



ENTOMOLOGICAL SOCIETY OF CANADA

Bulletin



SOCIÉTÉ ENTOMOLOGIQUE DU CANADA

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Société Entomologique du Canada

Bulletin

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Vol. 9, No. 1

March — Mars 1977

PRESIDENT'S REPORT



*On behalf of the Governing Board
to the Annual General Meeting*

Toronto, 26 October, 1976

It is my pleasure to report to you on behalf of your Governing Board on the 25th year of the Entomological Society or the 113th year, depending upon how you view the actual birth date.

It has been a very active, interesting and progressive year, and yet it has not been without its problems. The untimely death of Dr. N.S. Church, our Secretary, just prior to the last Annual Meeting, followed closely by the lengthy and costly postal strike, made the work of our new Secretary, Dr. G.H. Gerber, and the Executive Committee very difficult for the first four or five months. Despite these adversities we have made substantial progress. I do not propose to go into great detail, since important actions of the Governing Board have been reported in the *Bulletin* and the accomplishments of the various committees have been, or will be reported in the *Bulletin* shortly.

The Expanding Role of the Entomological Society of Canada

Our Past President, Dr. C.R. Harris, referred to the object of the Society, Bulletin 7 (3): 55 and how our role was changing. Needless to say, the recent changes in Canadian science policy, if such actually exists, places a greater burden on our Society. Steps have been taken, and we must continue to strive to make the Entomological Society of Canada a recognized force that can and will have an input into new Canadian science policies which must develop in the near future. We can no longer maintain a low profile depending upon umbrella organizations to carry out our wishes, but rather through becoming a cohesive, responsible and progressive organization, exert our own influence on matters that concern us. During the past few weeks there has been evidence that a change in Canadian science policy is to take place, and our Society must have an input. We have shown during the past two or three years that we can function efficiently and responsibly, and we are being heard. Let us continue to strive to even better our position by expanding our role and becoming actively engaged in those areas which concern us. To remain passive and quiet indicates acceptance and only encourages policy makers and others to follow their own dictates regardless of the havoc or hardships they may create.

Society Operations

The recent reductions in budgets, new travel restrictions imposed on many of our members, and the impact of inflation make it difficult for the Society to carry out its normal functions. The Governing Board, with a limited budget, meets only three times a year, and recent edicts by the Federal Government restricting attendance at scientific meetings unless paid for by the individual who must also forfeit vacation time, add greatly to our problems and are difficult to rationalize. Much of the responsibility for the operation of the Society must be carried by the Executive Committee, and as the Society increases its activities the burden of responsibility and the work involved make it imperative that changes be made so that the workload is distributed in a more uniform manner. The new Rules and Regulations have been streamlined and hopefully, many of the details which have overburdened the Executive Committee will be assigned to other committees. As the activities of the Society increase, and they must, the Executive Committee must be free to deal with major items. If the problem is not resolved by the new By-Laws, Rules and Regulations, the Society will have to consider a part-time Executive Secretary to carry out the routine work.

Finance

The ratification by our members of the proposals put forth by the Finance Committee has made it possible for us to operate during the past year without a deficit. However, the failure of the National Research Council to renew the Publications Grant for 1975-76 created an expenditure that was not foreseen. Many manuscripts which qualified for the Grant were in the process of being reviewed or were awaiting publication prior to the end of the last fiscal year. These normally would have been covered by the 1975-76 NRC Grant, had it not been withdrawn. It was agreed by the Board that the Society should pay the page charges that were not covered by the NRC Grant of \$10,000.00, and that all manuscripts submitted after the 1974-75 fiscal year would be returned to the authors indicating that they would have to pay the full page charges. This decision will cost the Society approximately \$2,200.00.

The Finance Committee has been exploring the possibility of increasing income through publications, and has been requested to consider a small modification in membership fee adjustment to an even \$25.00 together with the possibility of increasing the sustaining membership fees to \$250.00 per year, but offering more to such members in return. This has been accepted by the Board of Directors but needs your ratification.

The question of the purchase of a building for the Society, Bulletin 6 (4): 123-126 came up for discussion and action in August of this year. The Executive Committee, acting on the advice of the Finance Committee, placed an offer to purchase a house on Carling Avenue in Ottawa. The offer was for \$52,000.00. As this house was zoned residential (R5), the offer to purchase carried a clause indicating that a variance must be obtained to finalize the purchase. This variance would permit our Society to establish our headquarters in a residential zone without fear of reprisal or court action. As the variance requires approximately a year to obtain and the offer to purchase will expire November 1st, 1976 we will have to continue to search for a suitable and acceptable location.

By-Laws

The Department of Corporate and Consumer Affairs requires several minor corrections in the wording or English contained in the By-Laws before granting their acceptance. These are not major and do not change the intent. These changes will be made and submitted for acceptance. Unless further problems are encountered, there will be no need for a vote by the membership at large.

Membership

During the past year our membership has remained relatively constant. While some changes occurred through retirement, death, etc. new members offset this. There was an increase in student membership, and members from industry increased. It is hoped that more members may be recruited in the future from the Affiliate Societies as well as from industry. Considering the accomplishments of the Entomological Society of Canada during the past few years and our need for a high profile in the future, we will need the support of all entomologists from all disciplines and regions if we are to continue to have our voice heard. Many of our recent objectives and successes have been to the benefit of all entomologists and entomology. The national body is attempting to do everything possible for Affiliated Societies and hopefully, full support will be given by all in our attempts to increase our activities.

Publications

The publication of The Canadian Entomologist is now going smoothly through the combined efforts of our Treasurer, Managing Editor, Editor, Associate Editors, and Publications Committee. The number of reviewers was increased during the past year and a new format established so that manuscripts may be expedited. Arrangements were made to give the Editor some secretarial assistance in order to relieve the burden of routine matters, thus freeing more of his time to handle the important matters without delay. The Publications Committee is presently considering ways of expediting the actual publication of accepted manuscripts which in the past have suffered some delay. The solving of this problem should remove the majority of complaints that have arisen over the past few years.

During the past year there was a marked increase in the number of manuscripts submitted by members affiliated with Canadian universities. This increase was promoted by the Publications Grant received from the NRC, which was used to eliminate the page charges on published manuscripts submitted by this group. The failure of the NRC to renew this grant for the 1975-76 fiscal year has resulted in the withdrawal of several manuscripts submitted after the 1974-75 fiscal year. This is very unfortunate, and while we have drawn to the attention of the NRC the problems that were created by their action, we were not successful in getting the grant reinstated. We do feel, however, that efforts should be continued to get the grant reinstated on a regular basis.

The Bulletin continues to be an excellent source of information for our members. The transition of editors from Dr. D.C. Eidt to Dr. B.J.R. Philogène which took place last December, has gone very smoothly. Dr. Philogène is maintaining the high standards of excellence established by Dr. Eidt, and is now searching for additional avenues to better serve our members.

Honours and Awards

The Society, in recognizing outstanding contributions in entomology, awarded the 1976 Gold Medal to Dr. B.P. Beirne of Simon Fraser University, and the C. Gordon Hewitt Award to Dr. Bruce S. Heming of the University of Alberta.

The first twenty-five Fellows of the Society were named by the Ad Hoc Committee chaired by Dr. G.P. Holland, and appropriate certificates were prepared and sent out to each recipient of this honour. A new Fellowship Committee has been elected to carry on the excellent work that was initiated by the Ad Hoc Fellowship Committee. The names of the Fellows appeared in the Bulletin 7 (4): 107.

The first annual Entomological Society of Canada Scholarship Award was made this year. The recipient was Mr. G.J. Hilchie of the University of Alberta.

Meetings

The 1976 Annual Meeting of our Society was postponed from the normal August date to October, so that no conflict would arise with the XV International Congress of Entomology held in Washington, D.C. While this caused some disruption in normal activities, there will be a return to the August dating in 1977, when the Entomological Society of Manitoba will host the Meeting in Winnipeg.

Plans are well underway for the 1978 Meeting, which will be the first national meeting hosted by the Entomological Society of Canada. This Meeting will be held in Ottawa.

During the year emphasis was placed on developing better communications with the Affiliated Societies, and regional representatives were encouraged to play an active part in improving communications. Attempts were made to have the national Society represented at all regional meetings, and to have representation at all important meetings of umbrella organizations to evaluate their progress and ascertain their value to the Society.

Umbrella Organizations

During the past fourteen months an observer from the Entomological Society of Canada attended all meetings of the Biological Society of Canada and reported to the Board on the activities. No change in the observer status is suggested at this time.

The meetings held by the Association of the Scientific, Engineering and Technological Community of Canada (SCITEC) were attended and reports submitted. It would appear that SCITEC is of little help to our Society at this time. Since SCITEC is so fragmented, with biology only a small segment, there is a need for restructuring of this body before we will obtain concrete support from it.

The Board realizes that the Society has assumed greater responsibilities and that it has shown that it can achieve its objectives without assistance from other organizations. The Society must, however, continue to strive to gain wider recognition and acceptance as an influential, reliable and aggressive cohesive body and as such, be able to influence policy makers so that they will recognize and seek advice from the Society prior to or during the formulation of policy.

Funding of University Research

The objectives as outlined by Dr. C.R. Harris while President, Bulletin 7 (3): 58-59, were pursued during the past year and progress was made on all but one of these. The Ad Hoc Committee on the Funding of University Research was hampered by the unfortunate illness of Dr. Louis-C. O'Neil, Chairman of the Committee, which forced his withdrawal from all activities for a period of time. It is hoped that the Committee will become active and begin vigorous pursuit of this matter.

Manpower

The Manpower Study has now been completed and the report is being widely distributed. The Symposium held yesterday effectively launched the findings of this Study. It is hoped that the impact of its findings will be shown in the near future.

As this was the first grant of this type to be awarded to any scientific society in Canada, the excellence achieved by the Manpower Committee not only indicates that the Society can accomplish its objectives, but sets a standard which we must not fall below in our future undertakings.

Biological Survey of Insects in Canada

A preliminary proposal for a "Biological Survey of Insects of Canada" was published in 1974 in the Bulletin 6 (2). Subsequently, the proposal was revised by the Ad Hoc Committee chaired by Mr. J.A. Downes, and forwarded to the Department of Supply and Services. After due consideration, DSS replied that the proposed project covered too great a period of time for complete funding by DSS. They did, however, suggest a modification whereby a pilot study covering a period of 18 months would be acceptable. The Committee once again modified their proposal to fit the DSS terms which has been accepted, and we are awaiting the signing of the contract. The calibre of the work done during the pilot study will determine whether the complete survey will be attempted. If the survey is to be carried to completion, the balance of the funding will likely come from a department of the Federal Government and not from DSS as such.

NRC Grants Selection Committee

Four names were submitted to the NRC Grants Selection Committee but no response has been received. It was very difficult to get authentic guidelines as to the procedure to be followed, as the guidelines change from time to time without notice. We now have further information on procedure and are hoping to obtain positive results in the coming year.

Scholarship Fund

The Scholarship Fund is slowly growing and with the appointing of a Scholarship Fund Raising Committee, it is hoped that the fund will increase at a steady and substantial rate.

As mentioned previously in this report, the first award of \$500.00 was made to Mr. G.J. Hilchie of the University of Alberta. This award will be available annually until such time as the interest on the capital in the fund will provide an annual post-graduate scholarship of \$2,000.00 — \$3,000.00. The Board solicits continued support of the Fund from all members and from others who are interested in the continuity and stability of the science and practice of entomology in Canada.

Outlook

It is recognized that the publication of the Canadian Entomologist, Memoirs, and the Bulletin are of prime importance to our Society. Under the present Editors, Associate Editors, and Publications Committee the excellence and quality of these publications will be continued. Efforts will be made to assure authors that the time from first manuscript submission to time of publication will be as short as possible.

As the Society becomes progressively more active, the importance of the role of the Science Policy Committee becomes more evident. The Board depends upon the Science Policy Committee for guidance, especially in areas where we can exert influence on a science policy making.

There must be a greater input by individual Board members, and the Affiliated Societies must also become more active in giving guidance to the Board of Directors, if we are to continue to play an ever-expanding role in the studying, advancing, and promoting of entomology and the development of policies and programs that will have an influence on our future. We are entering a very critical period, and what we do in the next few years may well determine whether or not the Entomological Society of Canada fulfills the role it is capable of or whether it becomes a mutual admiration society known only by its own members. I have great confidence in our Society and I am certain we will succeed.

Thanks

In concluding my report on the activities of your Society for the past 14 months, may I say that it has been an interesting and enlightening undertaking. The Executive Committee has functioned extremely well, and I should like to thank Past President Harris and President-Elect McGillivray for their advice and support and for sharing the heavy workload. The members of the Governing Board have been very patient and have given freely of their time in carrying out tasks assigned and attending the three Board Meetings held during my term of office. Although the Governing Board establishes policy, it is the Managing Council that conducts the day-to-day affairs of the Society and I should like to extend my thanks and gratitude to the Secretary, Dr. Gerber, the Treasurer, Dr. Becker, and the Editors, Dr. Morrison and Dr. Philogène who, together, constitute such an important factor in the success of our Society. My thanks also to the Committee Chairmen and to all of those who gave so willingly of their time during my incumbency. It has been my pleasure to serve as your President, and while all the objectives were not achieved, I do feel we made progress.

A TELEGRAM FROM THE PRESIDENT OF B.C.C

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TDRS488 160 NL 1 EX Toronto Ont 12-9
Dr G H Gerber, Research Stn,
25 Dafoe Rd, Winnipeg, Man R3T 2M9
BT

Federal Government December 2 tabled new act creating Natural Sciences and Engineering Research Council having 21 members plus President. 28 percent of all present NRC university grants awarded to biologists. These will be transferred to new council. In spite of major funding from NRC going to biology, currently only one senior biologist member of NRC. Vital that composition of new council recognizes the importance and dominance of biology in Canadian science. Canadian biologists should demand and expect that the new council contain at least six senior biologists including the Vice President. This is now or never situation for Canadian biology.

Please use your maximum influence to get all biologists to write or phone Prime Minister, Cabinet Ministers and Members of Parliament to express support for the new council but that it must REPEAT must have increased biological membership. Suggest that your response be geared to the stages of the Bill through Parliament and preparation of subsequent regulations.

Mettrick, President Biological Council of Canada.

Entomologists are encouraged to write to their M.P's about this most important matter. Editor.

CORRESPONDENCE

January 18, 1977

Editor
Bulletin of the Entomological Society of Canada
Department of Biology
University of Ottawa
Ottawa, Ontario

Sir:

PEST MANAGEMENT = ENTOMOLOGY

I was privileged to hear Dr. Beirne, Gold Medallist, when he addressed the Society in Toronto last October. I would endorse almost everything he says about the management of pest managers. Radical changes *are* needed. The clients of the pest managers indeed should have a say in what research is done. Scientific administrators (they prefer to be called research managers) indeed should be term appointees because, in addition to Beirne's reasons, the longer one is away from the bench, the more difficult it is to appreciate the researchers viewpoint.

By publishing Beirne's address, *Bulletin* 8 (4): 8-10, you have given me a chance to think about what he said. For 17 years he has been convinced that "the future of entomology in Canada is mainly as an aspect of pest management". Since he has been a manager of a training school for pest managers for much of that time, I can see how he overlooked entomologists who are not insect pest managers, or who are not doing basic research related to insect pest management. Perhaps it was just a slip. Just in case others may overlook other aspects of entomology, insects are not only pests or controllers of pests. The vast majority of insects benefit man in decomposition, pollination, in food webs, as providers of food, as research animals, and as things beautiful and intriguing in their own right.

I hope entomologists don't become just pest managers, but I do hope that entomologists will continue to ally themselves with foresters, agriculturalists, farmers, physicians, public health people, geneticists, limnologists, engineers, and even artists and writers, as is appropriate to their persuasion. Some degree of cohesion of entomology as a profession must continue for those who work with insects to maintain a common thread of interest. Robert Glen called it a home, and said that the Entomological Society of Canada is the only organization in Canada that provides it for all Canadian entomologists.

I wish to commend Dr. Beirne for his indefatigable energy, and his propensity to recommend and try new and sometimes radical approaches to the solution of problems, both in management of pests and management of pest managers. May the E.S.C. continue to select such worthy people for its highest honour.

Yours sincerely,

D.C. Eidt
Maritimes Forest Research Centre
Fisheries and Environment Canada

NOTICE OF MEETING

The 1977 Annual Business Meeting of the Entomological Society of Canada will be held on Monday afternoon, 22 August, at Winnipeg, Manitoba. Matters for the consideration of the meeting or of the Governing Board should be communicated to the Secretary, Dr. G.H. Gerber, Research Station, Agriculture Canada, 195 Dafoe Road, Winnipeg, Manitoba, R3T 2M9.

M.F. Bénélu, Ecole Bologne, 34000 La Paillade, France, aimerait correspondre avec des entomologistes canadiens s'intéressant aux Lépidoptères.

MINUTES

TWENTY-SIXTH ANNUAL GENERAL MEETING

Chelsea Inn, Toronto, Ontario
26 October 1976

The President G.S. Cooper, called the meeting to order at 16:30 hours. There were approximately 50 persons in attendance.

1. *Notice of meeting*
A notice of meeting was published in the Bulletin 8 (2): 10 (June 1976).
2. *Proxies*
None was declared.
3. *Deceased members and other Canadian entomologists*
One minute of silence was observed in memory of J.F. Brimley, N. Comeau, R.B. Dominick, A.G. Dustan, J.J. Fettes, H.S. Fleming, F.O. Morrison, B. Parent, J.G. Rempel, D.F. Riordan, H.E. Scott, and K.B. Turner.
4. *Minutes of Twenty-fifth Annual General Meeting (1975)*
The minutes were published in the Bulletin 7 (3): 61-63 (September 1975). D. G. Peterson moved, J. Conroy seconded, that the minutes be adopted as published. Carried.
5. *Business arising from minutes*
There was none.
6. *Report of Governing Board*
President Cooper read his report (see pages 1-) covering the activities of the Governing Board during the past year. G.S. Cooper moved, B.J.R. Philogène seconded, that the report be received. Carried.
7. *Report on Biological Survey of Insects in Canada*
President Cooper indicated that this item had been covered in the report of the Governing Board.
8. *Report on purchase of a house*
President Cooper indicated that this item had been covered in the report of the Governing Board.
9. *Regular Membership Dues and Sustaining Membership Dues*
D.C. Eidt moved, D.M. Davies seconded, that the Regular Membership Dues be increased to \$25.00 effective 1 January 1978 and the Sustaining Membership Dues be increased to \$250.00 effective 1 January 1977. Carried.
10. *Report of Auditor*
The Treasurer, E.C. Becker, noted that the auditor's report was published in the Bulletin 8 (3): 8-9 (September 1976). B.J.R. Philogène moved, C.D.F. Miller seconded, that the report be received. Carried.
11. *Report of Election Committee*
The Secretary, G.H. Gerber, reported that K.G. Davey, Chairman, Elections Committee, wrote on 19 July 1976 indicating (i) that the successful candidates were W.G. Wellington, President-Elect, and G.I. Ball and R.F. DeBoo, Directors-at-Large, and (ii) that the proposed revision of the By-Laws was approved by a majority greater than 2/3 of the total votes cast.

12. *Installation of new officers*
G.S. Cooper passed the gavel to President M.E. MacGillivray. President MacGillivray asked President-Elect Wellington to join her at the front of the room and noted the many accomplishments of the new President-Elect. She introduced the new Directors-at-Large, G.E. Ball and R.F. DeBoo, and a new Director from an Affiliated Society, A.W. MacPhee, representing the Acadian Entomological Society. She announced that R. Martineau had been reappointed as the Director representing the Entomological Society of Quebec.
13. *Presentation of Service Award Shield*
President MacGillivray paid tribute and presented a Service Award Shield to the Past President, G.S. Cooper.
14. *Appointments, committee chairmen, representatives*
President MacGillivray announced the members of the Executive Committee, Managing Council, Standing Committees, Continuing Committees, and Ad Hoc Committees, and the names of the Representatives (see Vol. 8 (4)) whose names would be submitted for approval to the Governing Board.
15. *Election of Auditors of 1976*
P.W. Riegert moved, R.F. Morris seconded, that we appoint Geo. A. Welch & Co., Ottawa, as auditors for 1976. Carried.
16. *Resolutions*
R. Brust moved, W.A. Smirnoff seconded, that the following resolutions prepared by the Resolutions Committee (R. Brust, Chairman, and S.B. McIver), be adopted. Carried.
 1. Whereas the Management of the Chelsea Inn has provided excellent facilities for scientific sessions, accommodations for members and spouses, and help in planning the 26th annual meeting of the Entomological Society of Canada, be it resolved that this Society extend thanks to them, through a letter to the Management.
 2. Whereas the City of Toronto has hosted the 26th annual meeting of the Entomological Society of Canada and the Province of Ontario has generously supported the social highlight of this meeting, be it resolved that this society extend our thanks to them.
 3. Whereas the Royal Ontario Museum has sponsored numerous activities for entomologists and spouses, including a film, a special public lecture, the photo salon, and other excellent exhibits, be it resolved that this Society extend our thanks to them through a letter to the Director.
 4. Whereas the Entomological Society of Ontario has arranged for an excellent program in both scientific and social content for this 26th annual meeting, be it resolved that our Society express its thanks and appreciation to all those who were involved.
 5. Whereas a high quality program was assured through the participation of the symposium speakers, the members of parliament who addressed the problem of manpower in entomology, the special interest groups, and informal conferences, be it resolved that this Society extend our appreciation to them for their outstanding contributions.
17. *Notice of Twenty-seventh Annual General Meeting (1977)*
Secretary Gerber announced that the 27th annual meeting will be held in Winnipeg, Manitoba, on 22-24 August 1977. The Entomological Society of Manitoba will be the host for this meeting.

18. *Other business*
There was none.

B.J.R. Philogène moved, C.R. Harris seconded, that the meeting be adjourned. Carried.

The meeting adjourned at 18:00 hours.

ACTIONS OF THE GOVERNING BOARD

23-24 October 1976

Exchange of Bulletins:

- (1) Noted that the Society was exchanging Bulletins and(or) Newsletters with the Canadian Botanical Society, Canadian Society of Microbiologists, Canadian Phytopathological Society, Canadian Society of Zoologists, Nutrition Society of Canada, Canadian Biochemical Society, and Canadian Society of Immunologists.

N.R.C. Publications Grant:

- (2) Encouraged by N.R.C. to apply for another Publications Grant.
(3) Instructed the Treasurer to apply for a Publications Grant totalling \$15,000.00 for 1977-78.

N.R.C. Appointments:

- (4) Supported the three names (Dr. W.G. Wellington, Dr. G.E. Ball and Dr. F.L. McEwen) that Dr. R. Brust indicated he would be submitting to N.R.C. as possible members for N.R.C. Grant and Scholarship Selection Committees.

Finance:

- (5) Approved that the subscription fee and page charge for The Canadian Entomologist for 1977 remain at \$35.00 and \$47.00, respectively.
(6) Approved that the Society retain the present system of financing for the Memoirs.
(7) Instructed the Finance Committee to develop a plan for financing the Memoirs in case the old agreement between Treasury Board and Government Departments is terminated.
(8) Instructed the Finance Committee to obtain concrete information on the marketing and printing of other entomological publications and on all the ramifications of financing and pricing of such publications. These include publications other than the Memoirs and The Canadian Entomologist.
(9) Approved that the Society not exercise the option to buy the house at 1025 Carling Avenue, Ottawa, Ontario.

The Canadian Entomologist:

- (10) Noted that everything was going smoothly now as far as The Canadian Entomologist is concerned.
(11) Noted that the size of the next few issues of The Canadian Entomologist was being increased to take care of the backlog of papers.
(12) Approved that the Managing Editor be given the authority to adjust the size of The Canadian Entomologist, as required, in order to maintain an approximate time of 6 months between the date of acceptance of a paper and the date of its publication.

Bulletin:

- (13) Instructed the President to write to the Affiliated Societies encouraging them to send information to the Bulletin, which could be published in an "Affiliated Societies Section" of the Bulletin.

Archives:

- (14) Instructed the President to write to the Public Archives of Canada to find out what happened to the material the Society sent to them.

Common Names of Insects:

- (15) Instructed the President to write to the Quebec Society for Plant Protection and the Entomological Society of Quebec thanking and congratulating them for compiling and producing the "French Names of Insects in Canada" and for sending this publication to the Members of the Society.

Membership:

- (16) Approved in principle the making of a computerized membership list.
- (17) Agreed that the Society should not have Membership Certificates.

Public Education:

- (18) Congratulated the Public Education Committee for undertaking the task of putting together a catalogue of slides and films concerning entomological subjects, which are currently available from industry and government in Canada.
- (19) Expressed considerable concern over the lack of student encouragement programs and public education activities in some regions of Canada.

Scholarship Award:

- (20) Changed the section of the rules and regulations with regard to eligibility to read: "the successful candidate must either be a Canadian citizen, or a landed immigrant with a baccalaureate from a Canadian university."
- (21) Approved that the payment of the E.S.C. Postgraduate Scholarship Award be taken from general Society funds, and that interest from the Scholarship Fund be added to the principal in this fund until such time that sufficient interest is available to make payment of this award from the interest.
- (22) Instructed the Directors from the Affiliated Societies to inform the Affiliates of the need for money for the E.S.C. Postgraduate Scholarship Fund.
- (23) Authorized the Scholarship Fund Raising Committee to canvas the Members of the Society for contributions to the Post-graduate Scholarship Fund.

Science Policy:

- (24) Thanked the Manpower Study Committee for a job well done.
- (25) Instructed the President to inform the President of the Biological Council of Canada that the Society does not intend to rejoin B.C.C. at present, but in the interests of co-operation the Society would be willing to designate an observer to attend their meetings in Ottawa on 2-3 November 1976.
- (26) Announced that a draft of the proposal for a Biological Survey of the Insects of Canada was submitted to the Department of Supply and Services in May 1976. The proposal in a reduced form has been accepted in principle, but is awaiting signature before it can be implemented.

Future Annual Meetings:

- (27) Noted the progress of the plans for the 1977 Annual Meeting in Winnipeg and the 1978 Annual Meeting in Ottawa.
- (28) Accepted an invitation from the University of Ottawa to hold the 1978 Annual Meeting at the University of Ottawa.

- (29) Accepted an invitation from the Entomology Society of British Columbia to hold a Joint Annual Meeting in 1979 with the E.S.B.C. in British Columbia.
- (30) Approved that the Society co-operate in the planning of a Joint Annual Meeting in 1982 with the Entomological Society of America.
- (31) Approved that the Society make every effort to hold the Annual Meeting at the same time of the year each year.
- (32) The President announced that a meeting was being set up with Mr. J. Clark, Leader of the Progressive Conservative Party of Canada, and his assistant, Mr. B. Kempling, to discuss the decision of Treasury Board which restricts the attendance of government employees at meetings to one per department.

By-Laws, Rules and Regulations:

- (33) Noted that the proposed revision of the By-Laws had been approved by a majority greater than 2/3 of the total votes cast.
- (34) Instructed the Secretary to write to the Affiliated Societies to tell them that the Society is considering establishing a fixed term of 3 years for the term of office of the Directors from the Affiliated Societies.

27 October 1976

Executive Committee:

- (1) Approved the makeup of the Executive Committee as submitted. (M.E. MacGillivray, President; G.S. Cooper, Past President; W.G. Wellington, President-Elect).

Managing Council:

- (2) Approved the makeup of the Managing Council as submitted. (E.C. Becker, Treasurer; G.H. Gerber, Secretary; P.E. Morrison, Editor).

Assistant Editor (Bulletin):

- (3) Approved that B.J.R. Philogène be the Assistant Editor (Bulletin).

Committees and Representatives:

- (4) Approved the makeup of the Committees and the Representatives as submitted, (see attached list).

Finance:

- (5) Requested the Committees requiring money to submit their request to the Treasurer 2 months before the Annual General Meeting.
- (6) Requested the Finance Committee to give assistance to the Treasurer in drawing up the Budget.
- (7) Instructed the Finance Committee to discontinue looking for a building which can be purchased for use as a headquarters building.

Science Policy:

- (8) Approved that the Executive Committee take those steps necessary to ensure the continuation of the Manpower Study Program and Survey.
- (9) Requested the President to write to the Minister for Environment Canada expressing the concern of the Society over the possible loss of national research programs and trained professional staff as a result of the transfer of the Chemical Control Research Institute from Ottawa to Sault Ste. Marie, and expressing the need for the continuation of these research programs at Sault Ste. Marie after the transfer is completed.

Interim Governing Board Meeting:

- (10) Accepted an invitation from Dr. J. McNeil to hold the interim meeting of the Governing Board in Quebec City on 24-25 February 1977.

COMMITTEE REPORTS

MEMBERSHIP COMMITTEE

This year three members of the committee resigned: Dr. B. Philogène to become editor of the Bulletin, Dr. R. Wright on accepting a job in the United States and Mr. M. Dolinski when he returned to graduate school.

Mr. P. Gardiner of Chipman Chemicals agreed to replace one of the retiring members however other people contacted declined the offer to join. Several individuals, such as Dr. R. DeBoo, did agree however to act as local recruiting agents in their respective areas.

An announcement placed in the Bulletin urging E.S.C. members to participate in a recruitment drive resulted in one response! I therefore believe that recruiting must be carried out on an individual basis and I feel that the committee should:

- (a) include members such as Mr. Gardiner who, due to the nature of their work, travel a great deal and come into contact with a large number of persons associated with entomology;
- (b) rely on a number of regional recruiters who agree to drum up business whenever possible, yet are not official members of the committee;
- (c) retain strong contact with universities to encourage student members who will, hopefully, later become full members, and
- (d) make a concerted effort to obtain a number of sustaining members.

I personally do not believe that the pamphlet (see example of C.S.Z.), suggested at the last board of directors meeting would recruit sufficient members as a result of the publicity to defray the costs of printing and distribution. This is especially true when one considers that annual changes of officers would require annual corrections in the flyer. It is for similar reasons that the idea of membership certificates (also suggested at the last board of directors meeting) does not appear to be worthwhile.

The question of a computerized membership list was further studied and Dr. R. Stiner (a member of the E.S.C. at North Carolina State University) provided a programme that would provide an alphabetical list of members. At the same time each member could indicate his field(s) of interest so that a short list of all members interested in any aspect of entomology e.g. taxonomy could be obtained. This list could be prepared at North Carolina State University for approximately 15¢ per member (2 cards for the name and address and one card for the fields of interest). I believe that the Society should provide such a list however I feel it would be better if the list could be prepared in Canada (although Laval University tariffs are considerably higher).

Jeremy McNeil (Chairman)

REPRESENTATIVE ON CANADIAN COUNCIL ON ANIMAL CARE

As Representative on Canadian Council on Animal Care for the E.S.C., I have nothing to report to the Governing Board this year.

A.E.R. Downe

REPRESENTATIVE TO CANADIAN STANDARDS ASSOCIATION COMMITTEE ON COMMON NAMES FOR PEST CONTROL CHEMICALS

A meeting of the Canadian Standards Association Committee on Common Names of Pest Control Chemicals was held in Ottawa on February 27, 1976.

Fifty new common name proposals were discussed. Twenty-three names were considered acceptable and will be included in a future addendum to the Standard.

Supplement No. 1 to CSA Standard Z143-1974- Common Names for Pest Control Chemicals was published in June 1976. The supplement contains 110 new common names. The previous Standard and new Supplement together list 442 common names with corresponding chemical definition, empirical formula and classification for the various complex chemicals utilized in the management of pests.

A French edition of the Standard Z143-1969- Noms Communs pour les Pesticides was also published in 1975.

Copies of the CSA Standard and Supplement are available from the Canadian Standards Association, 178 Rexdale Boulevard, Rexdale, Ontario M9W 1R3.

L. Roadhouse

REPRESENTATIVE TO SCITEC

SCITEC continues to operate on a low budget and in a low key.

Federal funding is not available for HOSTE, but a corporation is being formed to operate it privately. The corporation will be independent of SCITEC, though some or all of the directors may be members of the SCITEC council. At first a few societies will join in occupying inexpensive, probably rented, quarters. Later something more ambitious may develop.

A committee has been formed to try to make Science Forum more interesting and broaden its usefulness, perhaps by adding more science news to its present policy content.

A CANSET (Canadian Science, Engineering and Technology) week is planned for Ottawa, probably in the spring of 1978. Various institutions and groups will put on public lectures and exhibits to encourage interest in science, engineering and technology. The E.S.C. might wish to consider how it can participate. Similar programs will be planned for other cities later.

The Association of Parliamentarians and Scientists will be holding two seminars in Ottawa, one on 16 November on nuclear energy and one in February or March on solar energy. If representation from Parliament is good, this will be considered a useful exercise and it will be continued.

Though SCITEC is less biologically oriented than B.C.C., it is making some fresh starts and is a useful listening post. The expense is still low, and it is recommended that the Society continue its membership.

R.K. Stewart

**REPRESENTATIVE TO THE CANADIAN COMMITTEE OF THE
INTERNATIONAL ASSOCIATION ON WATER POLLUTION RESEARCH
(C.C.I.A.W.P.R.)**

1. The 10th International Conference on Water Pollution Research is scheduled for June 23-27, 1980 in Toronto. The E.S.C. should plan input into these meetings as a way to narrow the gap between engineering and biological approaches to research on water pollution.
2. The Board of Directors of the E.S.C. passed a motion at the March 30-31, 1976 meeting to contribute \$50.00 a year to the C.C.I.A.W.P.R. Hopefully, this support will indicate E.S.C.'s interest in having input into areas where water pollution research overlaps with entomological research in Canada and internationally. In the long run, such support may be of direct benefit to E.S.C.-sponsored programs such as the biological insect survey.
3. The C.C.I.A.W.P.R. discussed the increased likelihood of support by industry if information transfer of research results reported at I.A.W.P.R. Conferences was improved. Specifically, preparation of reports summarizing technical sessions and suitable for publication in trade journals was suggested. I believe the E.S.C. could profit from a similar approach in three ways:
 - a) Summaries of practically-oriented entomological research papers (e.g. control of economic pests, use of indicator species, etc., etc.) given at E.S.C. meetings could be sold to trade journals.
 - b) The E.S.C. would increase its service function and increase its profile in a positive manner.
 - c) The E.S.C. may attract significant new sources of funding.
4. Members of the E.S.C. are encouraged to submit articles to the I.A.W.P.R. journal — "Water Research." This is one way to improve the spread of knowledge generated by entomological research into the effects and control of various kinds of water pollution.

D. Rosenberg

INSECT PHOTO SALON COMMITTEE

The Photo Salon Committee for 1976 invited photographers to submit black and white prints, color prints and slides of insects, related arthropods, insect damage, etc. Award certificates and ribbons will be presented to the winner in each category and the winner of the "Best Overall Entry". Entries are to be in the hands of the Chairman, postmarked no later than September 13, 1976.

K.H. Sanford
C.R. MacLellan
H. June Herbert (Chairman)

SCIENCE POLICY COMMITTEE

General

- (1) Because of other responsibilities of the chairman, because of the difficulty of meeting, and because of the work needed by the Biological Survey contract proposal, little progress has been made on general policy.
- (2) Although it is useful to maintain contact with policy-related committees, the structuring of these as subcommittees of the Science Policy Committee tends to overload the chairman, to draw attention away from basic policy issues, and to introduce a usually unnecessary extra step into the reporting process. The experiment with this structure, while useful, has been less successful than had been hoped.

As retiring Chairman I therefore recommend:-

- (a) *that the major subcommittees be reinstated as full committees reporting directly to the President and Governing Board;*
- (b) *that the chairmen of these committees continue to be ex-officio members of the Science Policy Committee; and*
- (c) *that the President, Executive and Governing Board continue to consult the Science Policy Committee on appropriate aspects of the business of other committees, but that the Science Policy Committee not normally take responsibility for the detailed operations and reports of specialized committees.*

- (3) The two new activities assigned to the Committee at the March 1976 meeting of the Governing Board, namely, a study of entomology in government and a study of international co-operation in entomology, have not been materially advanced. However, the President of the Society has made a strong statement on the former subject, which has been published in the *Bulletin*. The Committee believes that these are valid and timely subjects for study, and *recommends that the 1976-77 Committee proceed with them.*

Two letters have been received in response to requests to directors and members for suggestions as to further policy matters to be considered. The following topics were identified:

The level and distribution of funding for research;
The methods of research funding;
Limitation of federal support for travel to scientific meetings;
N.R.C. policy on support of scientific publications;
Current retrenchment in science in Canada;
Retrogression of biological control efforts in Canadian agriculture and forestry.

The first three topics fall within the scope of the existing study of university funding and the proposed study of entomology in government. The fourth and fifth are related but probably merit independent study. The last topic clearly warrants study, but should perhaps be examined in relation to general control planning and practice, rather than as an independent topic.

The new Committee should consider these proposals, but will have to take into account the resources of time and manpower in the Society.

Biological Council of Canada

The B.C.C. appears to have been more energetic and more aware of current issues than in recent years. In particular it is giving more attention to the problems of biology in the non-university sectors. To this end it has organized a meeting on 2 and 3 November 1976 at which the problems of science and government will be discussed with a senior official of M.O.S.S.T. The B.C.C. has indicated it will support and develop a brief on this subject if one is initiated by a member society.

The current executive of B.C.C. is interested in the development of professional certification for Canadian biologists. Response from member societies will be explored at the forthcoming meeting.

A majority of the Science Policy Committee believes that the E.S.C. should rejoin B.C.C., for three reasons:

- (1) To maintain contact with our sister societies and pull our weight in the biological community;
- (2) to keep in touch with developments in federal science policy and science funding;
- (3) in the hope that B.C.C. may develop as an effective voice for the non-medical sector of biology.

However, certain problems would have to be faced if this course is followed. Among them are:

- (1) Ambiguities caused by the close co-operation between B.C.C. and C.C.U.B.C.
- (2) The interest in professionalization in B.C.C., its possible irrelevance to the E.S.C.'s interests, and possible conflict with other professional associations such as the A.I.C.'s provincial affiliates and the P.I.P.S.C.
- (3) How member societies can be represented more effectively in policy discussions and decisions.
- (4) Safeguards against the E.S.C., by far the best funded of the societies concerned, becoming banker for the rest.
- (5) Continuing failure of B.C.C. to join forces effectively with the C.F.B.S.

In consideration of these points, *the committee recommends that the President or a knowledgeable representative with negotiating powers attend the November meeting of B.C.C. and explore the possibility and advisability of rejoining B.C.C.*

Habitat Conference

The Society decided to withdraw from participation some time before the meeting. Though copies of the final report of the N.G.O.'s group have been received, its content has little relevance to the Society's present interests.

Funding of University Research

Because of illness, Dr. O'Neill had to give up the chairmanship of this subcommittee. Dr. Mackauer has agreed to serve in his place, but no progress has yet been reported.

Media Impact Study

This study was initiated by M.O.S.S.T. and covered all societies. M.O.S.S.T. undertook to consult us during the drafting of the questionnaire but did not do so. The questionnaire when received proved to be hardly applicable to our activities, and we did not return it.

The following committees and representatives reported through the Science Policy Committee (their reports appear separately in the Bulletin): Biological Survey Committee, Manpower Study Committee, Research/Extension Survey Committee, Representative to the Canadian Committee of the International Association on Water Pollution, and Representative to SCITEC.

As retiring chairman of the Science Policy Committee, I wish to thank those who have helped in the work of the Committee during my tenure, but particularly the subcommittee chairmen and society representatives, and Dr. Anne Hudson, who has acted de facto as vice-chairperson and secretary combined for the Committee.

E.G. Munroe (Chairman)

HONORARY MEMBERSHIP COMMITTEE

The past year has not required action on the part of the Honorary Membership Committee. At the time of the 1975 Annual Meeting, the Society had 10 Honorary Members: E.M. Duporte, W.N. Keenan, R.E. Balch, A.D. Pickett, J.G. Rempel, H.H. Ross, G.F. Manson, G.P. Holland, W.J. Brown and R. Glen. This is the maximum number of Honorary Members allowed by the By-Laws of the Society with the current number of regular memberships.

J.B. Adams, A.E.S.
L.G. Putnam, E.S.S.
H.G. Wylie, E.S.M.

J.J. Cartier, E.S.Q.
W.A. Charnetski, E.S.A.
R.W. Fisher, E.S.O.

R.D. McMullen, E.S.B.C. (Chairman)

GIFT SUBSCRIPTION PROGRAM

Two subscriptions of The Canadian Entomologist were donated by Society Members to worthy recipients in Ghana and Indonesia. A gift subscription to an institution in Ceylon was withdrawn because of cessation of entomological activities. At present, the total number of gifts in the Gift Subscription Program is sixteen.

Since the 1975 Annual Report, four subscriptions of The Canadian Entomologist have been donated for the use of the Gift Subscription Program. The Society thanks those who have generously donated their subscriptions.

Members of the Society are again reminded that it is primarily through you that the Gift Subscription Program learns of potential recipients. Keep this Program in mind while you are making international contacts, as there are several subscriptions on hand waiting a suitable recipient.

George H. Gerber (Chairman)

PUBLIC EDUCATION COMMITTEE

In 1975 the Committee for Publicizing Entomology was merged with the Committee for Student Encouragement and renamed the "Public Education Committee."

The Entomological Society of Manitoba continued an active program including field trips and workshops for children. The B.C. Entomological Society used a \$100.00 grant from the Entomological Society of Canada to purchase several copies of the book *Insects in the Classroom* for distribution in Vancouver High schools. Société Entomologique du Québec also has a Student Encouragement Committee.

It is obvious to the Committee that most of the contacts with the lay public, amateur entomologists, and the educational systems will have to be made by the regional societies. It will perhaps fall to the national society to encourage efforts by the regional societies, provide seed money for regional projects, and provide a clearing-house service for the regional student encouragement committees. Chairmen of regional student encouragement programs are encouraged to write this ESC committee about their work. The fact that the Ontario Society does not have such a committee or program constitutes a serious deficiency considering that nearly one third of Canada's population resides there.

This committee has undertaken to catalogue films and slides pertaining to entomology which are currently available from industry and government either gratis or for a nominal fee. Substantial progress has been made and we hope to publish a catalogue in 1977. Copies of the catalogue will be made available to public libraries and educational authorities. Anyone who has knowledge of availability of this type of material (particularly if it has a Canadian flavour) is invited to contact the committee.

The E.S.C. continued to support the TIEG (Teen International Entomology Group) Newsletter which provides feature articles, notes and letters to the editor written by young entomologists.

The committee encourages all members of the ESC to take any opportunity to lecture at schools, group meetings or write newspaper or magazine articles on entomological subjects.

A.D. Tomlin (Chairman)
G.G. Grant
D.F.J. Hilton

D.M. Lehmkuhl
R.H. Wright

COMMITTEE ON INSECT COLONIES

With the approval of the Governing Board the list of "Laboratory Colonies of Insect and Other Arthropods in Canada" was prepared in June 1975. This was photocopied and made available to the membership on request. 75 were distributed to cooperators listing colonies and another 40 to those requesting the publication.

This was done at no expense to the Society and unless there are objections otherwise, this procedure is recommended when the 1977 list is prepared.

J.S. Kelleher (Chairman)

PUBLICATIONS COMMITTEE

Based on recommendations of the Committee, the following actions have been taken:

- a. Two additional associate editors have been appointed: D.G. Finlayson for toxicology and R.P. Jaques for general biology and insect pathology.
- b. An announcement of the new Scientific Note section in The Canadian Entomologist was placed in The Bulletin.
- c. A request for volunteers to review manuscripts and books in The Bulletin has been successful.
- d. Associate editors were asked to keep the time that papers are out for review to 2 weeks and to cut off reviewers who hold manuscripts for an undue period of time.
- e. The editor now informs the authors of acceptance of papers before sending manuscripts back to the managing editor.
- f. Secretarial help for the editor of The Canadian Entomologist has been provided. This action was approved by the Board at March 1976 Interim Meeting.

Action recommended by the Committee, but not yet completed.

- a. In the Notice to Contributors in The Canadian Entomologist:
 - 1) List areas for a paper to be reviewed in and ask author to select areas in which they wish their papers reviewed.
 - 2) Ask authors to suggest appropriate reviewers or name previous reviewers and send copies of their comments.

Events and Activities since Interim Meeting in March 1976.

1. Jeremy McNeil was appointed associate editor for French papers.
2. The backlog of "unreviewed" books has been cleared. Books are now sent out within 4-6 weeks of their receipt by the Chairman.
3. The "snags" in the publication of papers in The Canadian Entomologist have diminished. Things seem to be going much more smoothly.
4. Due to a large backlog in papers, the Chairman gave Miss McBride permission to increase the size of each issue of The Canadian Entomologist until a "reasonable" time from acceptance to print is achieved.
5. The Editor of The Bulletin and the Chairman agreed that book reviews should be limited to no more than 6 double-spaced typed pages.

S.H. Gage
S.B. McIver (Chairman)
G. Pritchard
E.H. Salkeld

V.R. Vickery
W.G. Wellington
C.M. Yoshiomoto

RESEARCH/EXTENSION SURVEY COMMITTEE

Since the last Board meeting, the Chairman of the Committee searched for and finally obtained expert assistance in drawing up a format for a questionnaire to be sent to respondents in the various organizations and agencies involved in the research/extension information flow. This assistance was provided without charge by Mr. Onno Kremers of the consulting firm "Lombard North Group".

The next step is to give the questionnaire a preliminary test. The members of the Governing Board are requested to complete the questionnaire for their organization. The committee will then analyze the returns and, if necessary, revise the questionnaire before starting the survey. Mr. Kremers indicated that the best returns occur when a professional type of questionnaire is sent personally to each respondent. To conduct the survey, a list of organizations to be surveyed and the names of a respondent in each organization are needed. The Directors from the Affiliated Societies are requested to act as the provincial contacts, who will prepare these lists of respondents.

R.F. DeBoo
H.G. Philip

R.J. Whitman
W.J. Turnock (Chairman)

BIOLOGICAL SURVEY COMMITTEE

Since the last meeting of the Governing Board, the Society's proposal for the establishment of a Biological Survey of the Insects of Canada has moved forward steadily. One further rewriting of the proposal yielded, at last, a sufficiently lucid draft, and it was signed on behalf of the Society on 10 May. This was transmitted to the Department of Supply and Services as an unsolicited proposal in the field of science. With some adjustment and reduction it has now been accepted in principle, most details are agreed, and while awaiting signature the first steps towards implementation have been taken.

The Society's general aim is to improve the knowledge of the insects and related arthropods of Canada by coordinating, on a cooperative basis, the existing resources in systematic and faunistic entomology in Canada, and by promoting necessary developments. The initial aim, and the subject of the contract proposal to D.S.S., is to set up a pilot project of limited duration. If this is reasonably successful it is hoped that it will lead directly into a continuing Biological Survey with stable and long term support.

J.A. Downes (Chairman)
D.K. McE. Kevan
E.G. Munroe

ARCHIVIST

In January 1976, the files of the Archivist were transferred to the Secretary. Since that time, little has taken place in connection with the Archives and, consequently, no actions have been carried out.

George H. Gerber

SCHOLARSHIP AWARDS COMMITTEE

The 1974-75 Scholarship Committee developed rules and regulations covering the Entomological Society of Canada Scholarship and took steps necessary to obtain applications for the first scholarship to be awarded in March, 1976 and payable in January, 1977. The 1975-76 Scholarship Committee assessed applications and recommended that the scholarship be awarded to Mr. G.J. Hilchie, Department of Entomology, University of Alberta.

The Scholarship Committee encountered some difficulty in applying the rules and regulations governing the scholarship award. Requirements for: 1) timing and circulation of the announcement; 2) eligibility; 3) final date of application; and 4) announcement of the award, were revised and submitted to the Governing Board for consideration.

A. Hikichi
J.E. Laing
C.R. Harris (Chairman)

ELECTIONS COMMITTEE

The Secretary mailed 769 ballots to members. Of these, 347 were received on or before July 15, 1976. On July 16, these ballots were opened and counted, and the following are the results.

For President-elect: W.G. Wellington is elected.

For Directors-at-large: G.E. Ball and R.F. De Boo are elected.

For the Fellowship Selection Committee: J.L. Auclair, B.P. Beirne, D.A. Chant, J.A. Downes, F.L. McEwen, and D.G. Peterson are elected. One ballot was spoiled.

On the matter of the By-Laws: The proposed revision was approved by a majority greater than 2/3 of the total votes cast.

K.G. Davey (Chairman)
G.W. Friend
S.S. Tobe

COMMITTEE ON COMMON NAMES OF INSECTS

No submittals were received for the year.

The Committee is made up of the following:

J.E.H. Martin (Chairman) Ottawa, Ontario.
C.C. Loan, (member at large), Ottawa, Ontario.
C.J.S. Fox, Kentville, Nova Scotia.
D.C. Herne, Vineland Station, Ontario.
A.G. Robinson, Winnipeg, Manitoba.
F.J.H. Fredeen, Saskatoon, Saskatchewan.
G.E. Ball, Edmonton, Alberta.
A.F. Hedlin, Victoria, British Columbia.
R.O. Paradis, (Acting), St. Jean, Quebec.

ACHIEVEMENT AWARDS COMMITTEE

Nominations for the 1976 ESC Awards were solicited by the procedures outlined in the terms of reference established in 1973. A letter, dated August 28, 1975 was sent to the President, Secretary, and Directors of Societies affiliated with the ESC, to remind them that members of the ESC are eligible to submit nominations. An advertisement was published in the September Bulletin noting that nominations for the 1976 Awards must be received by November 30, 1975. In addition, a similar announcement accompanied all dues notices sent out by the Treasurer.

Because of the postal strike, the Executive Committee extended the deadline for nominations to January 31, 1976. A notice of this change appeared in the December Bulletin. Nominations were slow at first. Most of the business was conducted by correspondence.

An additional member was appointed to the Committee in March, 1976 to serve for a member who was unable to act just prior to naming the successful candidates.

After extensive review the Committee unanimously recommended to the Governing Board that Dr. Bryan P. Beirne receive the 1976 Gold Medal Award and Bruce S. Heming, the C. Gordon Hewitt Award. An announcement of the winners was placed in the Bulletin and brochures prepared of the achievements of both recipients.

Letters were sent to nominators of unsuccessful candidates of 1976 and of previous years to remind them that their nominees could only be considered for the 1977 Awards if they were renominated.

No nominations were received from Affiliated Societies. The committee recommends that the Directors from each Affiliated Society become familiar with the procedures for nominations and consider it a duty to urge the Affiliate Societies to establish an Achievement Awards Committee to place names before the ESC Awards Committee.

D.G. Embree
I. Outram

L.S. Thompson
M.E. MacGillivray (Chairman)

FINANCE COMMITTEE

The 1977 Budget — General

The Finance Committee would like to be able to say that the Canadian Entomologist, the Memoirs, and the Society's affairs are each balanced, financially speaking, independent of one another, each generating a small surplus to be invested. Such an independence is desirable so that fluctuation in one will not upset operations of the other two. Appendix I shows an approximate breakdown of receipts and disbursements into the three categories, taken from the 1977 budget. Obviously such a breakdown must not be carried too far based on this set of figures, for they are estimates and such items as salaries, and office expenses have to be rather arbitrarily divided among the three categories. Furthermore the interest, a substantial sum, has all been added to Society affairs although most of it was generated from the publications. So, it is evident that the Society's activities have been to a considerable extent dependent on the success of the Can. Ent.

The 1977 Budget — Detailed Comments

Some estimated receipts are down slightly from 1976, unfortunately because of a drop in regular memberships and subscribers. Because the price went up, considerably more revenue is expected from back issues, however, and with the addition of a 25% increase in interest, to \$16,000 from \$12,000, a net increase in the total receipts over 1976 is forecast.

Unfortunately, the expected disbursements show a deficit of \$4,740. The most noticeable increase here results from increased secretarial assistance (\$4000) and a \$4000 rise in salaries.

The Finance Committee hopes that this anticipated deficit of \$4,740 is only a reflection of cautious budgeting. Even if refinanced, the *Memoirs* cannot bring in much revenue until 1978, and one obvious course to a balanced budget would be an increase in subscriptions. But there are not many obvious places to make substantial cuts in expenditures. The annual meeting has only increased moderately since 1975, executive travel is lower, and the other expenses (except those mentioned in the previous paragraph) have remained much the same.

Canadian Entomologist

The Committee recommends the *status quo* for 1977, i.e., subscription at \$35, and page charge at \$47. Although page charges might be lowered by a few dollars, Appendix I suggests that the Society depends on a surplus in the *Can. Ent.* Furthermore implementation would require several months, by which time it might be necessary to raise page charges back again. If page charges were lowered, a loss to the Society would result, which could only be offset by raising subscription rates, and all committee members have rejected this alternative. The recommendation below concerning *Memoirs*, if adopted, will amount to an increased subscription as far as many subscribers are concerned. Finally, the *Can. Ent.* seems to be reasonably competitive, although subscriptions and page charges vary widely in other journals.

Memoirs

In spite of an old agreement between Treasury Board and the then Departments of Agriculture and of Forestry, the majority of committee members favour replacing the present system of financing *Memoirs*, i.e., that of billing the author or his institution for the total cost, including E.S.C.'s share, with a new system whereby the author and subscriber would share in publication costs. A page charge of \$40 is recommended. Except for 25 free copies to the author, all copies would be sold by the Society at an average of 5 cents per page. Some *Memoirs* will sell well and could be priced lower; the majority will not have a high demand. Assuming a pessimistically low subscription figure of 200, which is about the number of permanent subscribers to *Systematic Entomology*, and to *Contr. of Am. ent. Inst.*, both catering to a specialized audience, a 100 page *Memoir* would still net the Society \$1000, which, added to the \$4000 from page charges would be sufficient to cover all publication, editorial and other Society costs. If postage rates continue to go up they can be charged for over the basic price. The page charge of \$40 should be the same for all *Memoirs*. It is lower than that for the *Can. Ent.* because the subscriber is being asked to pay more per page than for the *Can. Ent.* (conversely, an author in *Can. Ent.* is getting, for his \$47/page, a readership of thousands instead of hundreds). The author and his institution may be willing to forgo the privilege of an extensive mailing list in order to obtain a saving of 20%.

The sale price need not be fixed; an average of 5 cents is recommended based on an estimated initial sale of only 200 copies, i.e. for a specialized paper, catering to a small audience. If larger sales are anticipated, and copies over 25 ordered in advance by the author are to be included as sales, the sale price may be lowered proportionally. An example is the *Manual of North American Diptera* at 2000 pages; if offered at 5 cents/page the sale price would have to be \$100. Such a price would undoubtedly limit the sale to the bare minimum. But a much larger potential market exists, (Classey estimates 1000, most others including Lyneborg (Scandinavian Science Press) estimate over 2000) and therefore a \$20 sale price would still reimburse the Society and would certainly do more to further entomology than a sale price of \$100. Furthermore, there is usually a fairly steady, sustained call for such works; Curran's 1934 *Manual* is still in demand, at \$40.00 for a facsimile edition. Experience, as to the size of the potential market, and its continuing demand, will facilitate future decisions, which should be made by the Publications Committee. If the author wants a substantial number of copies, he should be encouraged to order them in advance as this will have a bearing on the establishment of the sale price. It would seem in the Society's best interests to print a conservative number and reprint if necessary, rather than to stockpile too many publications. The technicalities of billing for *Memoirs* ought to be left to the Treasurer's clerk.

Examples: @ page charge of \$40

Total Pages	Sale Price Based on 200 copies	Publication Cost at \$50/page	Contribution from page charges	Contribution from sales of 200 copies
60	\$ 3	\$ 3000	\$ 2400	\$ 600
100	5	5000	4000	1000
500	25	25000	20000	5000

If the page charge of \$40 is considered too high, a page charge of \$30 would double the sale price according to the Formula:

$$\text{sale price} = \frac{\text{no. pages}}{\text{copies sold}} \times (50 - \text{page charge})$$

where 50 is the 1975 average cost per *Memoir* page, and may now need revision upward.

Other Publications

Most Finance Committee members were opposed to starting another journal, especially if the *Memoirs* can be sold. Every kind of entomological publication, for example *Handbooks of Canadian Insects*, the *Manual of North American Diptera* or the *Proceedings of the Ephemeroptera Symposium*, could potentially be part of a refinanced *Memoir* series, each with its own sale price according to a conservative estimate of its popularity. Therefore a recommendation concerning other publications is contingent upon the fate of the *Memoir* series.

Building Purchase

A two storey residence at 1025 Carling, opposite the Neatby Bldg., came up for sale over a year ago, but was rejected then by the Finance Committee because of unsuitable zoning. Interest was renewed in this house in July 1976 with the need to provide space for the Biological Survey, and as the asking price had declined to \$56,900, the Finance Committee recommended purchase to the Executive on condition that some sort of rezoning could be achieved for that particular property that

would permit its use as the Society headquarters. An offer for \$52,000 was made in August. A lawyer's preliminary investigation, however, indicated rezoning would take a year for not only did Ottawa have to pass the rezoning amendment, but the Ontario Municipal Board had to approve it. As of the writing of this report our offer is still valid, but the closing date of Nov. 1/76 cannot be met and it will be up to the Board of Directors to release the Executive from any prior approval by the Finance Committee, and to empower the Executive to submit a new unconditional offer by Nov. 1.

In the opinion of the Finance Committee chairman, (the majority of the Committee members are not sufficiently in favour of any real estate purchase to want to take a chance on buying 1025 Carling before it is rezoned), it is unlikely that any other building of equivalent quality and size which is also potentially reasonable could be obtained in Ottawa, for so little. Nothing comparable could be obtained for twice the price if zoned commercial. Thus it may be a worthwhile purchase and though not a very attractive location as a residence it could be rented as such until rezoning can be accomplished for our purposes. The house needs no immediate maintenance or repairs for residential use, so what the Society would lose, if rezoning could not be achieved, would be the interest lost on the purchase plus the upkeep minus what rent we could obtain, roughly $5000 + 1800 - 3000$, or \$3800, per annum. The building will not appreciate by very much. This small part of Carling is one of the last still zoned residential.

Appendix I

Rearrangement of 1977 Budget

Society Affairs

Receipts

Membership	\$ 4,000*	
Students	1,360	
Sustaining members	1,000	
Interest	16,000	\$ 22,360

Disbursements

Bulletin	\$ 6,000	
Office	1,000*	
Salaries	3,000*	
Misc. (audit, etc.)	21,100	\$ 31,100

Memoirs

Receipts

overhead charged	\$ 2,500	
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Disbursements

salaries & handling	\$ 2,500*	
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Can. Ent.

Receipts

members @ \$1.05/issue	\$12,000*	
subscriptions	34,000	
reprints	12,000	
page charges	48,000	
back issues	4,000	\$110,000

Disbursements		
publication costs	\$68,000	
reprints	6,000	
office	5,000*	
salaries	27,000*	\$106,000

* split between two categories

A. Cloutier
H.F. Howden
J.S. Kelleher
G. McLeod

C.R. Sullivan
D.M. Wood (Chairman)
E.C. Becker (ex officio)

EMPLOYMENT COMMITTEE

The Employment Committee of the ESC maintains a file containing curriculum vitae of members of the ESC seeking employment in entomology, and a file containing requests from employers with positions available. Advertisements are placed in the Bulletin under Positions Wanted or Positions Available for those who request this service.

Inquiries for employment received, not listed in the Bulletin:
1974, 6; 1975, 3; 1976 (as of August 1), 5.

Inquiries for employment received, listed in the Bulletin:
1974, 9; 1975, 0; 1976 (as of August 1), 5.

Employment opportunities listed in the Bulletin:
1974, 3; 1975, 1; 1976 (as of August 1), 4.

S.R. Loschiavo
B. Heming
A.G. Robinson (Chairman)

EDITOR'S REPORT

The information in this third report covers the twelve-month period from September 1, 1975 to August 31, 1976 and represents the activities of the Editor of The Canadian Entomologist. The last report was for the period from July 1, 1975 to March 31st, 1976, a nine-month span.

Number of Manuscripts RECEIVED	
Sept. 1/75 to Aug. 31/76	230

Number of Manuscripts	
(from above-mentioned 230)	
ACCEPTED for publication	
Sept. 1/75 to Aug. 31/76	149 + 1 Memoir

Number of Manuscripts ACCEPTED	
for publication, but received	
prior to Sept. 1/75	84

Total number of Manuscripts
ACCEPTED FOR PUBLICATION

233 + 1 Memoir

Status of the 80 Manuscripts
received Sept. 1/75 to Aug. 31/76,
but not yet accepted is as follows:

Under Review	29	
Under Revision	37	
Withdrawn	5	+ 1 Memoir
Rejected	8	(3.5%)

The number of manuscripts withdrawn increased markedly, 5 vs. 1 in the last report. This is a truer reflection of the withdrawal of NRC support.

The number of manuscripts received from the U.S. amounts to about one-third of the Canadian submissions.

Response to the appeal to members of the Society, through the *Bulletin*, to offer to act as reviewers of manuscripts submitted for publication now totals 52. These offers have been acknowledged by letter and have been of great assistance.

P.E. Morrison

ASSISTANT EDITOR (BULLETIN)

This report covers the period March-September 1976. Three numbers of Volume 8 of the *Bulletin* will have been published by the time this report is discussed. No. 1 (March 1976) had 32 pages and No. 2 (June 1976) had 28 pages. Both were mailed to the membership by the 30th of each month. No. 3 (September 1976) will have as many if not more pages plus a supplement "Entomological manpower in Canada — Current status and future projections". Additional reprints of this brief will be made available.

Some contributors are still sending material which can only be considered for publication in the *Bulletin* to the Canadian Entomologist, in spite of the fact that the name and address of the *Bulletin* editor are clearly printed on the inside front cover of the *Canadian Entomologist* — a recommendation of the former editor, Dr. D.C. Eids.

It has been suggested by President-Elect Dr. M.E. MacGillivray that Affiliated Societies make use of the *Bulletin* on a regular basis. So far the editor has obtained information from the newsletters of some Regional societies such as Manitoba and B.C.

Recommendation: that Regional Directors of the Society provide the editor of the *Bulletin* with information (news, articles) pertinent to their Affiliated Society and region for publication in a "Affiliated Societies" section of the *Bulletin*.

Bernard J.R. Philogène

PROGRAM COMMITTEE (1977)

The feature symposium of the Joint Meeting of the Entomological Society of Canada and the Entomological Society of Manitoba, August 22-24, in Winnipeg, will be "Damage assessment in the agro-ecosystem". Invited speakers will discuss stored products, plant models, field crops and non-target organisms. The second day of the scientific sessions will feature a symposium on "Insect factors in human and animal health". Invited speakers will discuss disease vectors, filth spreading insects, insects affecting livestock, wildlife and pets. Both symposiums will be followed by submitted papers.

The local arrangements committee has prepared an excellent social program. To capitalize on the beautiful August evenings in Winnipeg, guests will dine and dance while cruising down the Red River. A banquet is planned for the second evening as well.

Participants at the joint meeting will see for the first time many of the rarities collected by the Criddles of Aweme, Manitoba and they will hear Ms Alma Criddle describe life as it was in Aweme at the turn of the century.

R. Brust (Director
From the Entomological
Society of Manitoba)

PROGRAM COMMITTEE (1978)

Two sites would seem to meet the requirements of the Society if we want to keep costs down and give the opportunity to as many members as possible to attend: Carleton University and the University of Ottawa.

On May 21, a circular was sent to all the ESC members in the Ottawa-Hull area inviting each one to participate actively in the organization of the 1978 meeting. By July 2, eight (8) of the 74 members contacted had indicated in writing that they were prepared to be involved. Another circular was sent on July 2 to those members who had not responded to the May 21 circular. This resulted in one (1) positive reply in writing and in one (1) verbal promise.

An organizational meeting is planned for the third week in September 1976, at which time responsibilities for the various aspects of the meeting (scientific programme, local arrangements, etc.) will be assigned.

Bernard J.R. Philogène (Chairman)

RECENT DEATHS

BELLAMY, R.E. (Buck), Saskatoon, Sask. Formerly at Belleville, Ont. On 7/2/77. Member ESC, ESS. Research Scientist. Agriculture Canada.

REPORT OF THE NOMINATING COMMITTEE, 1976-77

With the additional need for nominations for the Fellowship Committee, the Chairman of the Nominating Committee held a meeting with the Chairman of the Fellowship Committee and requested a list of possible candidates for nomination. Following discussions were held by telephone, when necessary.

The Nominating Committee relied upon correspondence and telephone at the beginning, then held a final meeting and is very pleased to put forth the following candidates for the Governing Board's approval for the 1977 elections of the Society.

For President-Elect

F.L. McEwen
R.K. Stewart

For Directors-at-Large

A. Hikichi
H.F. Madsen
R.F. Morris

For Fellowship Committee

Jean B. Adams
J.R. Blais
M.D. Proverbs

All of the above nominees have been contacted and have agreed to let their names stand in nomination.

Additional nominations from the membership were invited through an announcement published in the December, 1976 Bulletin.

J.E. Laing
A.J. McGinnis
G.S. Copper (Chairman)

LABORATORY COLONIES OF INSECTS AND OTHER ARTHROPODS IN CANADA

A revised list will be published in 1977 by E.S.C. Those who contributed to the 1975 list will be contacted directly but there are likely others who could participate. Please contact: J.S. Kelleher, Research Program Service, Research Branch, Agriculture Canada, Ottawa, Ontario, K1A 0C6.

ANNOUNCEMENT

Entomological Society of Canada Postgraduate Award — 1977

The Entomological Society of Canada will offer a postgraduate award to assist a student in undertaking his or her first year of graduate study and research leading to an advanced degree in entomology. The award will be made to a man or woman on equal terms on the basis of high scholastic achievement.

The purpose of this announcement is to outline the eligibility requirements, the method of application and the regulations governing the use of the award.

All communications regarding the award should be addressed to:

*Dr. G.H. Gerber, Secretary,
Entomological Society of Canada,
c/o Research Station,
Agriculture Canada,
195 Dafoe Road,
Winnipeg, Manitoba R3T 2M9*

Postgraduate Award — A Postgraduate Award valued at \$500.00 for 12 months will be awarded for a first year of postgraduate study and research in entomology in Canada.

Eligibility — The successful candidate must be either a Canadian citizen, or a landed immigrant with a baccalaureate from a Canadian university. The award is conditional until the recipient has provided evidence that he, or she, has been accepted by a graduate school to engage, during the 1977-78 academic year, in a program of study and research for an advanced degree with full graduate student status. Failure to provide this evidence will result in cancellation of the award. Before the scholar may receive his or her award a statement must be provided by the Dean of Graduate Studies at the university of tenure certifying that the student has been accepted for graduate studies and research with the full status of a graduate student. A scholar who enters a graduate school as a qualifying candidate is not eligible to hold the Postgraduate Award of the E.S.C. The award to a student who was unable to gain admission to a graduate school as a fully qualified student will be cancelled.

Tenure — The Entomological Society of Canada Postgraduate Award is granted for tenure in Canada. A successful candidate may carry out his or her postgraduate research at the Canadian university of his or her choice. Tenure may commence on or after May 1977 but not later than the date on which the academic year begins.

Method of Application — The Entomological Society of Canada Postgraduate Award will be announced before 1 September, 1977. Candidates should submit a properly completed form, with supporting documents, in accordance with the instructions printed on the application form. Applications must be received by the Secretary of the Society not later than 15 June, 1977.

Regulations

Demonstrating and Instructing — The Award holder is permitted under normal circumstances to demonstrate or instruct for a maximum of 200 hours per an-

num provided that the Head of his or her department considers it desirable and that it does not hinder the progress of his or her work. The Award holder may accept remuneration for such work at the rate in effect at the university concerned.

Emolument from Other Sources — Apart from demonstrating and holidays, an award holder will devote his or her whole time to study and research and will not undertake any paid work, but he or she may hold another award or scholarship.

Transfers — After the postgraduate award is made, any change in the course of study or in the university of tenure requires prior approval of the Entomological Society of Canada Scholarship Committee. A request for permission to transfer must be supported by statements from each Head of department concerned.

The Award is made on condition that the winner engage in a program of graduate studies and research for an advanced degree in Entomology. Students who, after receiving the Award decide to transfer to a graduate program other than entomological cease to be eligible and their award will be cancelled.

Absence Through Illness — If, on account of illness, an Award holder is absent continuously for more than two weeks, the Scholarship Committee of the Society should be notified.

Payment of the Award — The Award will be paid in January, 1978 on receipt of a report of satisfactory progress from the supervisor.

Additional Allowances — The Award stipend is all-inclusive. There is no provision for additional grants by the Society for any purpose. Additional grants, for example, to attend meetings, pay course fees, meet publication costs, etc., will not under any circumstances, be authorized.

AVIS

Bourse de la Société Entomologique du Canada aux étudiants post gradués — 1977

La Société Entomologique du Canada offrira une bourse aux étudiants en première année d'études post-graduées préparant un diplôme supérieur en entomologie. La bourse sera accordée à un étudiant ou une étudiante à partir des seuls critères de réussite académique.

Le but de la présente est de préciser les conditions d'éligibilité, le processus de demande et les exigences rattachées à cette bourse.

Toute correspondance relative à la bourse doit être adressée à:

*Dr. G.H. Gerber, Secrétaire
Société Entomologique du Canada
Station de Recherches
Agriculture Canada
195 Dafoe Road
Winnipeg, Manitoba R3T 2M9*

Bourse d'études post-graduées — Une bourse d'études post-graduées d'un montant de \$500.00 sera accordée pour 12 mois à un étudiant en première année d'études et de recherches entomologiques au Canada.

Eligibilité — Le lauréat doit être citoyen canadien ou résident reconnu du Canada, et avoir un baccalauréat d'une université canadienne. La bourse ne sera accordée que lorsque le candidat choisi aura soumis un dossier démontrant qu'il est inscrit aux études post-graduées, pour l'année académique 1977-78, et que son programme établi en vue d'un diplôme supérieur lui donne tous les privilèges rattachés au statut d'étudiant post-gradué. Si cette exigence n'est pas rencontrée, la bourse ne sera pas remise. Avant que le lauréat n'ait reçu sa bourse, le Doyen de l'Ecole des Etudes Supérieures aura soumis par écrit une attestation du programme d'études et du statut de l'étudiant. Un étudiant qui s'inscrit en vue de compléter l'obtention de crédits seulement ne peut faire une demande pour la bourse de la S.E.C. Si la bourse était accordée à un candidat qui n'aurait pu obtenir son admission à une Ecole d'Etudes Supérieures, elle ne sera pas versée.

Endroit — La bourse ne peut être utilisée qu'au Canada. Le candidat pourra s'inscrire à l'université de son choix. La bourse prendra effet en mai 1977 ou plus tard sans excéder la date du début de l'année académique.

Formalités de la demande — Le lauréat sera connu avant le 1^{er} septembre 1977. Les candidats devront soumettre leur candidature sur le formulaire approprié et y ajouter tous les documents requis sur la formule de demande. Les demandes devront être reçues par le Secrétaire de la Société au plus tard le 15 juin, 1977.

Règlements

Démonstration et enseignement — Le boursier pourra dans des circonstances normales donner des cours ou faire de la démonstration jusqu'à un maximum de 200 heures par année pourvu que le directeur de son département en exprime le désir et considère que ces tâches additionnelles n'iront pas à l'encontre du progrès de l'étudiant. Le boursier peut accepter une rémunération au tarif normal de l'université où il se trouve.

Autres sources de revenus — Sauf pour fins de démonstration et les jours de congé, le boursier devra consacrer tout son temps à l'étude et à ses recherches et n'accepter aucune autre rémunération, mais pourra jouir d'une autre bourse ou d'un prix.

Transferts — Après acceptation de la bourse, tout changement dans le programme d'études ou déplacement vers une autre université devra recevoir au préalable l'approbation du Comité de la Bourse de la S.E.C. Une telle demande doit être accompagnée de documents provenant des deux Chefs de départements concernés.

La Bourse est accordée pour poursuivre des études du 2^e ou 3^e cycle conduisant à l'obtention d'un diplôme en entomologie. Les récipiendaires de la Bourse qui décideront de changer d'orientation pour d'autres disciplines que l'entomologie deviendront inéligibles et se verront retirer leur bourse.

Absence pour maladie — Si, pour des raisons de maladie, un Boursier s'absente pour plus de deux semaines, il doit en informer le Comité de Sélection de la Société.

Paiement de la Bourse — Le paiement de la bourse se fera au cours de janvier 1978 sur réception d'un rapport satisfaisant du professeur du boursier.

Frais supplémentaires — La Bourse est telle qu'annoncée. Il n'y a pas d'autres subventions prévues par la Société. Des demandes supplémentaires pour assister, par exemple, aux réunions scientifiques, ou pour frais de cours, publications etc., ne seront autorisées pour aucune raison.

MATERIAL REQUESTED

THE PUBLIC EDUCATION COMMITTEE of the Society asks any members who have 2 X 2 projection slides or ciné film on entomological subjects which they feel would be appropriate for listing in a visual aids catalogue which the Committee is currently assembling. Entomological subjects with a Canadian flavour are particularly encouraged. Borrowers would pay duplication and/or shipping costs for slides or film. Listings submitted to the Committee should be accompanied by a brief description and addressed to:

Dr. A.D. Tomlin
Research Institute
Canada Agriculture
University Sub Post Office
London, Ontario, Canada N6A 5B7

W.G.P. GARLICK

1894 — 1976

Gilbert Garlick, who spent 34 years on the staff of the Dominion Fruit Insect Laboratory (now the Research Station) at Vineland Station, Ontario, died in London, England on Christmas Day, 1976 in his 83rd year while visiting his daughter Joan (Mrs. Warren Greatrex).

Born in London, England, he came to Canada and worked on farms for a few years before enlisting in the signal corps of the Canadian army in January, 1915. He served overseas until the end of the war and received several medals. On his return he entered the Ontario Agricultural College and received his B.S.A. degree in 1922 and his Master's degree at Kansas State College in 1923, specializing in entomology. After two seasons as a summer student, he joined the staff of the Fruit Insect Laboratory in 1922 and spent his entire career there.

Gilbert's major projects dealt first with insects of small fruits and later with a comprehensive study of the chemical and biological control of apple pests, chiefly the codling moth. The latter resulted in the very successful control recommendations that he devised for the control of the codling moth, red-banded leafroller and mites on apple. For many years he was responsible for the annual revisions of control recommendations for apple pests in the Ontario Spray Calendars. His contributions to the fruit industry were greatly appreciated by the growers. Gilbert was a meticulous researcher and his fellow staff members and other fruit entomologists were grateful for the generous way he shared his wide knowledge and experience.

Gilbert was a man of many parts, one on whom retirement definitely did not pall. He was a fine musician and played the flute in several local orchestras. A good photographer, he also took up astronomy and ground a reflector for his home-made telescope. He had two looms and wove many fine items.

He and his wife Gwendolyn were ardent travellers and after he retired in 1956 they made several trips to the Orient and Europe, especially to England to visit their families. They also spent many winters in Florida where he became an enthusiastic botanist. To illustrate Gilbert's thoroughness: he subscribed to a Spanish newspaper and studied the language for a couple years before he and Gwendolyn went to Spain for several extended visits.

After Mrs. Garlick died in 1973 Gilbert's health failed and he left Vineland and moved to Ottawa to be near his daughter. He is survived by his daughter and six grandchildren. His first wife, Muriel Stewart, predeceased him over 40 years ago.

G.G. Dustan
(Vineland Station, Ontario)

BOOK NOTE

Carpenter, S.J. and W.J. LaCasse. 1955. Mosquitoes of North America (North of Mexico). Univer. Calif. Press, 360 pp., 127 plates.

Culicidologists will be pleased to know that this invaluable and remarkably well illustrated work is available once more. It can be purchased for \$28.00 from Entomological Reprint Specialists, Box 77224, Dockweiler Station, Los Angeles, CA. 90007.

BOOKS RECEIVED

Campbell, J.M. 1976. A revision of the genus *Sepedophilus* Gistel (Coleoptera: Staphylinidae) of American North of Mexico. Memoir, Entomol. Soc. Can., Vol. 99, 89 pp.

Carcasson, R.H. 1976. Revised catalogue of the African Sphingidae (Lepidoptera) with descriptions of the East African Species. 2nd ed. E.W. Classey Ltd., Faringdon, England., 148 pp. £5.80.

Grissell, E.E. 1976. A revision of Western nearctic species of *Torymus* Dalman (Hymenoptera: Torymidae). Univ. Calif. Publ. Entomol., Vol. 79, 120 pp.

Schultz, V., L.L. Eberhardt, J.M. Thomas, M.I. Cochran. 1976. A bibliography of quantitative biology. Dowden, Hutchinson & Ross, Inc., Stroudsburg, Pennsylvania, 361 pp.

AMENDMENT OF BY-LAWS (FIRST NOTICE)

In accordance with Article XX, please be advised that a mail ballot shall take place to amend the by-laws as a consequence of a resolution of the Governing Board at its interim meeting, 24 February 1977. This is the first notice.

ARTICLE VIII — OFFICERS

1. The officers of the Society shall be the President, *the 1st Vice-President, the 2nd Vice-President*, and the Past-President. They shall constitute an Executive Council empowered to conduct the affairs of the Society between sessions of the Governing Board subject to ratification by the Board when it next meets.

2. The officers of the Society shall hold office from the end of one annual meeting until the end of the next.

3. The President shall be that person who has most recently completed a term of office as *1st Vice-President*. A vacancy shall be filled by the *1st Vice-President* who will then serve his normal term as President.

The President shall be the Chief Executive Officer of the Society and shall see that the business of the Society is carried out.

4. The *2nd Vice-President* shall be elected by annual mail ballot and shall fill the office of the *1st Vice-President* when it becomes vacant. Should the office of the *2nd Vice-President* become vacant it shall be filled temporarily by the Board until an election can be held.

5. *The 1st Vice-President shall be that person who has most recently completed a term of office as 2nd Vice-President. Should the office of the 1st Vice-President become vacant, the 2nd Vice-President shall fill the office of 1st Vice-President.*

6. The Past-President shall be that person who has most recently completed a term of office as President. Should the offices of President, *1st Vice-President* and *2nd Vice-President* become vacant, the Past-President shall fill the office of President until an election can be held.

G.B. Gerber, Secretary
195 Dafoe Road
Winnipeg, Manitoba
R3T 2M9

FELLOWS OF THE SOCIETY

The Governing Board, at its meeting on February 24-25, 1977, ratified the selection of the following 21 new Fellows of the Society:

ANGUS, T.A., Sault Ste. Marie, Ontario
BALCH, R.E., Fredericton, New Brunswick
COOPER, G.S., Toronto, Ontario
CORBET, P.S., Christchurch, New Zealand
DAVEY, K.G., Toronto, Ontario
DUPORTE, E.M., Ste. Anne de Bellevue, Québec
GLEN, R., Victoria, British Columbia
HARRIS, C.R., London, Ontario
HOLLAND, G.P., Ottawa, Ontario
KEVAN, D.K. McE., Ste. Anne de Bellevue, Québec
LEROUX, E.J., Ottawa, Ontario
McLINTOCK, J.J.R., Saskatoon, Saskatchewan
MORRIS, R.F., Fredericton, New Brunswick
MUNROE, E.G., Ottawa, Ontario
PICKETT, A.D., Deep Brook, Nova Scotia
PIMENTEL, D., Ithaca, New York
PREBBLE, M.L., Ottawa, Ontario
ROSS, H.H., Athens, Georgia
SCUDDER, G.G.E., Vancouver, British Columbia
WELLINGTON, W.G., Vancouver, British Columbia
WEST, A.S., Kingston, Ontario

PERSONALIA

Marcel Hudon, Research Entomologist at St-Jean, attended the 8th annual work planning 4-day symposium of the International Working Group on *Ostrinia* (IWGO), a cooperative project on the European corn borer, in Madrid, Spain last September. Marcel spoke on the maize breeding program carried out at St-Jean, the 1976 mass production of more than 200,000 corn borer egg masses, part of this serving the Canadian seed corn industry. After the symposium, representatives of 10 countries out of the 15 composing the IWGO made excursions and visits during 6 days to the most important Spanish centers for breeding maize and agricultural resources. Some of the national Institutes for agricultural investigations (I.N.I.A.) were visited along with some typical private farms.

**SEVENTH ANNUAL INSECT PHOTOSALON
ENTOMOLOGICAL SOCIETY OF CANADA**

22-24 August 1977

Members of the Entomological Society of Canada and biological photographers are invited to submit black and white prints, color prints and slides of insects, related arthropods, insect damage, nests, tracks, etc. for exhibit at the Winnipeg, Manitoba, meeting.

Award certificates and ribbons will be presented to the winners in each category. The best overall entry will be awarded a best in salon certificate. There will be a public showing of all submitted photos and a slide show during the meetings. The names of the winners will be announced in a future issue of the Bulletin of the Entomological Society of Canada.

Conditions of Entry

1. Subject: Entomology in the broad sense.
2. The competition is open to amateur and professional photographers.
3. Four categories: a) Black and White Prints; b) Color Prints; c) Color Slides; d) photomicrographs.
4. Prints must be 8" x 10" or larger, mounted on 11 x 14" cards.
5. Entries may not exceed 4 photos per person, including slides and prints.
6. All photos should be titled on the subject identified. Sender's name should be on the reverse side.
7. Judging will be completed before the meeting.
8. A completed entry form or a facsimile must accompany each entry and be sent to H.J. Herbert, Research Station, Kentville, N.S. B4N 1J5.
9. Entries must be postmarked 1 July or earlier.
10. Entry fee is \$1.50 per person.
11. Entries will be returned only if accompanied by a self-addressed envelope and return postage. Foreign entries should be identified to clear Canadian customs. It should be stated on the parcel that the photographs are not for sale, but only for exhibition before a scientific society, the Entomological Society of Canada, and are to be returned to the sender. Make cheques or money orders payable to H.J. Herbert. Foreign entrants should send 50¢ to cover return postage.
12. Entries will receive every possible care but neither the Entomological Society of Canada nor the Insect PhotoSalon committee will be responsible for loss or damage.

.....
ENTRY FORM

SEVENTH ANNUAL INSECT PHOTO SALON

Name.....

Street.....

City..... Province/State

Postal Code..... Member Ent. Soc. Canada

Fee enclosed..... + return postage

SECOND ANNOUNCEMENT

Theme: "Insect Damage Assessment" Feature Symposia: 23, 24 August

SYMPOSIUM I: "Damage Assessment in the Agro-Ecosystem",
SYMPOSIUM II: "Insect Factors in Human and Animal Health".

Submitted Papers, 22, 23, 24 August

Contributors must complete and submit attached form to Dr. J.C. Conroy, not later than *April 15, 1977* (page 41).

Special Interest Groups

Informal conferences on specialized topics will be arranged on request. Members interested in leading and/or participating are asked to forward the "Special Interest Group" tear sheet to Dr. J.C. Conroy not later than *April 1, 1977* (page 41).

Photo Salon

Contact Miss June Herbert, Agriculture Canada Research Station, Kentville, Nova Scotia (see page 39).

Board of Directors' Meetings and the Annual General Meeting are scheduled on 20, 21, 22 and 24 August (page 8).

We have visitor information available for anyone vacationing in the Province who may wish to take side trips. Please contact Dr. J.C. Conroy.

August 23: 08:30-12:30

SYMPOSIUM I: "Damage Assessment in the Agro-Ecosystem".

Leader: F.L. McEwen (University of Guelph)

1. "Assessing Losses in Stored Products"
F.L. Watters (Agriculture Canada, Winnipeg)
2. "Assessing Losses using Plant Models"
W.G. Ruesinck (Illinois Natural History Survey)
3. "Assessing Losses in Field Crops"
R.H. Burrage (Agriculture Canada, Saskatoon)
4. "The Impact of Pesticides on Non-target Organisms"
C.H. Buckner (Chemical Control Research Institute, Ottawa)

August 24: 08:30-12:30

SYMPOSIUM II: "Insect Factors in Human and Animal Health"

Leader: S. McIver (University of Toronto)

1. "Insects Affecting Humans: Disease Vectors"
D.M. McLean (Medical Microbiology, University of British Columbia)
2. "Insects Affecting Urban Dwellers: tree, lawn, garden and household pets"
R.A. Ellis (City Entomologist, Winnipeg)
3. "Insects Affecting Wildlife"
G.F. Bennett (Memorial University)
4. "Development of Pest Management Programmes for Livestock"
C.D. Steelman (Louisiana State University)

**Entomological Society of Canada
Entomological Society of Manitoba**

27th. Annual Meeting — University Centre
Winnipeg — August 22, 23 & 24, 1977

SPECIAL INTEREST GROUPS REPLY FORM

(Deadline — 15 April 1977)

RETURN TO:

Dr. J.C. Conroy
Department of Biology
University of Winnipeg
515 Portage Avenue
Winnipeg, Manitoba R3B 2E9

Participant's Name _____

Address _____

SUBMITTED PAPER REPLY FORM

(Deadline — 30 April 1977)

RETURN TO:

Dr. J.C. Conroy
Department of Biology
University of Winnipeg
515 Portage Avenue
Winnipeg, Manitoba R3B 2E9

Author's Name (Please Type) _____

Institution and Address _____

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SUBMITTED PAPER REPLY FORM (Continued)

Title of Paper (not to exceed 15 words) _____

To be read by _____

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BOOK REVIEWS

BRIGHT, D.E., Jr. 1976. The bark beetles of Canada and Alaska. Frontispiece + 241 pages. In *The Insects and Arachnids of Canada*. Publication 1976, Biosystematics Research Institute, Research Branch, Canada Department of Agriculture, Ottawa. Price: in Canada \$7.00; in other countries, \$8.40.

Some 23 years ago, I visited Edmonton for the first time, where I met and spoke to Professor E.H. Strickland, then Head of the Department of Entomology, at the University of Alberta. Among the topics we discussed was the nature of taxonomic work at that time. Professor Strickland protested that the publications being produced were addressed principally to specialists, and that requirements of other persons for taxonomic information were not being met. I defended the *status quo*, stating that not enough was known about the insect fauna in Canada (or the rest of the Americas) for production of regional studies and handbooks. I also ventured the opinion that effort expended to produce identification manuals was lost to the scientifically more important revisionary work. I suspect these opinions were shared by most systematists who were working in Canada.

Times change, and with them change circumstances and the minds of men. In the intervening years, knowledge of the northern North American insect fauna has increased substantially, thanks in large measure to publications of the entomologists of the Systematic Unit (now Biosystematics Research Institute) and to their encouragement of, and assistance freely given to, others interested in systematic work. Also, professional systematists (myself included) have come to appreciate more fully the view expressed by Professor Strickland. So, it is fitting that the Biosystematics Research Institute has undertaken development of a series of manuals entitled "The Insects and Arachnids of Canada". (It seems unfortunate that "Myriapods" were not included in the title, but perhaps the multi-legged clan can be slipped in, under the rubric "insects").

The present volume is Part 2 of this series, though it is the first to be published (Part 1, which deals with collecting and curation, is in preparation). It is designed for use by anyone interested in identifying bark beetles, who has a modicum of knowledge of insect structure, and access to a low-power stereobinocular microscope, or to a high-power hand lens. Although the major portion of the text is devoted to means of identifying adult scolytids, information also is provided on biological aspects of the beetles.

Introductory material provides the background for learning about bark beetles. Preceding the systematic section, the following topics are treated effectively: general biology: form of egg galleries; forest types and their distribution in Canada and Alaska; structure of adults (four clearly labelled, simple line drawings illustrate morphological characters used in the keys and diagnoses); and methods used in assembling and presenting information in the text.

The body of the text is arranged systematically, with keys serving as focal points. Sequence of the two subfamilies and 46 genera is determined by relative position of each taxon in the key to these taxa. Sequence of species within each genus is similarly determined. The appropriate page number follows the name of each taxon.

Subfamilies are characterized in the key only. For most genera, the text lists a diagnostic combination of characters, and provides information about previous taxonomic treatments. For all genera except one, a key follows the introductory information about the genus. In turn, information about each of the species included in a given genus follows the key.

The succinct treatment of each species included the following: name of species (with synonyms and figure numbers in parentheses); diagnosis (a statement of less than 10 printed lines, listing recognition features of adults); hosts (names of plant taxa with which the scolytid species is associated); distribution (by political area — names of states and provinces); and biology (life history data). The principal sources of information about geographical distribution are outline maps of northern North America and Greenland (ranges of one or two species to a map), with localities of collection indicated by appropriately placed symbols (dots or stars).

Structural features and general habitus are illustrated by SEM photographs. Though reasonably effective, such photographs are aesthetically at best uninteresting, and at worst displeasing to the eye.

Publications of this sort can go only as far as the basic data permit. Thus, because adults of the species of the genus *Pityophthorus* are not easily characterized and are difficult to identify (perhaps not well understood), a key is not presented, and the treatment of each species is reduced to name, body length, names of hosts, and distribution. However, to make easier the task of recognition, the species are grouped geographically into "western species" and "eastern species", with the 100th Meridian serving as the dividing line between the two groups. So, a person with a specimen of *Pityophthorus* for identification from British Columbia need consider only the western species. This general procedure seems to be a sensible and expeditious way to deal with information about a group of this nature.

Following the systematic section are: a list of host records; a glossary; and references. Hosts are arranged in two groups: "coniferous species" and "broad-leaved species". Within each group, names of hosts are listed alphabetically by genus and species, and associated with each host species is an alphabetical list of names of the appropriate scolytid species. The glossary is an alphabetically arranged list of words (with definitions) used in describing and identifying beetles.

There are five pages of references, and it seems significant that most of these publications appeared within the last 20 years. Perhaps this can be taken as evidence of the dependence of the present volume on relatively recently published information, and in turn, this may vindicate the judgment of the systematists who opposed publication of handbooks at an earlier date.

An index to names of beetle taxa (both scientific and vernacular) concludes the volume. Unfortunately each specific epithet is listed under its generic name, only. Thus, a person who remembers a species by its specific epithet but does not recall the generic name, must search the index for the appropriate combination. It would not have been difficult to have indexed species names both epithet and by generic name.

Details of production are good. Headings and side leads are in bold face, contrasting (perhaps a bit too much) with the text. Thus, it is easy to locate the desired bit of information. Regrettably, the keys are printed in small type. Obviously, the designer of the volume has eyesight better than mine, or he did not realize how important keys are in using the book. The binding is stiff coated paper, which should sustain successfully an appreciable amount of wear.

In summary, three of my criticisms are a matter of personal predilection: I do not care for the stereoscan photographs, I prefer less contrast between print used for the text and that used for headings and side leads, and I prefer a more complete index. A more important objection is to the small size of type used for the keys. I

also wonder if it is desirable to establish for numbering volumes in the series a decimal system based on a systematic arrangement of arthropod taxa. This would make possible arrangement of the volumes by taxonomic group rather than by date of publication.

Donald Bright and the Biosystematics Research Institute should be congratulated for production of this excellent volume. Hopefully, it is the first of a long line of similar publications. I predict that such a series will stimulate powerfully interest in, and ultimately, growth of, knowledge of the Canadian-Alaskan arthropod fauna. The publications will make possible study of arthropod diversity by a much larger segment of the population than that which includes the professional systematists.

How does one obtain a copy of this publication? This information is on Page 4: through Information Canada, of course! But, this organization ceased to exist sometime ago. Thus, the Government seems to have provided us with a fine publication, but has denied us the means to obtain it — the classic "Catch-22" situation⁽¹⁾. We seem to be plagued by a plethora of "Major Major Majors" or "Milo Minderbinders" in high places. Perhaps, if more federal money were invested at the level of working scientists and less on administration, the Government could arrange its affairs more suitably: at least we might be able to obtain this volume and others, for production of which so much time and effort and funds have been spent.

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(1) *Editor's note: See Bull. Vol. 8 (4): 28*

Biology of Insects by David J. Horn, W.B. Saunders Co., Toronto, 439 pp., 1976, \$14.40.

If you are looking for a good text book for teaching an introductory Entomology course, here is a new book by Dr. D.J. Horn of the Ohio State University on the "Biology of Insects". Alternatively, "Science of Entomology" by W.S. Romoser is a good competitor for this new book. However, the method of writing, organization and synthesis of this new book make it unique. Dr. Horn presents "entomology as a dynamic study of living organisms". He shows "how insects function and how selective pressures have shaped the exceedingly diverse array that we see around us in both natural and artificial habitats".

The outstanding feature of this book is its organization. After discussing the evolutionary history of insects, the beginning part introduces the insects with a survey of major groups. However the author notes that this is not to be considered as an identification guide. The second part narrates how the insect functions: "how it eats, hears, sees, moves, excretes, and so forth". This part also discusses how it behaves, develops, reproduces and interacts with other members of its own species and with other organisms. The final part considers insects as they relate to people. The beneficial and adversary effects of insects are discussed and there is a chapter on pest management.

The book gives interesting accounts of insect biology for beginning students. The examples are well chosen to illustrate the points. Firefly mimicry (Time news magazine, Feb. 17, 1975, p. 86), social behavior of treehoppers (Fig. 6-16), and chemical warfare of insects against their enemies (Science, 1966, 153: 1341) are some of the exciting examples cited in the text. Except for a few sections, the book is well written.

This book is current and contains more than 550 references of which more than two-thirds are from 1970 or later. With a few exceptions (e.g. Wilson's book on sociobiology, 1975), the author cites most of the important references. The book is copiously illustrated and contains more than 300 figures, and photographs. These figures are really helpful in understanding the text (see for example, Figs. 7-25 with text on page 277). Although great care is taken to identify all these figures, there are a few omission. For example Figs. 9-14 (p. 328), are not identified (as A and B). It may be useful to identify the different parts of these figures in the figure themselves. See for example, Figs. 7-15 (P. 268), 7-16 (p. 269) and Figs. 7-17 (p. 270) as compared to Fig. 7-14 (p. 268). In some figures, the front legs resemble the parts of the head (see for example page 139, Figs. 3-95). Some photographs are attractive and are useful (see for example Figs. 7-21 (p. 274-275). Here a picture of an egg could have been included). Some photographs are not clear (see for example, Fig. 3-99, page 145). The Fig. 7-9C (p.58, line 6) is more appropriate in line 14 (p. 58) because this figure is an ootheca of the mantid, but not a cockroach. There are more than 35 tables and these tables will aid the students to comprehend the text. For example, Tables 3-7 (p. 127) nicely documents the different characters of Dipteran suborders.

The following are the constructive criticisms about this book: (1) Sound production, (p. 206, lines 8-9): Recent research in the field (Nature, 1975, 253: 530, Fig. 1A) and in the laboratory (Australian J. Zool., 1972, 20: 153) show that the female crickets are able to distinguish between simultaneous calling songs of sympatric species with sound frequencies (besides other sound parameters). (2) File and Scraper (page 222, last 2 lines): The morphology of the file teeth of different species had dramatic differences (Int. J. Ins. Morphol. Embryol., 1975, 4:151), but not slight differences. (3) Auditory Communication (p. 236): Recently Dr. R.D. Alexander gave a new interpretation of the acoustical behavior of crickets and cicadas on the selective advantage of individual males in the competitive search for mates (Insects, Science and Society, D. Pimentel (ed.), Cornell University Symp., Ithaca, N.Y., 1974, p. 35). (4) Migration (p. 298, lines 7-8): In mole crickets, most of the females (*Scapteriscus vicinus*, 75%) are mated before dispersal and probably this is an exception (Env. Ent. 1975, 4: 265, Fig. 5). (5) Spermatophores (p. 260, lines 17-19): The deposition of spermatophore and subsequent eating of these external spermatophore by females (particularly in Gryllidae and Tettigoniidae) could have been explained on the basis of natural selection. (6) Chrysopidae (p. 104, line 3 from bottom): Not all the adults are predacious, only larvae are predaceous. (7) Termites (p. 59, lines 6-8): Termites do occur in Canada (Can. Ent., 1968, 100: 827) probably as far as 44°N. latitude in heated buildings. (8) Mole crickets (p. 56, line 4): These are serious pests throughout the world, particularly in Florida pastures and turf (J. Georgia Ent. Soc., 1975, 10: 229). (9) Seasonal life cycle (p. 279): Univoltine, bivoltine and multivoltine could have been explained well (see Quart. Rev. Biol., 1968, 43: 1). (10) Nematocera, Fly antennae (page 128, line 11): The third segment of the antennae or flagellum has been divided into many sub-segments (same is true in Tables 3-7 on page 127). (11) Midge larvae (page 128, line 4): There are some midges with terrestrial immature stages (K. Strenzke, 1951. Archv. für Hydrobiologie, Suppl. 18: 207). (12) I am really skeptical in "complete elimination of a pest" (p. 366, line 2-3 from bottom) and also broader use of Ultraviolet light traps (p. 367, lines 13-15). The most promising results with light traps were obtained

with hornworms in tobacco and with certain pecan insects (USDA Tech. Bull. No. 1498, 1974, 136 pp.). (13) Insects in biology (p. 401): Insects are used in space studies, besides many other uses (Bull. Ent. Soc. Amer., 1976, 22: 15).

Apart from the above minor points, this is a good text book for undergraduates, particularly for those who are not specializing in Entomology. This book is a very valuable addition not only to the public libraries, but also to the private libraries of entomologists.

S.M. Ulagaraj
Lyman Entomological Museum
& Research Laboratory
Macdonald Campus
McGill University

Insect Hormones by Novák, V.J.A. 1975. 4th edition, Chapman and Hall, London. 600p. £16.80.

The significant contributions of Dr. V.J.A. Novák to the field of insect endocrinology are well known and the value of the previous editions of this book are beyond dispute. These facts make the writing of this review a very onerous task as I found very little to recommend about this book and I can recommend it to only a very limited audience. It is, as described on the fly leaf, intended for those who specialize in the study of insects. I would add to this, — and who have an excellent understanding of endocrinology. Anyone outside of this category will be uncommonly confused by the plethora of old and new terminology and will be misinformed with regard to the current state of the science of endocrinology. Those who are experts in the field, and who have the time to sort through the circumlocutory arguments presented by the author, will find some fascinating mental pabulum. Of particular interest are the sections on gene hormones, entocoines, and the author's explanation of his own gradient factor theory of metamorphosis.

The title of the book is misleading. In the first place Hormones should be replaced by Endocrinology as much of the text is devoted to the study of the anatomical location, the morphology and the histology of the endocrine tissues or cells. Secondly, the title should indicate that the approach is largely historical and is directed more towards describing the development and evolution of the early ideas in the field than to elucidating the modern concepts. An apt title for this book might be "An Historical Account of the Development of Thought Concerning Insect Endocrinology: Principles and Applications".

The book is extensively referenced with some 115 pages of references cited. Unfortunately, references to most of the papers published prior to 1965 cited in the text are not given and the reader is referred to the earlier editions of the book. Whilst this practice has some economic merit the text contains so many references to material published prior to 1965 that I can only question its practice here. Also, in many sections of the book, only references prior to 1965 are used, and within the text one finds few references more recent than about 1970. This lack of recent material gives rise to some inconceivable and perplexing statements. For example, at one point the author recommends "a revision of the present opinions on the metamorphosis hormones" following a section in which the most recent reference cited was from 1952. In another section entitled "The Mode of Action of the JH", the most recent reference used is for 1963. Again, in this '1975' edition, the author refers to a 1971 paper on the ultrastructure of the corpora cardiaca as being the most detailed and recent study. The author also talks nebulously about hormone cell interactions without expounding on the concepts of membrane receptors, second messengers or cyclic adenosine monophosphate. One can only conclude that much of the material in this book is not up to date.

The author also has a penchant for using unorthodox terminology in an attempt, I assume, to tighten up the meaning of some of the terms. But in this reviewer's eyes he only succeeds in confusing the issue to an even greater extent. For example, unlike most authors who refer to the BH (brain hormone) as prothoracotropin or thoracotropic hormone, Dr. Novák constantly refers to this hormone as the activation hormone. In Fig. 6, page 40 the reader encounters the abbreviation apl, which the reader does not discover until page 81, stands for apolytic gland, the new name for the prothoracic glands and the ventral glands. Later, neurohumors like acetylcholine, serotonin and GABA become protohormones, pheromones become exohormones and vice versa. Even the vertebrates are not spared as the vertebrate adrenocortical and medullary tissues revert back to the older suprarenal.

The author makes numerous dogmatic statements which do not agree with much of the recent published literature. He calls the carrier proteins associated with neurosecretory material "inactive" in spite of the considerable evidence suggesting that they play an important role in the final maturation or activation of the neurohormones they carry. He states categorically that neurosecretory processes mediate slow and prolonged environmental stimuli of low intensity but this is certainly not the case in such neuroendocrine mediated reflexes as 'milk-let-down' in lactating mammals, ovulation in rabbits, or even in the release of HSN (hindgut stimulating neurohormone) or the diuretic principle in blood sucking insects. He suggests that the analogy between insect neurosecretory systems and the vertebrate neurosecretory systems seems to "make it probable, a priori, that the neurosecretory cells of the insect brain have a role in water metabolism". While this is now known to be true I wonder if it would be wise also to assume a priori that the analogous neurosecretory system in insects will also perform some function in 'milk-let-down'.

Finally, I feel I must comment on the many inconsistencies in this book. On page 7 the material implies the absence of acetylcholine in insect brains but on the next page a cockroach is described as having 15X as much brain acetylcholine as mammals. The author finds time to go into a detailed definition of the word 'instar' but shortly thereafter fails to define micropycnotic caveolae. He very carefully documents why we should use the term apolytic gland and then rarely uses it himself. In a section dealing with egg maturation he goes back to Wigglesworth's early suggestion that egg maturation is dependent upon JH (juvenile hormone) activity on the follicle cells but does not emphasize the importance of JH on adult female fat bodies in the synthesis and release of female specific protein, and I could find no mention of the vitellogenin stimulating hormone (VSH) from the ovary of mosquitos at a time when JH is apparently no longer required. He suggests that the coelenterates do not have neurosecretory hormones despite the fact that Burnett and Diehl (1964) have clearly demonstrated the presence of neurosecretory cells in the nerve net of the Hydra hypostome. Finally, the author suggests that ecdysoids (ecdysone derivatives) have a promising future in insect control as "for vertebrates, including Man, they are evidently harmless". But four pages earlier he cites references showing such ecdysoid induced changes in vertebrates as a stimulation of RNA and protein synthesis, increased glycogenesis, inhibition of cholesterol synthesis and an effect on rat brain glutamic decarboxylase. One wonders then if the previous statement is justifiable if not frightening.

The book contains sufficient illustrations which for the most part are of good quality. However, the captions are not always fully adequate to explain exactly what is significant about the figures and there are some mistakes in labelling. For example, Fig. 1 has the indicator line ending on the compound labelled the ventral glands.

Unquestionably the grammatical clarity has suffered extensively during its translation and there are several typographical errors but these are of little consequence. Chapter 2, Methods and techniques in insect hormone research, does provide some very useful information for the novice and explains some of the subtleties of insect surgery and offers suggestions on how to overcome some of the more intractable problems. A recurring theme throughout the book is the idea of the importance of insect studies, not just as economically important organisms, but also in the broader scope of general biology.

To conclude this book review it should be pointed out that Dr. Novák has brought his considerable experience in the field of insect endocrinology to bear on many of the central questions in the life cycle and evolution of the insects. He has attempted to synthesize a way of looking at things based on his vast experience with the literature and with the research technology of insect endocrinology. Certainly this book is valuable in the sense that it shows the reader which lines of investigation have already been explored and what is largely terra incognita. The serious reader will also gain ready access to much of the older pertinent literature and many will appreciate following the development of thought in this fascinating field. It is not a text, a review or a statement of what is, but it is a book by an important scientist who is justifiably and admirably concerned with sharing his thoughts, his knowledge, his questions and his doubts with his readers. This is always commendable!

J.C. Fenwick
Biology, University of Ottawa

"Moths of Southern Africa" by E.C.G. Pinhey, Tafelberg, Cape Town, 1975. Pp. 273 (4to); col. pl. 63; 19 text figures. Price £20.00

Although African butterflies have attracted a fair degree of attention, very little of a semi-popular nature has been written on African moths other than Hawkmoths and Emperor moths. Vols 14, 15 and 16 of Seitz' monumental "Macrolepidoptera of the world" (1932) are the only well illustrated comprehensive work, but are out of date, difficult to obtain, very expensive and incomplete; the Noctuidae and Geometridae were never finished and all the so-called Microlepidoptera including the Pyralidae, were omitted altogether.

Dr. Pinhey, whose special interests are the African Lepidoptera and Odonata, has been a professional entomologist in various parts of Africa during the past 35 years and is admirably equipped to write the present volume.

The area covered by the book is South Africa, Botswana, Rhodesia and Mozambique with minor incursions into Zambia and Malawi. There is an introductory section of 28 pages which covers such subjects as structure, life cycles and early stages, aposematism, mimicry, resting postures, predators and parasites, adaptations, behaviour, collecting and preparation and finally, classification.

The main body of the book consists of the description of 1183 species representing all families except the Gracilariidae and the Nepticuloidea. Although this is only one tenth of the total number of species which inhabit Southern Africa according to Dr. Pinhey's estimate, the species selected include most of the commoner, more conspicuous, important or otherwise remarkable moths to be encountered in the area.

There are keys to the superfamilies and families and type species are given for each genus. All the 1183 species are beautifully illustrated from excellent colour photos, though a few of the 63 plates seem to have lost something of their original brilliance. Many of these moths have not been figured in colour elsewhere. Each specific description includes original references and synonymy, descriptive notes, habitat and range as well as food plants and early stages if known.

Dr. Pinhey has gone to some trouble to ensure the use of correct generic names wherever possible and many of the changes, especially in the Noctuidae, Geometridae, Sphingidae and Notodontidae, will be a surprise to those who have little access to the more specialised recent literature. English names have been coined for all the species, a practice which seems of questionable value to the writer, but which may have some merit in the eyes of certain amateurs.

Near the end of the book there is a glossary of technical terms followed by a useful index to insect pests which are mentioned in association with their hosts, the plants being listed alphabetically. There is also a host plant index giving alternative, vernacular and family names. The book ends with a comprehensive bibliography of 480 entries and a general index.

The text is written in an easy, highly readable style with a minimum of technical jargon. The book is a handsome volume, well produced and well printed on good quality paper. Unfortunately there are rather numerous typographical errors.

This is a book which meets a long standing need and should be on the shelves of anyone interested in African Lepidoptera.

R.H. Carcasson

Mosquito Ecology: Field Sampling Methods. By M.W. Service Halsted Press, New York. 1976. 583 pp. \$75.00

This book is a comprehensive account describing the numerous methods available for collection of all stages of mosquitoes, and the problems associated with the various sampling techniques.

There are eleven chapters in the book, and the first seven chapter titles begin with "sampling". The first chapter considers sampling of the egg population, and provides procedures for the detection and collection of eggs from natural and artificial oviposition sites. Chapter 2, the second longest chapter, examines sampling of the larval population. Here, collection techniques are analyzed and methods of population estimation and sequential sampling are discussed. The next five chapters (3-7) describe and evaluate methods for sampling adult mosquitoes. Chapter 3 considers the techniques and problems associated with sampling the adult indoor resting population, and the outdoor resting population in both natural and artificial resting sites. In Chapter 4, Dr. Service reviews methods of sampling adults with non-attractant traps, while in Chapter 5, the longest chapter, he examines the sampling of adults by techniques such as human and animal bait catches, bed nets, stable traps, exit and entry traps fitted to huts, trap huts and small animal baited traps. The use of carbon dioxide traps, light traps, visual attraction traps and sound traps are discussed in Chapter 6. Chapter 7 considers the various types of emergence traps that have been used for sampling the emerging adult population. This is followed by

a short chapter which examines the application of experimental hut techniques in evaluating the efficiency of residual insecticides and their effect on the behavior of mosquitoes. Chapter 9 analyzes methods of marking mosquitoes, methods of population estimation based on mark-recapture techniques, and use of these methods in studying adult mosquito dispersal. The tenth chapter considers methods of estimation of the mortalities of the immature stages and adults. This chapter analyzes the numerical changes that occur in population size during the life-cycle of mosquitoes and discusses topics such as detection of predation, pathogens and parasites, life-tables, reproductive potential, age grading adults and estimation of adult survival. The final chapter examines species replacement in mosquitoes, indices of association between species, and species diversity. Following Chapter 11 there are author, species and subject indices.

Dr. Service has written a most impressive book. His comprehensive description and sometimes critical evaluation of mosquito sampling techniques reported by other authors have resulted from a thorough examination of an immense volume of literature. Publications of more than 1400 authors are quoted, with an average of 159 references per chapter. It would appear that his coverage of the subject is virtually complete. The illustrations (line drawings) are sufficient to illustrate some of the techniques being considered.

This book is a useful tool for anyone sampling populations of mosquitoes or who anticipates same. Most of the book is written in a style that is adequate for both the novice and the professional. Researchers involved with mosquito control procedures or in obtaining information on the population dynamics of mosquitoes will find this book invaluable. It is unfortunate that the price of this book is so high, as this will undoubtedly preclude many 'students' of mosquitoes from having this publication on their bookshelves.

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Pest Control: An Assessment of Present and Alternative Technologies. Vol. IV Forest Pest Control. National Academy of Sciences. Washington, D.C. 1975. 170 pp. \$5.75.

This is the fourth in a series of five volumes prepared under the aegis of the Environmental Studies Board of the National Research Council of the U.S.A. Written by a nine member study team including representatives from the forestry sciences, biology, and the legal profession, this volume discusses contemporary and future forest pest control strategies in the light of social and institutional factors important to the conduct of modern pest abatement. All major forest conditions ranging from lowest (wilderness) to highest management intensity (urban forests) are given individual attention.

The book is organized into a summary and five chapters. These deal with (1) an analysis of pest control practices, (2) the nature of forest pest problems, (3) contemporary pest control practices, (4) the impact of public policy on forest pest management and (5) trends in forest pest management respectively. An appendix tabulates representative tree diseases, insect and vertebrate pests of the United States on a regional basis.

The fourth chapter is undoubtedly the most innovative and rewarding part of the book. The case studies on *Cronartium ribicola*, *Orgyia pseudotsugata*, *Porthetria dispar* and *Dendroctonus frontalis*, emphasize very well the need for integrating forest pest control policy within the framework of overall forest management principles and objectives.

Another merit of the book is its attempt to unite the major biotic agents which cause damage to living trees, under one umbrella. Traditionally, European text books on forest protection have included vertebrates and weeds with other biotic agents, while none of the North American equivalents since Hawley and Stickel's treatise have given these rather significant groups due consideration. Unfortunately biotic agents damaging to roundwood or wood products were excluded from consideration. Also, mites were ignored, while the presumably much less significant mycoplasma diseases are mentioned.

Disappointing, if largely inconsequential shortcomings of the book, are a frequent lack of references and signs of rough editing. For instance, the literature source 'USFS 1973b' provided on page 33, is not enumerated in the reference list. Also, the term 'intensiveness' is used regularly. No such noun is mentioned by either the Oxford Dictionary or Webster which acknowledge only intenseness and intensity.

The value of this text is in its rather comprehensive yet concise summarization and updating of recent developments in forest pest management and its attempts to forecast significant scientific and socio-political influences in this field. While being of only minor value to the research forest entomologist and pathologist, the book will be useful in an advisory capacity to governmental agencies. It can be recommended as supplementary reading to the textbooks presently available on forest protection and as a discussion base for seminars in forestry and natural resources management in general and forest protection in particular.

H.G. Schabel
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