr. Cardé replaces former ESA President James B. Kring as permanent head of the department. After two years as Acting Dean of the College of Food and Natural Resources, Jim chose the climate of Bradenton, Florida, and a semi-retirement over other options. We wish both these members of ESA and ESC well in their new endeavours.

Bernie Roitberg received the $300.00 Rosenfeld Research Award presented annually to the outstanding graduate student in applied entomology in the Department of Entomology, University of Massachusetts. The award was in recognition of his doctoral dissertation on the "Foraging Behavior of Rhagoletis pomonella: A Parasite of Hawthorn". Congratulations to this member of ESA and ESC!

CANADIAN MEMBERS ON SPECIAL COMMITTEES OF THE ENTOMOLOGICAL SOCIETY OF AMERICA

1982 Annual Meeting Committees

1982 Program

F. L. McEwen, Chair	Guelph, Ont.

1982 Local Arrangements

Susan B. McIver, Chair	Toronto, Ont.
G. B. Kinoshita	Willowdale, Ont.
D. W. Barr	Toronto, Ont.
J. A. Oakley	Burlington, Ont.
E. F. Johnson	Stoney Creek, Ont.
J. F. Sutcliffe	Waterloo, Ont.
M. K. Sears	Guelph, Ont.

Resolutions

R. L. Edwards	Peterborough, Ont.

Governing Board Member

Section A: Systematics, Morphology and Evolution

E. C. Becker (1982-84)	Ottawa, Ont.

Section and Subsection Officers

Subsection Ca: Biological Control

R. Boch (Chair)	Ottawa, Ont.

Subsection Ce: Insect Pathology and Microbial Control

R. P. Jacques (Chair)	Harrow, Ont.

Section D: Medical and Veterinary Entomology

Susan B. McIver (Chair-Elect)	Toronto, Ont.

ESA Standing Committees

Program Committee

F. L. McEwen (Chair 1982-83)	Guelph, Ont.

Committee on Systematic Resources

D. E. Bright (1981-83)	Ottawa, Ont.

Committee on Pesticide Resistance

C. R. Harris	London, Ont.

New Emeritus Members of ESA

William W. Judd	London, Ont.
M. Ellen MacGillivray	Fredericton, N.B.
Helen Salkeld	North Gower, Ont.

ASSOCIATION DES ENTOMOLOGISTES AMATEURS DU QUEBEC (A.E.A.Q.)

L'association des entomologistes amateurs du Quebéc existe depuis le mois de mars 1973. Ses effectifs actuels sont d'environ 175 membres de quatre provinces. Les objectifs de l'A.E.A.Q. ont été publiés dans le Bulletin de decembre 1980 (vol. 12, No. 4: 102-103).

ORGANISATION DE L'A.E.A.Q.

L'association des entomologistes amateurs du Québec comprend deux filiales, l'une à Montréal et l'autre à Québec. Chaque filiale a son bureau de direction et il y a le conseil d'administration provincial. Dans la région de Chicoutimi, il y a une succursale de la filiale de Québec. Cette succursale porte le nom de Sagamie.

PRINCIPALES ACTIVITES DE L'A.E.A.Q.

1) Reunions mensuelles; 2) Congrès annuel; 3) Publication de Fabreries; 4) Publication de suppléments qui sont envoyés gratuitement aux membres qui en font la demande; 5) Répondre aux demandes de renseignements qui lui sont addressées; 6) Publication d'un fichier des insectes du Québec.

De quelle facon l'A.E.A.Q. peut-elle vous venir en aide? 1) en aidant pour l'identification des spécimens; 2) en donnant les indications nécessaire sur la chasse, le montage et la conservation des captures, et 3) en mettant à votre disposition (au 24,000, Chemin Ste-Foy) un local où vous pouvez utiliser le materiel (loupes et documentation).

FABRERIES

Cet organe officiel de l'A.E.A.Q. paraît depuis janvier 1975 et est publié six fois par an. On compte 225 abonnés. Ce carnet a pour principal objectif de favoriser les échanges de renseignements entre les membres de l'association et assurer un lien entre les amateurs. Il constitue un excellent moyen de diffusion des connaissances entomologiques et d'informations de toutes sortes. Par son contenu varié, ce journal pourra également intéresser d'autres personnes (jeunes et adultes) à la science des insectes et servir de point de départ pour la formation de nouveaux entomologistes amateurs.

LA PUBLICATION DE FICHES POUR L'IDENTIFICATION D'INSECTES

L'association s'emploie actuallement à la publication de fiches servant d'aide à l'identification d'insectes; de plus celle-ci s'occupe aussi de réimprimer des travaux taxonomiques en francais qui sont épuisés, ces travaux ont été préparés pour les amateurs.

INDEX-CARD SYSTEM FOR INSECT TAXONOMIC USE

The association is deeply involved in the publication of an index-card system for taxonomic use and the reimpression of out of print insect taxonomic works written in French and designed for amateurs.

For more information write to/Pour plus de renseignements au sujet de l'A.E.A.Q. ou de ses publications, écrivez à: A.E.A.Q., 2400, Chemin Ste-Foy, Ste-Foy, Québec, G1V 1T2.

M. Claude Chantal
Président, A.E.A.Q.
22 février 1982

To the Members,
Entomological Society of Canada.

We have examined the balance sheet of the Entomological Society of Canada as at December 31, 1981 and the statement of income for the year then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests and other procedures as we considered necessary in the circumstances.

In our opinion, these financial statements present fairly the financial position of the Society as at December 31, 1981 and the results of its operations for the year then ended in accordance with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

Ottawa, Ontario,
April 7, 1982.

McCay, Duff & Company,
Chartered Accountants

ENTOMOLOGICAL SOCIETY OF CANADA
BALANCE SHEET
AS AT DECEMBER 31, 1981

ASSETS	1981	1980 (Restated)
Cash	$ 76,893	$ 72,929
Accounts receivable	84,505	34,967
Accrued interest receivable	4,876	4,937
Term deposit	-	30,000
Investment - Bonds - at cost (quoted value $173,285 - 1980 $178,706)	204,294	204,394
Prepaid expenses	3,998	-
Due from Scholarship Fund	-	1,303
	$374,566	$348,530
LIABILITIES		
Accounts payable	$ 26,596	$ 12,196
Deferred income	43,957	27,546
Due to Scholarship Fund	25	-
	70,578	39,742
SURPLUS		
BALANCE - BEGINNING OF YEAR	308,788	267,802
Net income (loss) for the year	(4,800)	40,986
BALANCE - END OF YEAR	303,988	308,788
	$374,566	$348,530

STATEMENT OF INCOME
FOR THE YEAR ENDED DECEMBER 31, 1981

	1981				
	Canadian Entomologist	Memoirs and Other Publi-cations	Society	Total	1980 (Restated) Total
REVENUE					
Regular memberships	$ 7,490	$ -	$18,739	$26,229	$ 27,048
Student memberships	-	-	2,147	2,147	1,950
Sustaining memberships	-	-	300	300	400
Subscriptions	43,590	25,727	-	69,317	49,897
Reprints	15,381	-	-	15,381	52,015
Page charges	53,954	-	-	53,954	
Back issues	2,742	-	-	2,742	4,662
Publishing "Memoirs"	-	41,998	-	41,998	52,270
Sales of "Arctic Arthropods"	-	3,561	-	3,561	-
Interest	-	-	34,930	34,930	25,779
Gain on currency exchange	-	-	10,618	10,618	7,860
Government grant	27,000	-	-	27,000	25,000
Miscellaneous income	-	-	1,044	1,044	7,552
	150,157	71,286	67,778	289,221	254,433
EXPENDITURE					
Publishing costs	96,168	50,008	-	146,176	103,548
Reprint costs	8,582	-	-	8,582	3,351
Publishing costs "Arctic Arthropods"	-	25,157	-	25,157	-
Bulletin	-	-	10,437	10,437	12,353
Salaries and benefits	44,198	5,081	8,738	58,017	39,921
Office expenses	7,486	-	7,486	14,972	12,064
Professional fees	850	-	850	1,700	1,200
Gold medal, trophies, etc.	-	-	1,152	1,152	-
Honoraria	1,200	-	1,700	2,900	1,600
Committees:					
Editorial	-	-	-	-	1,679
Photo Salon	-	-	148	148	
Education	-	-	104	104	
Science Policy	-	-	1,540	1,540	2,951
Common Names	-	-	25	25	
Employment	-	-	353	353	
Contingency Fund	-	-	-	-	
Other (Finance)	-	-	32	32	
Support of other organizations	-	-	3,826	3,826	3,793
Annual Meeting:					
Grant	-	-	2,000	2,000	2,000
Honorees	-	-	299	299	-
Governing Board:					
Interim meeting	-	-	2,774	2,774	
Annual meeting	-	-	10,902	10,902	17,744
Other meetings	-	-	2,787	2,787	
President's discretionary expenses	-	-	-	-	490
General	-	-	138	138	753
Transfer to Scholarship Fund	-	-	-	-	10,000
	158,484	80,246	55,291	294,021	213,447
NET INCOME (LOSS) FOR THE YEAR	($ 8,327)	($ 8,960)	$12,487	($ 4,800)	$ 40,986

NOTES TO FINANCIAL STATEMENTS

1. RESTATEMENT OF 1980

Comparative figures for 1980 have been restated giving effect to the following changes:

1) Transfer to the Scholarship Fund in the amount of $10,000 has been shown as an expenditure rather than as an account receivable from that Fund.

2) Revenue from publishing "Memoirs" has been increased to recognize an account receivable as at December 31, 1980 in the amount of $11,768.

BUDGET FOR 1982

REVENUE	Canadian Entomologist	Memoirs	Society	Total
Regular memberships	$ 7,500	$ -	$18,750	$ 26,250
Student memberships	-	-	1,500	1,500
Sustaining memberships	-	-	-	-
Subscriptions	36,000	20,000	-	56,000
Reprints	13,800	-	-	13,800
Page charges	36,366	-	-	36,366
Back issues	2,500	-	-	2,500
Publishing "Memoirs"	-	50,338	-	50,338
Sales of "Arctic Arthropods"	-	6,500	-	6,500
Interest	-	-	30,000	30,000
Gain on currency exchange	-	-	-	-
Government grant	27,000	-	-	27,000
Miscellaneous income	---	-	700	700
	$123,166	$76,838	$50,950	$250,954
EXPENDITURE				
Publishing costs	101,000	60,000	--	161,000
Reprint costs	7,000	-	--	7,000
Publishing costs "Arctic Arthropods"	-	-	--	-
Bulletin	-	-	10,000	10,000
Salaries and benefits	39,575	5,283	5,500	50,358
Office expenses	6,900	200	6,900	14,000
Professional fees	600	-	600	1,200
Gold medal, trophies, etc.	-	-	1,000	1,000
Honoraria	1,200	-	1,700	2,900
Committees:				
Editorial	-	-	-	-
Photo Salon	-	-	-	-
Education	-	-	1,000	1,000
Science Policy	-	-	1,000	1,000
Common Names	-	-	100	100
Employment	-	-	600	600
Contingency Fund	-	-	-	-
Other (Finance)	-	-	3,100	3,100
Support of other organizations	-	-	4,225	4,225
Annual Meeting:				
Grant	-	-	2,500	2,500
Honorees	-	-	1,200	1,200
Governing Board:				
Interim meeting	-	-	1,500	1,500
Annual meeting	-	-	14,000	14,000
Other meetings	-	-	1,300	1,300
President's discretionary expenses	-	-	750	750
General	500	-	500	1,000
Transfer to Scholarship Fund	-	-	-	-
	$156,775	$65,483	$57,475	$279,733

NOTES TO FINANCIAL STATEMENTS (from previous page)

2. MEMOIRS AND OTHER PUBLICATIONS

Expenditures include 1981 costs of publishing "Arctic Arthropods" and "Bibliography" thereto in the amount of $25,157. Recoveries of these costs through sales of these publications amounted to $3,561. Additional recoveries are expected in 1982 and subsequent years.

CHARLIE MILLER RETIRED?

Incredible as it may seem, Mr. Budworm has stepped aside ("down" is not the right word). Charlie is the C.A. Miller of innumerable reports, publications, position papers, symposia etc. on the spruce budworm. Not the lease is the landmark spruce budworm Memoir 31 edited by R.F. Morris, to which Charlie was a major contributor. But we're getting ahead of our story.

Charlie came from Pleasant Point, now part of Saint John, New Brunswick, where they build 'em tough. He studied at the New Brunswick Normal School in 1939 and 1940, then enlisted in the RCAF. He was a pilot, who served in 1942 and 1943 in Canada, and with Coastal Command in Britain in 1944 and 1945. By the time of his discharge he had risen to the rank of Flying Officer.

Charlie's career in forest entomology began in 1946 as a student assistant with the Forest Biology Division at Fredericton, N.B. He obtained his BA at the University of New Brunswick in 1947 and his MA in Zoology at the University of Toronto in 1949. He worked under Dr. R.F. Morris on the Green River Project, a pioneer study of forest-spruce budworm dynamics in northwestern New Brunswick, and took charge of the Project from 1958 until it was discontinued in 1970.

Many entomologists are alumni of the Green River Project and worked closely with Charlie - among them Chuck Buckner, Stu Gage, Dave Greenbank, Dean Haynes, Gordie Mott, Murray Neilson - all of whom have contributed to our understanding of spruce budworm, the villain of this tale. Life at Green River was both zealous and high-spirited, which compensated for the isolation. Stories and legends are innumerable, such as the night somebody set two lanterns just under the water in the fire pond, made tire tracks to the shore, and then told the maintenance man that somebody had driven the jeep into the pond.

It is not right to talk about Charlie's career without mentioning George MacDougall. George was Charlie's technician for over 25 years, and tirelessly generated reams of data that Charlie used to elucidate so many aspects of the budworm problem. Charlie and George were an ideal team.

Now that Charlie is retired, his advice is still in demand at the Maritimes Forest Research Centre (which evolved from the Forest Biology Lab.) and by the Acadian Entomological Society. He is a past President of the Acadian Entomological Society (1956-1957). He is a fellow of the Entomological Society of Canada and is Assistant Scientific Editor.

Charlie's main interest these days is salmon and duck predation with rod and gun; and curling is a close second. He keeps a lifelong interest in boats, stemming from his beginnings near the sea. Thus he can be found on the St. John River or adjacent waters between thaw and freeze-up.

Charlie and his vivacious and devoted (but liberated) wife Muriel live at 120 Willow Avenue, Fredericton.

Doug Eidt, with a lot of help from
Charlie's friends.

PERSONALIA

Arnold T. Drooz, principal research entomologist with the U.S. Forest Service in North Carolina, has received the USDA Award of Merit for his work on the biological control of the introduced pine sawfly, Diprion similis. He recently returned from Medellin, Colombia in South America where he was a special guest speaker at the 8th Congreso de la Sociedad Colombiana de Entomologia.

C. Wayne Berisford, associate professor of Entomology at the University of Georgia, recently received the Forest Service's 75th Anniversary Award. The award cited Wayne's contribution for "developing techniques and evaluating pheromones and other chemicals for controlling bark beetles, tip moths and several pests of pine tree orchards". We congratulate these two members of ESC.

Professor A. Grant Robinson retired from the Department of Entomology, The University of Manitoba, on 31 August 1981 after 28 years of distinguished service which included 4 years as Department Head. Grant is a highly respected gentleman who has a reputation for excellence in teaching, research, and administration as well as a genuine concern for his colleagues and the students he trained. His leadership has benefited the discipline of Entomology far beyond this Campus.

Grant has served faithfully on numerous committees at the University and in the Entomological Societies of Canada and Manitoba; he was the President of the latter Society for 4 years and was elected a Fellow of the Entomological Society of Canada in 1980.

His research included important studies on the resistance of barley cultivars to aphids, the population dynamics of aphids, and the effects of plant growth regulators and herbicides on aphids. However, one of his greatest contributions to Entomology involves his taxonomic studies of aphids wherein he has been the author and co-author for 34 and 7 new species respectively. His aphid collection, now held in this Department, is one of the largest in North America. He supervised 6 Ph.D. and 14 M.Sc. students, published 58 scientific papers, 93 extension bulletins and has been a frequent speaker at International Symposia.

Prior to his university career, Grant served in the Canadian Army for 8 years during which time he was awarded the Military Cross. Between 1960-1967 he was a Lieutenant-Colonel, Officer Commanding the University of Manitoba C.O.T.C.

Recently we learned that Grant was appointed Professor Emeritus in the Faculty of Agriculture, University of Manitoba - an honour he richly deserves. His former colleagues are pleased that he is continuing his taxonomic interests in our laboratory as a post-retirement hobby. We all wish both Grant and his good wife, Rose, a very happy, healthy retirement.

S.C. Jay

LIST OF DONORS TO SCHOLARSHIP FUND 1981

Anonymous (3 individuals)
N.H. Anderson, Corvallis, Ore.
E.Arnason, Ottawa, Ont.
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G.R. Wyatt, Kingston, Ont.

SCHOLARSHIP FUND

During 1981, sixty donations to the Scholarship Fund were received; several individuals made more than one donation. The 1981 donations amounted to $2,625.25 and at the end of the year the Scholarship Fund totaled $24,799.03. Scholarships of $1,000 each were awarded to Paul Fields and Daniel Quiring, both students at Laval University.

ENTOMOLOGICAL SOCIETY OF CANADA — SCHOLARSHIP FUND

ASSETS	1981	1980 (Unaudited)
INCOME FUND		
Cash	$ 3,514	$ 2,841
Due to/from General Fund	25	(1,303)
	3,539	1,538
CAPITAL FUND		
Cash	2,431	1,569
Investments - Bonds - at cost	22,515	20,525
	24,946	22,094
	$28,485	$23,632

SURPLUS ACCOUNT

INCOME FUND		
Balance - beginning of year	$ 1,538	$ 1,505
Add: Interest income	3,001	1,238
	4,539	2,743
Deduct: Scholarship awards	1,000	1,000
Envelopes and memorial cards	-	205
	1,000	1,205
Balance - end of year	3,539	1,538
CAPITAL FUND		
Balance - beginning of year	22,094	10,078
Add: Donations received	2,852	2,016
Transfer from General Fund	-	10,000
Balance - end of year	24,946	22,094
	$28,485	$23,632

RECENT DEATHS

BOTTIMER, Larry J. Tow, Texas. On 31 January 1982. Retired scientist U.S. Department of Agriculture; acknowledged expert on seed weevils (Bruchidae). Former member, ESC.

BAIRD, Hazel (Mrs. A. B.), Ottawa, Ontario. On 22 April 1982, age 93. Widow of the former head of the Dominion Laboratory of Biological Control, Belleville, Ontario.

KIMBALL, Charles. West Barnstable, Massachusetts. On 4 March 1982. Amateur lepidopterist. Member ESC.

One of the truly remarkable North American entomologists of our time has left us, and we can do no less than offer words of tribute in his memory. Dr. Charles P. Alexander, retired Professor of Entomology at the University of Massachusetts (Amherst), died on 3 December, 1981 at the age of 92. Wherever entomologists gathered, he was known as the long-time scholar of crane-fly systematics, who described and named more than 10,000 species during an active career of some 70 years. He taught entomology at three universities (Kansas, Illinois, Massachusetts), and the successes of many of his students suggest the exceptionally sound training that he gave them. He had studied at Cornell University (1910-17) during a period when the Cornell staff in entomology was notable, and his masterful grasp of the wide ramifications of the subject reflected the broad background that he received from them.

Until his health failed near the end of a long life, his alert mind and tremendous enthusiasm for entomology, particularly the crane flies, knew no bounds. To his entomological friends and students alike, he was a willing helper on entomological history and the lives of other entomologists, including leading collectors the world over. He collected crane flies and other insects widely in North America, and during his 37 years at the University of Massachusetts (latterly as Dean of Sciences), he and his wife followed a pattern of summer travel and insect collecting. Though he never traveled abroad in an overseas sense, he had read so broadly on foreign areas that he could visualize conditions of particular regions and their zoogeographic relationships to other foreign areas.

One of the important factors that contributed to the great productivity of his studies and to the feeling of well being that he evidently experienced during most of his career was the full cooperation of his wife, Mabel Alexander, who assisted him in countless ways, on collecting trips and in the laboratory at home; in effect, his productivity represented the efforts of two people, not just one. Following her death, 24 September, 1979, he wrote "I cannot write or speak enough to do full justice to the constant help and cooperation that Mabel gave me throughout our wedded life". (Fernald Club Yearbook, Vols. 47-48).

On several occasions during his "retirement", and while his mind was still alert, he told friends of hoping to leave a will that would assist several entomological societies which publish journals. Publication of research results had been such a regular and important part of his career (more than 1,000) that he was anxious to make bequests after his own work was completed. In fact, soon after his death, several societies were notified by a probate court that they would ultimately receive small shares from the modest Alexander estate. Thus, he did not forget the interest and resolve of the once vigorous, enthusiastic researcher as some well-intended scientists do.

Now that he is gone, we can reflect on a giant of our science who has left the results of a memorable career behind him. His famous private collection, chiefly crane flies, came to the U.S. National Museum of Natural History, Smithsonian Institution, Washington, D.C., in June 1981 and still awaits final curatorial arrangement in the Diptera study rooms. A purchase was arranged and paid for during the early 1970's. The collection, together with associated papers, books, and photographs, will be a mecca for future students of the Tipulidae.

Ashley B. Gurney, Retired
Systematic Entomology Laboratory, IIBII
Agricultural Research Science & Education Administration, USDA
c/o U.S. National Museum of Natural History
Washington, D.C. 20560 U.S.A.

RECENT DEATH

Dr. C.B. Williams FRS, FRES died in Scotland in July 1981 at the age of 91. After training at Cambridge University, he spent a long and active career in entomology, many of them at Rothamsted Experimental Station, England, where he was head of the Department of Entomology. He joined the Royal Entomological Society of London in 1911 and acted as President in 1947-48. His writings on insect migration, statistical population studies and biometeorology are well known. See fuller biography in Antenna (Bull. Entomol. Soc. London) 6(2):202, 1982 and detailed bibliography in Atalanta 11:237-254.

OBITUARY
JOSEPH SCHUH (1910-1981)

Joe Schuh, a noted entomologist and long-time resident of Klamath Falls, Oregon died 29 July, 1981. He received his B.S. degree in 1932 and Master's degree in Entomology in 1936 from Oregon State University, his thesis being on the Odonata of Oregon. From 1936 to 1945 he was staff entomologist, Oregon Agriculture Experiment Station in Corvallis. He resigned to pursue a career as consulting entomologist on berry crops. In 1948 potato seed growers from southeastern Oregon and northeastern California requested that he do research and control of insect-transmitted potato diseases because of their severe losses of potato production. Joe accepted this challenging position. He was one of the early pioneers in solving the problems and complexities of managing insects and diseases in potato seed production. With his scientific observations and expertise he presented growers with sound, economically feasible programs of control -- a method now termed "integrated control". Joe became known as a leading expert in western potato, alfalfa and clover seed production. He tested and used modern insecticides, fungicides and herbicides in collaboration with Experiment Station and Agricultural Chemical Company professionals.

His interest in natural history started in his youth and continued until his death. He was interested in all the zoological sciences, but most of all he was a professional entomologist well versed in taxonomy and biology of many orders. His knowledge of entomology, botany, ecology and collecting methods enabled him to become a skillful collector. His wife, Josephine, will attest that entomologists from many regions of the United States and Canada included Klamath Falls in their itinerary to visit Joe, check through his huge collection, and hopefully go on a collecting trip. Like Josephine, he was an affable host, and with his entomological knowledge, conversations were always stimulating and interesting.

Requests for loans of specimens came from Canadian, United States and European entomologists. His specialty was aquatic Coleoptera and much of his collection consisted of these families. Many of his coleopteran records are published in Hatch's "Beetles of the Pacific Northwest." Other papers on Plecoptera, Trichoptera, Odonata, Heteroptera, Diptera, aculeate Hymenoptera and aphids contain many of his records. He also collected and studied Carabidae and Chrysomelidae. Thus, there are numbers of schuhi n.sp. in the literature. He was responsible for the establishment of a mosquito abatement district in Klamath Falls. His interest also included the nonparasitic and parasitic Arthropoda associated with wood rat (Neotoma) nesting sites.

His only known paper of taxonomic nature is as co-author with H.B. Leech (1961). Graphoderus perplexus (Sharp) in California (Coleoptera,Dytiscidae). Pan Pacific Entom. 37 (4): 234.

Joe's collection included about 15,000 Heteroptera, over 135,000 Coleoptera and many specimens of miscellaneous orders. His donations of insects went to Oregon State University, Florida State Collection of Arthropods, American Museum of Natural History, and many individuals. His remaining collection (Heteroptera, Coleoptera) is deposited in the American Museum of Natural History.

He was a long-time member of the Entomological Society of Canada, the Entomological Society of America, the National Agricultural Chemical Association, the Pacific Coast Entomological Society, the Coleopterists Society, and several regional Entomological Societies. He was an associate in the Entomology Department of the American Museum of Natural History, the Florida State Collection of Arthropods, and a life member of Elks Lodge.

He is survived by Josephine (née Higgs), whom he married in 1938 in Portland, Oregon, and sons Russell, Randall and Dwight.

D.G. Denning, Moraga, California
H.B. Leech, Angwin, California

GORDON EDWARD BUCHER
1917-1982

Gordon E. Bucher died suddenly of a heart attack on 1 February 1982 at Winnipeg, Manitoba. On his retirement in December 1981 he had served with Agriculture Canada for over 40 years. He obtained his B.A. in 1937 and his M.A. in 1939, both from the University of Toronto, and his Ph.D. in 1946 from Ohio State. He started his entomological career at the former Research Institute, Belleville, Ontario, where he worked as a summer student from 1936 to '41 inclusive. The period 1942 to 1946 was spent with the Canadian Army, initially as an artillary instructor at Suffield and later seconded as a research scientist to the U.S. Army at their biological warfare base in the Gulf of Mexico. He was discharged with the rank of captain. In 1946 he returned to the Belleville Institute and in 1947-8 was on a transfer of work in Europe where he was instrumental in establishing the postwar European Laboratory of the Commonwealth Institute of Biological Control, Feltmeilen, Switzerland. Late in 1948 he returned to Canada as Head, Biological Control Investigations Laboratory, Kingston, Ontario where he remained until 1955. With the consolidation of Canadian biological control research in 1955 he returned to Belleville to head a program on insect pathology. On the closure of the Belleville Institute in 1972, he transferred to the Research Station, Winnipeg where he worked until his retirement.

In his service with Agriculture Canada, Gordon published over 50 research papers and contributed chapters on insect pathology to 4 books. Although best known as an insect pathologist, his early work included studies on insect taxonomy, morphology and ecology, and during the past 10 years in Winnipeg he has worked and published on a variety of ecological problems associated with insect control in rape.

He was a member of the Entomological Societies of America, Canada and Manitoba, The Society of Invertebrate Pathologists, the Canadian Society of Microbiologist and Sigma Xi. He was elected a fellow of the Entomological Society of Canada in 1979.

Gordon is survived by his wife, Marion, a daughter, Carolyn Joyce of Bayside, Ontario and two grandchildren, Angela and Melissa.

H.G. Wylie
G.L. Ayre
Winnipeg, Manitoba

NEW PERIODICAL

Newsletter of the Biological Survey of Canada (Terrestrial Arthropods) was initiated in April 1982 as a mimeographed publication "intended as a means of communication about systematic and faunistic entomology in Canada, and especially the activities of the Biological Survey". Queries, comments and contributions to the Newsletter are welcomed by the editor: Dr. H.V. Danks, Director, Biological Survey of Canada (Terrestrial Arthropods), Invertebrate Zoology Division, National Museum of Natural Sciences, Ottawa, Ontario K1A 0M8.

NEW DEPARTMENT CHAIRMAN NAMED

Dr. J.B. Robinson has been appointed chairman of The Department of Environmental Biology, University of Guelph to succeed Dr. F.L. McEwen. Dr. Robinson, a microbiologist, and faculty member of the Department since it was formed in 1971, will assume his duties on 15 August 1982.

JET PROPULSION LABORATORY *California Institute of Technology • 4800 Oak Grove Drive, Pasadena, California 91103*

December 17, 1980

The National Aeronautics and Space Administration (NASA) of the United States, a non-military organization, is giving an opportunity for academic institutions, businesses and individuals to participate in space research and engineering. The Space Shuttle Program, which includes Spacelab, may have room for extra Small Self-Contained Payloads (Getaway Specials) on nearly every flight (once sufficient operational experience is obtained). Since the large Spacelab experiments essentially pay for each flight (approximately $500 per pound), small experimenters need only pay $50 per pound, well within the financial capability of an academic institution or a group of individuals.

THE GETAWAY SPECIAL (GAS) PROGRAM

A canister that individuals or organizations can reserve to do their own experiments on the Space Shuttle.

There are three sizes, all reserved for $500 (Ten students with $50 each can take advantage of this opportunity).

Size (M^3)	Max. Wt.	(kgm)	Total cost (US $)	Height (M)	Diameter (M)
0.142	200 lbs.	91.6	10,000	0.718	0.502
0.071	100 lbs.	45.8	5,000	0.359	0.502
0.071	60 lbs.	27.5	3,000	0.359	0.502

Send a check for $500 to NASA Headquarters with a letter stating that the check is earnest money for a flight in the Getaway Special program. The nature or title of the payload need not be disclosed. Send check to:

NASA Headquarters
Director of Financial Management
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Washington, D.C. 20546

Send a copy of the letter to:

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Space Transportation System Utilization
Code OT-6
Washington, D.C. 20546

Date of flight will be determined when you make a flight agreement. New reservations could fly in a few years.

The payload may not be hazardous to the orbiter or its crew. It may not interfere with Space Transportation System operations (no explosive, no excessive radiation for example). The payload must be research or development, but not promotional. NASA will not provide power, control, data storage or telemetry. You do not need any degrees or technical experience to reserve a canister.

GASLINE is a newsletter published by and for supporters and users of the Getaway Special program for information exchange. Educational institutions and other interested parties are welcome to subscribe. Mail your request to the addresses below:

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Jet Propulsion Laboratory
4800 Oak Grove Drive
Pasadena, Calif. 91109

OR

Bonny Lee Michaelson
P.O. Box 3761
Beverly Hills
Calif. 90212

Otte, D. 1981. The North American Grasshoppers. Volume 1. Acrididae: Gomphocerinae and Acridinae. Harvard Univ. Press, 1981. xi + 275 pp., hard cover. $US 45.00.

Identification of species of acridid grasshoppers of the subfamilies Gomphocerinae and Acridinae in North and Central America has become a much easier task with publication of Otte's book. The introduction (35 pages) covers a very brief history of work in North America on Orthoptera, the scope of the work covering the entire region north of Panama and including the West Indies, the basic structure of Orthoptera with illustrations, and a well-illustrated key to the genera of the two subfamilies. The key is easy to follow and the excellent illustrations are strategically placed in the text.

The balance of the text covers the genera and species of the two subfamilies (Gomphocerinae, 42 genera, 124 species, 176 pages, 28 figure groups, 98 maps; Acridinae, 2 genera, 3 species, 5 pages, 1 figure, 2 maps. For each genus, distribution and characters for recognition are given, together with a few key references, and the identifying characters of the included species. Each species is discussed under the following headings: Distribution, Recognition, Habitat and Life Cycle. Key references are listed. The total amount of information given under these headings is not great and could be amplified. However, it is obvious that concise and precise presentation was the object and this has been achieved without omitting essential data. No synonymy is given in the text, but is included in an appendix.

The book is well illustrated with excellent drawings by the author. These include grouped series of drawings which illustrate variation in structure or pattern in certain species and are particularly useful. There is no other work on this subject which illustrates variation more clearly. The distribution of each species is indicated accurately on maps. The author has made certain that readers would not have to search for illustrations or distribution maps as these are always found in the most logical places, with or very close to the accompanying text.

There are five appended sections (1. taxonomic changes in the volume; 2. the genera, with references and type-species designations; 3. the species, with synonymy and data on type specimens, 4. comparison of systems of classification; 5. pronunciation of generic names). In addition, there is a glossary explaining meaning and usage of technical terms, twelve pages of references, and a taxonomic index. The latter includes valid names in bold-face type and synonyms in italics.

The book is greatly enhanced by inclusion, in the centre, of 16 plates of detailed illustrations in water colours by the author of most species included in the work. They are exceptionally well done. There are 160 complete habitus illustrations and 44 which show parts of specimens to indicate variability within species. Even amateurs or non-entomologists should be able to identify most specimens by comparing them to these very fine illustrations. Some of them are repeated on the attractive dust cover.

Dr. Otte is indeed to be commended for this find book. However, and though they are few, there are some slight errors or points with which I do not agree.

The genus *Stethophyma* is included in the Gomphocerinae "principally because it resembles this group in behaviour and appearance". The author admits that it should be grouped with the "Oedipodinae" (= Locustinae) on "the basis of the stridulatory apparatus." I would place it in the "Oedipodinae" (=Locustinae), Tribe Epacromiini. If behaviour and appearance are good criteria, several genera, including *Heliaula*, *Cibolacris* and *Xeracris*, which are much more "oedipodine" than "gomphocerine" in appearance, would not be included in this work. The author also failed to recognize that the generic name *Stethophyma* is of neuter gender; thus the specific names *lineata* and *celata* should be amended to *lineatum* and *celatum*.

Subspecies are not recognized in this work. All subspecific names are placed in synonymy, some with good reasons, but also others which refer to clearly defined taxa. Some of these names, referring to taxa below species level are used in the text but appear in the index as synonyms. On page 269, *Chloealtis canadensis* Provancher, 1876, is listed as a *nomen dubium*, though Vickery and Kevan (1964, Can. Ent. 96: 1550-51) showed that it is a synonym

of *Amblytropidea occidentalis* (Saussure), the latter now placed as a junior synonym of *A. mysteca* (Saussure) in the book at hand.

In at least one instance, contradictory statements occur. On page 37, in the description of the "*Chrysochraon* species group", which includes the genus *Chloealtis*, is the statement, "the lateral foveolae are invisible from above". On page 38, in "Recognition of *Chloealtis*" is the following, "Lateral foveolae either absent ... or present and visible from above." Appendix 5, Pronunciation of Names, is a good idea gone wrong. It is too Americanized to be of much help to non-English speaking people and is sometimes actually incorrect. In some cases the wrong syllable is stressed (*Paropomala* - first and next to last syllables, not first and third; *Rhammatocerus* - likewise), and is not always consistent with what is said in the introductory paragraph. The recommended pronunciation of *Psoloessa* omits a syllable.

Despite the few shortcomings, this is a very worthwhile addition to the North American entomological literature. It is very easy to follow and for non-entomologists and entomologists alike, identification of species in these sub-families of Acrididae has been made a great deal easier.

Dr. Otte is to be commended for this work, and all entomologists, who have even the slightest interest in Orthoptera, look forward to the two additional volumes, covering the remainder of the Family Acrididae, promised for the future.

It is to be hoped that the high cost of the book will not prove to be an obstacle to ownership.

V.R. Vickery
Lyman Entomological Museum & Research Laboratory
Macdonald Campus, McGill University
Ste. Anne de Bellevue, P.Q.

Smith, D.W. and Hrudey, S.E. (Eds.). 1981. Design of Water and Wastewater Services for Cold Climate Communities. Series on 'Water Science and Technology', edited by International Association on Water Pollution Research. Pergamon Press.

Although this book represents the proceedings of a post-conference seminar held in June 1980, in Edmonton, in conjunction with the 10th IAWPR Conference held the previous week, a careful editing procedure by the two editors has produced a creditable small book with even some textbook qualities.

The whole question of servicing communities in cold climate regions is still a difficult one. These regions tend to be sparsely populated but in an extremely sensitive environment and therefore need special treatment. This book compares strategies used in Greenland, the Northwest Territories of Canada, Norway, and Sweden.

It starts with a brief overview of the whole problem of environmental engineering in cold climates, emphasizing some of the pecular problems both in water supply and in sewage collection and treatment. A summary of techniques with a few associated costs are discussed and even the subject of solid waste management and fire protection are mentioned. A fairly comprehensive list of research needs for Northern areas describes succinctly areas where knowledge is incomplete. A computerized system for analyzing water and sanitation system possibilities is outlined showing how alternative solutions can be compared. One of the major problems in utility construction and design in cold climates is the existence of permafrost. This phenomenon has a considerable impact on utility design and construction eliminating many of the conventional procedures which are used in more temperate climates. Also outlined is a large variety of water conservation alternatives which can reduce the amount of water which has to be supplied and therefore has to be disposed of. Many of these alternatives would have direct application in developing countries even in tropical regions where water shortages are experienced. Even the modern concern of the generation of trihalomethanes in water treatment processes is not ignored and the dimension of this problem in the cold climate is evaluated in this book.

wastewater services.

Professor P.H. Jones
Institute of Environment Studies
University of Toronto

BOOK NOTICES

Morris, Ray F. 1980. Butterflies and Moths of Newfoundland and Labrador. The Microlepidoptera. Agriculture Canada, Research Branch, Publication 1691. 407 pp. 40 text figs., 34 pls. Obtainable from Canadian Government Publishing Centre, Supply and Services Canada, Hull, Quebec K1A 0S9. $CAN 15.00, $US 18.00.

This attractively bound volume is a treatment of about 55 species of butterflies and 488 moths reported from Newfoundland and Labrador, giving scientific and common names, distribution, flight period, information on immature stages, 34 colored plates showing almost every species, about 30 distribution maps, a check list, a glossary of terms, and a 23-page general introduction. Identification keys are not given but mostly are not needed. It is the only comprehensive guide available to the Lepidoptera of this region, indeed the first fully color-illustrated work intended to cover all the macrolepidoptera of any province or state of North America.

The quality of the plates is variable but mostly good; the quality of many specimens chosen for the photography could have been better. Misspellings of scientific names are minimal (only one: "paralis" should read parilis, p. 174). Among the 542 species listed I noted 17 apparent misidentifications, as well as the absence of six species for which there are published records in the literature. Examples: the illustrations of the tent caterpillar moths, Malacosoma americanum and M. disstria on plate 26 are reversed; the geometrid shown as Thera contractata (pl. 28, fig. 16) is really T. juniperata; the noctuid treated as Hyppa indistincta is H. brunneicrista; and the geometrid, Psychophora phocata, was described from Labrador but is not listed. The scientific value of the book would have been enhanced if locality data had been given for the specimens illustrated. In at least a dozen instances these appear to represent species or subspecies whose presence in Newfoundland or Labrador is unreported or doubtful, and one is left guessing as to their true source. For example, the moth used to illustrate the adult of the saltmarsh caterpillar, Estigmene acrea (pl. 33, fig. 3) is subspecies arizonensis! Eastern males always have yellow rather than white hindwings, and Newfoundland material that I have seen is normal in this respect. Also, the figure of the "spotless fall webworm", Hyphantria textor (pl. 10, fig. 3), shows Spilosoma congrua, an arctiid otherwise not known from Newfoundland but possibly present. These shortcomings aside, this book is a bargain that no one interested in Canadian macrolepidoptera will want to miss.

D.C. Ferguson
U.S.D.A., Washington,D.C.

NEW BOOKS

Crowson, R.A. 1981. The Biology of the Coleoptera. Academic Press, London. xii + 802 pp. cloth. US $139.50.

Mordue, W., Goldsworthy, G.J., Brady, J. and Blaney, W.M. 1980. Insect Physiology. John Wiley & Sons, N.Y. viii + 108 pp. paper.

Berridge, M.J., Treherne J.E. and Wigglesworth, V.B. (eds.) 1980. Advances in Insect Physiology. vol. 15. Academic Press, N.Y. 624 pp.

Roberts, D.W. and Castillo, J.M. eds. 1980. Bibliography of Pathogens of Medically Important Arthropods. Supplement to vol. 58 of Bull. World Health Org., W.H.O., Geneva, Sw. Fr. 18.

Laird, M. ed. 1981. Blackflies: The Future for Biological Methods in Integrated Control. Academic Press, London. xii-399 pp. (cloth). $Can. 75.00.

BOOK NOTICES

Moretti, G.P. (ed.). 1981. Proceedings of the third international symposium on Trichoptera, Perugia (Italy), July 28-August 2, 1980. Series Entomologica Vol. 20. Dr. W. Junk BV Publishers, The Hague. XXII + 472 pp. Hard bound. Available from Kluwer Boston, Inc., 190 Old Derby Street, Hingham, MA 02043, $US 89.00.

International congresses dealing with a particular taxonomic group and often including contributions to morphology, ecology, physiology, behaviour, and faunistics, as well as systematics, have become a popular way of summarizing progress in arthropod science. The published proceedings of these meetings can be a good source of new ideas and data, provided the book follows reasonably soon after the meeting. A disadvantage is that the papers may not have been subjected to the critical review that journal articles receive.

The book in hand gives 54 papers by 63 trichopterists representing 18 European countries, Australia, U.S.A., Mexico, and Canada. Five papers are in French, the remainder in English. The order of appearance is alphabetic by author's name. J.C. Morse pays tribute to Herbert H. Ross (1908-1978). L. Botosaneanu summarizes information concerning altered, endangered, or vulnerable habitats of Trichoptera. L.W.G. Higler reviews caddisfly systematics (and the described families and genera) up to 1960, and J.C. Morse outlines difficulties with the classification of the Leptoceridae. A. Nielsen struggles with the plesiomorphies seen in the genitalia of male Hydropsychidae, and raises the subgeneric name Ceratopsyche to generic level. G.B. Wiggins takes up the challenge posed a year before by F. Schmid (1979. Bull. Ent. Soc. Canada 11:48-57), and graciously but firmly presents the case for an integrated approach to trichopteran systematics using larval characters as well as adult ones. These and many more contributions made the book worthwhile.

C.D. Dondale
Biosystematics Research Institute
Ottawa, Ontario

Howse, P.E. and J.-L. Clément (eds.). 1981. Biosystematics of social insects. The Systematics Association Special Volume No. 19. Academic Press, London. 346 pp. Hard bound £28.20, $Can 68.00.

This volume gives the proceedings of an international symposium held in Paris in early 1980. As the foreword states, "The study of insect biosystematics has become increasingly important in explaining problems which go beyond the classical systematic approach and which are often of importance in agronomy and biological control. In the social insects, particularly the Isoptera and Hymenoptera, the classical systematic approach is frequently inadequate in the face of phenotypic variation arising from social polymorphism. This perhaps leads to divergent interpretations which concern studies on species that are different but inseparable."

The contributors came from 9 European countries, from India, or from the U.S.A. The papers are in English, with French resumés. C. Petit discusses the factors responsible for the maintenance of polymorphism, mainly in genetic terms. B. Pisarski treats the intraspecific variation found in Formica spp. K. Vepsalainen and B. Pisarski focus on the taxonomic separation of the difficult red wood ants. Five papers deal with genetics, four with biometrics, four with pheromones, five with behaviour, two with geographic variation, and one each with the phylogenetic aspects of abdominal epidermal glands in termites, mound types in African Macrotermes, and the effects of treating crowded cultures of Locusta with carbon dioxide.

C.D. Dondale
Biosystematics Research Institute
Ottawa

NEW BOOK

Dunlap, T.R. 1981. DDT: Scientists, Citizens and Public Policy. Princeton Univ. Pres, 41 William St., Princeton, NJ 08540, U.S.A. $18.50 U.S.

Columbia University Press, New York. XXII + 269 pp. Hard bound. US $37.50.

The aim of this book is to increase knowledge of the Amazonian arthropod fauna. The method used is to collect, at least to some degree, all arthropod groups in a terra-firma forest over a 13-month period. The study site is located within the Ducke Forest Reserve, which lies 26 km northeast of the Brazilian city of Manaus.

Collecting was done by light traps (at two heights and baited with CO_2), soil emergence traps, Berlese-Tullgren funnels, flight interception traps, and pitfall traps baited with carrion or dung. Considerable weather data are given, and the dominant trees and shrubs at the site are listed.

The collections are listed by class, order, and family, with mention of only a few genera and species. The information under each family is a series of statements regarding the typical habitat and behaviour, together with indications of the catch size and biomass in each kind of trap, a good habitus drawing, and some of the characteristics of the Amazonian representatives. Numbers are graphed in some instances. The authors apparently do not realize that light, flight, and pitfall traps give unreliable estimates of population density and biomass. Mobility is the critical factor in such catches, and this in turn is affected by several factors, such as temperature, moisture, light intensity, diel periodicity, and denseness of foliage or litter. However, the book provides an overview of the arthropods inhabiting one of the most interesting parts of the world, and the authors deserve credit for their efforts. One hopes that the wealth of specimens that must have accrued during the study can be made available to specialists in various groups.

C.D. Dondale
Biosystematics Research Institute
Ottawa

Arnaud, Paul H. Jr. and Thelma C. Owen. 1981. Charles Howard Curran (1894-1972). Myia, vol. 2, vi + 393 pp. Insect Associates, San Francisco $US 10.00 from Department of Entomology, California Academy of Sciences, Golden Gate Park, San Francisco, CA, USA 94118. 400 copies printed).

The core of this book is a synoptic catalog of Curran's 2664 published taxa, almost all of which are Diptera, and a bibliography of his 406 publications. The catalog data include original reference, type locality, type depository, sex of type, and current status of taxon. There is a full taxonomic index as well as 17 pages of bibliographic sources. As "extras", the authors have included a list of 71 species and 7 genera named in Curran's honour, and a second list of his species arranged by countries with Canada and U.S.A. further divided by provinces and states.

Howard Curran, a Canadian, was one of the last of the great generalists in taxonomy of Diptera, in a tradition going back to the early 19th century. His best known work is "The Families and Genera of North American Diptera" published in 1934 and now being replaced by a new manual in 2 volumes. The authors have provided an entirely fitting memorial to his life and work. The short but interesting biography at the beginning is largely based on the senior author's personal association with Dr. Curran at the American Museum of Natural History.

G.E. Shewell
Biosystematics Research Institute
Ottawa, Ontario

BOOK RECEIVED

Carne, P.B., L.D. Crawford, M.J. Fletcher, I.D. Galloway, and E. Highley. 1980. Scientific and common names of insects and allied forms occurring in Australia. Compiled for Standing Committee on Agriculture, Commonwealth Scientific and Industrial Research Organization, Australia. IV + 95 pp. Available from ISBS, Inc., P.O. Box 1632, Beaverton, OR 97075. Soft bound. US $6.00.

Witt, P.N., and J.S. Rovner (Eds.). 1982. Spider communication: mechanisms and ecological significance. Princeton University Press, Princeton. X + 440 pp. Cloth bound. Price not stated.

The subject is introduced by Peter N. Witt, recently returned from a career in pharmacology and mental health in North Carolina, but who, for more than 30 years, has also investigated the structure of spider webs. A dozen contributors discuss work in progress in their laboratories or field stations, with summaries of relevant background information. Published papers as late as 1981 are found in the copious literature cited.

As recapitulated by J.S. Rovner at the end of the book, the spider is no less interesting a predator, though far smaller, than the carnivorous mammal. Most spiders tend to rely on substrate-borne signals, particularly vibrations carried on silk threads spun by the spiders themselves (B. Krafft). F. Barth, on the other hand, shows that a variety of alternatives is available for signal transmission by the hunting spiders. Both web-builders and hunters use percussion, stridulation, or appendage vibration, all of which appear to be involved in reproductive isolation (G.W. Uetz and Gail Stratton). The jumping spiders are best known for highly developed visual acuity (Lyn Forster), though other channels of communication are used (R.R. Jackson). Chemical signals, still little understood in the spiders, are reviewed (W.J. Tietjen and J.S. Rovner). Behavioural ecology based on Maynard Smith's and Price's game theory, is applied to an agelenid spider (Susan Riechert), and optimization of food-getting is explored (Riechert and J. Luczak). Social spiders have developed special communicative behaviour (J.W. Burgess and G.W. Uetz).

C.D. Dondale
Biosystematics Research Institute
Ottawa

Rentz, D.C.F. and Weissman, D.B. 1982. Faunal Affinities, Systematics, and Bionomics of the Orthoptera of the California Channel Islands. University of California Publications. Entomology, Vol. 94. xiv + 240 pp. Soft cover. $22.00 US.

The book consists of 126 pages of text, 9 pages of references and 100 pages with 337 figures. The figures (all black and white) include photographs of specimens in natural habitats, maps of individual islands and adjacent mainland areas, oscillograms of stridulation, photographs of cytological preparations and of stridulatory apparatus, and excellent drawings of morphological characteristics. Fifty-two species occur on the islands, of which twelve are endemic. Twelve species and ten subspecies are described as new, some from islands, others from adjacent mainland areas. A key to species is included. For each species the authors have sections on: recognition characters, distribution, karyotype (where known), habitat and food preferences; seasonal occurrence, and discussion.

This is not just another faunal list. It is set apart by the detailed and interesting analysis of the insular populations and the probable reasons for the present composition of the orthopteroid fauna of the islands.

The species of the genus *Gryllus* are not identified to species but are listed by Roman numerals, even though Weissman *et al.* (1980, Trans. Amer. Ent. Soc. 106: 327-356) identified all but one of them. An addendum or even a footnote could have been added to indicate the identity of these species.

V.R. Vickery
Lyman Entomological Museum and
Research Laboratory
MacDonald Campus, McGill University

BOOK RECEIVED

Spencer, E.Y. 1982. Guide to the chemicals used in crop protection. 7th Edition. Publ. Can. Dep. Agric. 1093. LV + 595 pp. Available from Canadian Government Publishing Centre, Supply and Services Canada, Ottawa K1A 0S9, $30.00 (Canada) or $36.00 (other countries). Cat. No. A43-1093/1982E.

Ferris, C.D. and Brown, F.M. (Eds.). 1981. Butterflies of the Rocky Mountain States. Oklahoma Press, Norman, Oklahoma. 464 pages. $35.00 US hard cover; $15.95 soft cover.

This book is a comprehensive guide to the butterflies of the western Great Plains, Rocky Mountain, and Intermontane Regions; coverage extends from southern Canada to northern Arizona and New Mexico and from the western Dakotas to eastern Washington and Oregon. The introductory chapters on biogeography, bionomics, anatomy, taxonomy, and collecting techniques are excellent. Over 300 species are illustrated in black and white, 72 in colour. Range maps are given for most species.

J.D. Lafontaine
Biosystematics Research Institute
Ottawa

NEW BOOKS

Abrahamson, L. and Klass, C. 1982. "Gypsy Moth". Cornell Cooperative Extension (1B 188). $US 2.00. Checks or money orders payable to Cornell University. For copies write to Cornell Distribution Center, 7 Research Park, Ithaca, NY 14850, U.S.A.

Gypsy moths, despite many years of control efforts, defoliated nearly 13 million forested acres in the northeastern United States in 1981. This book describes this pest, the types of damage it does, lists the tree species it prefers to feed on, and covers the life cycle and control strategies. Colour photographs assist in identifying the pest and assessing damage. Although an Integrated Pest Management approach is included, an insert "Insecticides for Gypsy Moth Control" provides current information on chemical and biological materials recommended for its control and their safe use.

Neece, K.C., and Bartell, D.P. 1982. A faunistic survey of the organisms associated with ants of western Texas. Graduate Studies, Texas Tech Univ., No. 25. 36 pp. Available from Texas Tech Press Sales Office, Texas Tech University Library, Lubbock, TX 79409, USA. $6.00.

The Proceedings of the Symposium on Philippine Phytopathology 1917-1977. 1981. US $10.00. For copies write to : The Treasurer, Philippine Phytopathological Society, Inc., c/o Dept. of Plant Pathology, Univ. of the Philippines at Los Banos, College, Laguna, Philippines.

Contents deal mainly with tropical crops, trees and ornamental plants, emphasizing the Philippines: research priorities in plant pathology for Philippine agriculture; breeding for disease resistance; bright prospects for pesticide industry; insects in relation to plant diseases; nutritional disorders of plants; diseases of rice, wheat, corn, field legumes, sorghum, bananas, mango, papaya, coconut palm, tomato, cotton, coffee, cacao, ginger, onion, black pepper, sugar cane, tobacco, root crops, orchids, roses, other ornamentals, forest trees and forest products; nematodes of field legumes and vegetables; crop protection and disease control.

Thresh J.M. (ed.). 1981. Pests, Pathogens and Vegetation. (sponsored by Assoc. Appl. Biol.). Pitman Publ. Ltd., 39 Parker St., London WC2B 5PB, England. x + 517 pp. hard cover. £30.

The main aim of this book is to show the relevance and importance of studies on weeds and wild plants in research on the ecology and control of the pests and pathogens of crops. There is a strong underlying ecological theme, that provides a link between the various articles on nematode, mite, insect, bird and mammal pests and on viral, bacterial, and fungal pathogens.

Hall, R.H. 1982. A New Approach to Pest Control in Canada. (Soft cover). Copies free from the Canadian Environment Advisory Council, Environment Canada, Ottawa, Canada, K1A 0H3.

NEW BOOK

Prasad, V. (ed.) 1982. History of Acarology. Indira Publ. House, Box 37256, Oak Park, MI48237-0256, USA. 425 pp., 240 photographs. Exp. Pub. date Sept. 1982. $US 80.00 + $2.00 postage/handling.
Acarology, the study of mites and ticks, is of great importance in agricultural, medical and veterinary fields. This book brings together scattered information not generally known. It is a history of acarology in over 20 countries. The history of each country is written by authors of the same country to provide authentic information.

BOOKS RECEIVED

Effects of Propoxur on Environmental Quality with Particular Reference to its Use for Control of Biting Flies by Expert Panel on Propoxur (A.S. West, Chair), Associate Committee on Scientific Criteria for Environmental Quality, National Research Council of Canada,1982, 235 pp. (ISSN 0316-0114). Publ. No. NRCC 18572. $CAN. 8.00 prepaid from Publications, NRCC/CNRC, Ottawa, Canada K1A 0R6 (Aussi version francaise; en vente, moyennant commandes prépayés)

Klimaszewski, J. A Revision of the Gymnusini and Deinopsini of the World (Coleoptera:Staphylinidae, Aleocharinae). Research Branch, Agriculture Canada, Monograph No. 25, 169 pp. 1979. Available from Information Services, Agric. Canada, Ottawa, K1A 0C7. (see also Suppl. 1 in Bull. entomol. Pol. 50: 109-120, 1980. Suppl. 2 in Can. Entomol. 114: 317-335, 1982).

INTERNATIONAL MAGAZINE ON AGRICULTURE

CERES: FAO REVIEW ON AGRICULTURE AND DEVELOPMENT. This FAO Magazine reports in depth the aspects of agriculture and socio-economic progress in developing countries and deals with all aspects of trade, technology, foreign aid, international finances, legislation, education and training, control of pollution, world affairs and food production. CERES is recognized today as one of the most important international publications on agriculture and development. Published every two months in English, French and Spanish. Annual subscription $US 12.00. For further information and a free sample copy of the review write to: Ceres Circulation Office, FAO-C-116, Via delle Terme di Caracalla, 00100 Rome, Italy. (Ref. PR/CERES 6/81).

MEMOIRS OF THE ENTOMOLOGICAL SOCIETY OF CANADA

No. 119 "A Revision of the Genus Lordithon Thomson of North and Central America (Coleoptera: Staphylinidae)." J.M. Campbell. 116 + ii pp. Issued 30 March 1982. $8.50 (members $6.40) post-paid.

VIDEOTAPE

"Crop Protected: Water Threatened". 1982. Produced by New York State College of Human Ecology, Cornell University. For price and availability write Cornell Audio-Visual Resource Center, 8 Research Park, Ithaca, NY 14850, U.S.A.

This 20-minute program addresses the problem on Long Island where a pesticide entered the Aquifer system. Although the information presented focuses on the specific problem on Long Island, the concepts are applicable anywhere. The story is told from all sides: government, chemical company, farmers, and people who draw their water from that aquifer.

PERSONALIA

Helmut Riedl recently joined the Department of Entomology, New York State Agricultural Experiment Station, Geneva, N.Y., as Associate Professor of Entomology. His responsibilities include extension and research in fruit arthropod problems in New York. He had previously been on the faculty at the University of California, Berkeley. We wish this ESC member all success with his new challenge.

ENTOMOLOGISTES DISPONIBLES

The Employment Committee of the Entomological Society of Canada has published the 1982 edition of the booklet containing the resumés of members who are looking for employment. A copy of this booklet has been sent to all present employers of entomologists in Canada, including all Agriculture Canada and Environment Canada research stations, as well as the chairman of all university biology departments. If you are an employer of entomologists and do not have access to this publication, a copy may be obtained from:

The Chairman
Employment Committee (Entomological Society of Canada)
Department of Environmental Biology
University of Guelph
Guelph, Ontario
N1G 2W1

Le Comité de L'Emploi de la Societé Entomologique du Canada a publié un 1982 édition d'un livret contenant les c.v. des membres à la recherche d'un emploi. Une copie de cette publication a été envoyee à tous les employeurs d'entomologistes au Canada, y inclus Agriculture Canada et Environnement Canada, ainsi qu'aux directeurs des départements de Biologie. Si vous n'avez pas accès à cette publication, vous pouvez en obtenir une copie à l'adresse ci-dessus.

POSTIONS AVAILABLE / DISPONIBLES

RESEARCH SCIENTISTS: Two entomological positions available for research in the area of bioinsecticides as a part of a biotechnology project. Both require principal scientists with a Ph.D. degree and direct experience in microbial insect pathogens, insect physiology and pathology, or a practical experience in the formulation of microbial insecticides. Knowledge of biochemistry and plasmid biology/molecular genetics is desirable.

Qualifications: Ph.D. degree in entomology or microbiology. Postdoctoral experience preferred. Effective employment date: immediately. Term of employment: up to 5 years. Salary: negotiable and commensurate with qualifications and experience. Closing date for applications 1 July 1982. Send applications, CV, and the names and addresses of three referees to: Dr. G.G. Khachaturian, Department of Dairy and Food Science, John Mitchel Building, University of Saskatchewan, Saskatoon, Sask. S7N 0W0, Canada.

ASSISTANT PROFESSOR IN BIOLOGY: The department of biology, McGill University, invites applications from Canadian citizens and landed immigrants to Canada who wish to be sponsored for NSERC university research fellowships. The department has special strength in the areas of cell and molecular biology, ecology and behavior, neurobiology and human genetics. Applications in these areas will be favoured, but others are welcomed. NSERC university research fellowships are awarded for five years, carry a salary at the assistant professor level, and include financial support for research. Send curriculum vitae, representative reprints and names of three referees by August 1, 1982 to: Dr. W.C. Legett, department of biology, McGill University, 1205 Avenue Docteur Penfield, Montreal, Que. Canada H3A 1B1.

PLANNING A BIOCONTROL PROGRAM

Inasmuch as active utilization projects involving beneficial insects remain unreliable, there may be no alternative but to resort to such passive measures as the appropriate protection of these beneficial insects. This means not drowning highly beneficial beetles as the carabids which feed on the night marauding insects when they fall into open ditches together with the pests, but rather attempting to pick them out and release them in the fields.

Hori, M. 1935. The cabbage moth in southern Saghalien. Rpts. Saghalien Central Exp. Station Ser. 1, No. 3. (Japan)

MEETING ANNOUNCEMENTS

Darwin Centenary Conference from 27 June to 2 July 1982 at Cambridge, UK. with many prominent international speakers. For details contact Honorary Secretary, Darwin Centenary Conference, Darwin College, Cambs CB3 9EU, UK.

A Review of Numerical Taxonomy will be offered 4-16 July at Bad Windsheim, West Germany, by the NATO Advanced Study Institute on Numerical Taxonomy. The lecture topics range from systematic theory to methodology and will cover phenetic approaches as well as phylogenetic inference. The intended audience is largely postdoctoral with a few predoctoral participants. For details contact the Institute Director, Robert Sokal, Department of Ecology and Evolution, State University of New York at Stoney Brook, Long Island, N.Y. 11794, U.S.A. Telephone: 516/246-6162.

Canadian Pest Management Society, Annual Meeting, 12-24 July 1982 at University of British Columbia, Vancouver, B.C.

Second International Course on Biological Control of Pests. 19 July - 14 August 1982 at CIBC West Indian Station, Curepe, Trinidad.

Ninth Congress of the International Union for the Study of Social Insects from 9-13 August, 1982 in Boulder, Colorado. For details contact M. Breed, EPO Biology Department, University of Colorado, Boulder, CO 80309, USA.

First International Symposium on Leafcutter Bee Management. 16-18 August 1982 at University of Saskatchewan, Saskatoon, Saskatchewan, Canada.

The Association of Canadian Universities for Northern Studies will hold an international symposium on the "Dynamics of Boreal Forest Ecosystems: Future Research and Management Requirements" from 23-27 August 1982 at Lakehead University, Thunder Bay, Ontario. The intent is to bring together scientist, managers and policy makers for information exchange. For details write: Boreal Forest Symposium Secretariat, ACUNS, 130 Albert St., Suite 1915, Ottawa, Canada K1P 5G4.

PHYSIOLOGIE DU DEVELOPPEMENT ET DE LA REPRODUCTION CHEZ LES INSECTES

PHYSIOLOGY OF DEVELOPMENT AND REPRODUCTION IN INSECTS

SYMPOSIUM

Département de Biologie, Université d'Ottawa, OTTAWA, 25-27 août 1982
Department of Biology, University of Ottawa, OTTAWA, August 25-27, 1982

- La nutrition chez les insectes/Nutrition in insects
- Physiologie sensorielle de l'alimentation/Sensory physiology of feeding
- Influence de la lumière/Influence of light
- La diapause: mécanismes hormonaux/Diapause: hormonal mechanisms
- Le polymorphisme/Polymorphism
- Potentiel reproducteur et implications hormonales/Reproduction potential and hormonal implications
- Potentiel reproducteur et intervention des phéromones/Reproductive potential and pheromone intervention

Les présentations seront publiées dans un numéro thématique de la Revue Canadienne de Biologie. Dates limites pour l'inscription de présentations libres: le 1er juli 1982 (Registration of papers-deadline: 1 July 1982). Renseignement (Information): Dr. Bernard J.R. Philogène, Département de Biologie, Université d'Ottawa, Ottawa, Canada K1N 6N5. (613) 231-6857/2338.

International Colloquium on Invertebrate Pathology and Microbial Control from 5-10 September 1982 at Brighton, UK. For details write to C.C. Payne, Glasshouse Crops Research Institute, Littlehampton, Sussex, BN16 3PU, UK.

Third International Congress of Ecology from 5-11 September 1982 in Warsaw, Poland. For details write to R. Kekowski, Institute of Ecology, Polish Academy of Science, Dziekanow Tesny, 05-150, Komiaki, Poland.

Entomological Society of British Columbia (to September 1982)

President: Dr. L. Safranyik
President-Elect: Dr. J. McLean
Secretary-Treasurer: Dr. I.S. Otvos
Pacific Forest Research Centre
506 West Burnside Road
Victoria, B.C. V8Z 1M5
Editor (Journal): Dr. H.R. MacCarthy
Regional Director to ESC: Dr. B.D. Frazer (1981-1984)

Entomological Society of Alberta

President: Mr. M.G. Dolinski
Vice-President: Dr. B. Taylor
Secretary-Treasurer: Mr. Rick Butts
Alberta Agriculture
Box 7777
Fairview, Alta. T0M 1L0
Editor (Proceedings): Dr. B. Heming
Regional Director to ESC: Mr. J.A. Shemanchuk

Entomological Society of Saskatchewan (to October 1982)

President: Dr. W. Speck
President-Elect: Dr. C. Gillott
Secretary-Treasurer: Dr. D.P. Peschken
Research Station, Agriculture Canada
Box 440, Regina, Saskatchewan S4P 3A2
Regional Director to ESC: Dr. P. Riegert

Entomological Society of Manitoba (to November 1982)

President: Dr. W.B. McKillop
President-Elect: Dr. G.R.B. Webster
Secretary: Dr. R.J. Lamb
Research Station, Agriculture Canada
195 Dafoe Rd.
Winnipeg, Manitoba R3T 2M9
Treasurer: Dr. W.L. Askew
Editors (Proceedings): Dr. G.H. Gerber
Dr. P.S. Barker
Regional Director to ESC: Dr. T.D. Galloway

Entomological Society of Ontario (to November 1982)

President: Dr. R. Harmsen
Vice-President: Dr. R.L. Edwards
Secretary: Dr. M.K. Sears
Department of Environmental Biology
University of Guelph
Guelph, Ontario N1G 2W1
Treasurer: Dr. G.A. Surgeoner (Miss W. Ralley)
Editor (Proceedings): Dr. C.R. Ellis
Regional Director to ESC: Dr. R. Harmsen

Société entomologique du Québec (to November 1982)

Président: M. J.-P. Bourassa
Vice-Président: M. J.-M. Perron
Secrétaire: M. Gilles Bonneau
Laboratoire d'Entomologie forestière
Complexe scientifique du Québec
2700, rue Einstein (ch. c-0-1)
Sainte-Foy, Qué. G1P 3W8
Trésorier: M. Claude Bouchard
Editeur des Annales: M. J.-G. Pilon
Représentant à la SEC: M. P.-P. Harper (1980-1983)

Contributions and correspondence should be sent to: Helen J. Liu, Alberta Environment Centre, Bag 4000, Vegreville, Alberta T0B 4L0

BUSINESS INQUIRIES

Inquiries about subscriptions and back issues should be sent to the Entomological Society of Canada, 1320 Carling Avenue, Ottawa, Ontario K1Z 7K9.

DEADLINE

The deadline for the next issue vol. 14, No. 3 for September 1982 is 15 August. The approximate date of mailing will be 15 September.