

EDITORIAL

Although the federal and some provincial governments are planning to improve support for research and development (R and D) in Canada, the country still lags woefully behind other industrialized nations in the percentage of the GNP devoted to R and D (University Affairs, March 1981: 11). This discourages students and scientists alike in their enthusiasm for science whether it be in training or in developing new scientific findings and ideas essential for industrial development.

Another discouraging political wind is the recent federal policy of "French Essential" hiring of scientists for the Research Branch of Agriculture Canada. Recently the federal government conducted a survey to ascertain the proportion of francophones employed in all departments. It was pointed out that the Research Branch of Agriculture Canada had the lowest proportion of any federal department. To remedy this "problem", the research positions becoming available over a 3-year period are to be classified as "French Essential". This term overcomes the illegality in Canada of discriminating against job applicants on the basis of language spoken. Nevertheless positions advertised as "French Essential" require a knowledge of the French language far in excess of that which can be acquired through various immersion courses available to English-speaking Canadians. It seems that it is the intent of the present government to employ francophones in Agriculture Canada in preference to bilingual English applicants regardless of academic qualifications of either group.

The positions to be filled in the future at the Biosystematics Research Institute (BRI) for example, are authorized only at the Biologist 1 level for someone with a Masters degree. Such a new employee would then be sent to an appropriate university for doctoral training in the needed specialized area. Even if these students did not complete the Ph.D. degree, or even if they did not really develop the specialized expertise needed for the position in Agriculture Canada, they would still be kept on, but they might then take a different job in Agriculture Canada and the job position would be lost to the original unit that needed to fill a specialized vacancy. Even if they did later prove satisfactory, the unit would not have them doing the needed work until they completed their 2- to 3-year doctoral training.

Rather than choosing the best and most appropriately trained Canadian student with a Ph.D. degree, the choice will be for an untried M.Sc. student. This new employee will be paid while studying for his doctoral degree at least one and a half times the stipend that an excellent student with an NSERC scholarship gets. This will discourage our best university students who have the motivation and dedication to their science.

There are much better ways of ensuring that these important positions, becoming available from retirements at BRI and other units in Agriculture Canada, are filled by the best and most appropriate young scientists, than by using a politically motivated requirement "French Essential". If the knowledge of French is considered essential, it would seem logical to offer employment to persons who have demonstrated research ability with the stipulation that their French be upgraded if necessary.

The competition should be at the Scientist 1 level for the best trained Canadian available in the specialized position needing to be filled. This new employee would immediately be able to use his expertise and would be much more likely to continue to serve in that position for a long period of time. Another way of increasing the number of francophones available for these positions in the future would be for the federal government to fund special graduate programmes, such as insect systematics, to be developed in universities in the province of Quebec, or the government could establish a new graduate scholarship programme so that likely francophones would be encouraged to take the needed specialized graduate studies in universities outside Quebec.

We should as a profession strongly discourage this politically motivated hiring of scientists in the civil service based on language spoken rather than on specialized scientific training and academic excellence. A precedent is being set and there is every reason to fear that the government is willing to meddle with research programmes in other fields simply for political reasons.

It would help if ESC members wrote to their M.P.'s; to the Honourable Eugene Whelan, Minister of Agriculture; and to the opposition critics, such as Mr. Walter Baker. Science editors in influential newspapers might be encouraged to investigate and expose this unfair and senseless federal policy. Several ESC members already have taken some such action. Please add your weight to this endeavour.

Editor.

CHANGES IN ESC COMMITTEES

Finance Committee

Mr. Ian Lindsay has resigned as Chairman because of his recent retirement. Dr. J.W. Campbell has agreed to accept the Chairmanship of the Finance Committee for the balance of the 1980-81 term.

Public Education Committee

J.D. Shorthouse (c)	Sudbury
*D. Barr	Toronto
B.D. Frazer (ESBC)	Vancouver
T.D. Galloway (ES Man.)	Winnipeg
R. Harnsen (ES Ont.)	Kingston, Ont.
P.P. Harper (SE Qué.)	Montréal
*D.F.J. Hilton	Lennoxville
*D.J. Larson	St. John's
*K.W. Richards	Lethbridge
P.W. Riegert (ES Sask.)	Regina
J.A. Shemanchuk (ES Alta.)	Lethbridge
R.H. Storch (Acadian ES)	Orono, Me.

*should have appeared on list in December 1980 Bulletin 12(4): 114

Publications Committee

New Member: D.C. Dondale, Ottawa

Scientific Committee of the Biological Survey of Canada (Terrestrial Arthropods)

New Member: John R. Spence, Edmonton

Representatives to SCITEC

Dr. E.G. Munroe joins Dr. S.B. Hill as our representatives.

NOTICE OF ANNUAL BUSINESS MEETING

The 1981 Annual Business Meeting of the Entomological Society of Canada will be held on Wednesday, 7 October, at the Banff School of Fine Arts, Banff, Alberta.

Matters for consideration at this meeting, or at the Governing Board Meeting to be held 4 and 5 October, 1981 in Banff, should be sent to J.E. Laing, Secretary, Entomological Society of Canada, Department of Environmental Biology, University of Guelph, Guelph, Ontario, N1G 2W1.





First Notice / Première Annonce

ANNUAL REUNION MEETING ANNUELLE

Entomological Society of Alberta
Entomological Society of Canada

October 5-9, 1981
Banff Centre
Banff, Alberta

Feature Symposium
(6 October)

ECONOMICS OF ENTOMOLOGICAL EFFORT

Speakers representing the broad fields of Fundamental and Applied Entomological Research, Integrated Control, and Government, Industry, and Education will attempt to show how effort and progress in their area contributes to progress in other areas of science and to the well being of the public who support them financially. Emphasis will be in terms of costs and benefits where feasible.

Submitted Papers
(7, 8 October)

Special Interest Groups
(5, 9 October)

Informal conferences on specialized topics, such as black flies and insect photography, are being organized. Suggestions for Special Interest Group topics should be forwarded to Mr. Bruce Taylor, Pesticide Chemicals Branch, Oxbridge Place, 9820 - 106 St., Edmonton, Alberta T5K 2J6.

A Ladies Program and social functions are being organized and will be announced later.

Information on the Photo Salon and other conference activities will be published in the June Bulletin.

MEETING CHAIRMAN: DR. W. A. CHARNETSKI, AGRICULTURE CANADA, RESEARCH STATION, LETHBRIDGE, ALBERTA T1A 2N7

Submitted Papers for 1981 ESC-ESALTA Annual Meeting

Send titles and abstracts to Dr. Bruce S. Heming, Department of Entomology, University of Alberta, Edmonton, Alberta T6G 2E3.

Members will be mailed a call for papers later with a submission deadline.

REPORT OF NOMINATING COMMITTEE FOR 1981

Second Vice-President

R.F. Morris
Research Station, Agriculture Canada
Box 7098, St. John's West
Newfoundland A1E 3Y3

R.D. McMullen
Research Station, Agriculture Canada
Entomology Section
Summerland, B.C. V0H 1Z0

Directors-at-Large

C.F. Cloutier
Département de Biologie
Faculté des Sciences et de Génie
Université Laval
Québec, P.Q. G1K 7P4

G.H. Gerber
Research Station, Agriculture Canada
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Winnipeg, Manitoba R3T 2M9

A.D. Tomlin
Research Institute, Agriculture Canada
University Sub P.O.
London, Ontario N6A 5B7

Fellowship Selection Committee

R.H. Burrage
Research Station, Agriculture Canada
107 Science Crescent
University of Saskatchewan
Saskatoon, Sask. S7N 0X2

A.W. MacPhee
Research Station, Agriculture Canada
Kentville, N.S. B4N 1J5

B.J.R. Philogène
Département de Biologie
Faculté des Sciences et de Génie
Université Ottawa
30 Somerset Ave. E.
Ottawa, Ontario K1N 6N5

Additional nominations from the membership must be submitted not later than 31 March 1981 to the Secretary, Dr. J.E. Laing, Department of Environmental Biology, University of Guelph, Guelph, Ontario N1G 2W1.

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

Dr. Freeman McEwen was appointed by President-Elect Dr. S.D. Beck, Entomological Society of America, as Programme Chairman for the joint meetings of the Entomological Societies of America, Canada and Ontario, to be held in Toronto in 1982. We are pleased that this important role was offered to a Canadian of Freeman's calibre and one who is respected by the three Societies. It is a pleasure to announce that Susan McIver has accepted the invitation to be Chairman of the Local Arrangements Committee for 1982. With the participation by these competent people in two major committees we are assured of top quality Canadian content.

As hosts, the E.S.C. and E.S.O. may suggest certain initiatives that could be considered by these Committees. Suggestions should be sent to the appropriate Chairman before November 1981.

S.R. Loschiavo, President, E.S.C.

ANNOUNCEMENT
ENTOMOLOGICAL SOCIETY OF CANADA
POSTGRADUATE AWARDS 1981

The Entomological Society of Canada will offer two postgraduate awards to assist students in undertaking their first year of graduate study and research leading to an advanced degree in entomology. The awards will be made to men or women 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 awards.

All communications regarding the awards should be addressed to:

Dr. J.E. Laing, Secretary
Department of Environmental Biology
University of Guelph
Guelph, Ontario N1G 2W1

POSTGRADUATE AWARDS

Two Postgraduate Awards valued at \$1,000.00 each for 12 months will be awarded for the first year of postgraduate study and research in entomology in Canada.

Eligibility

The successful candidates must be either Canadian citizens, or landed immigrants with baccalaureates from a Canadian university. The awards are conditional until the recipients have provided evidence that they have been accepted by a graduate school to engage, during the 1981-82 academic year, in a programme 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 scholars may receive their 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 a Postgraduate Award of the E.S.C. An 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 Awards are 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 1981 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 October 1981. 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 1981.

REGULATIONS

Demonstrating and Instructing

An Award holder is permitted under normal circumstances to demonstrate or instruct for a maximum of 200 hours per annum, 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. An 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 a 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.

An award is made on conditions that the winner engage in a programme of graduate studies and research for an advanced degree in Entomology. Students who, after receiving the Award, decide to transfer to a graduate programme 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 Awards will be paid in January 1982 on receipt of a report of satisfactory progress from the supervisors.

Additional Allowances

The Award stipends are 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

BOURSES DE LA SOCIÉTÉ ENTOMOLOGIQUE DU CANADA POUR ÉTUDIANTS POST GRADUÉS 1981

La Société Entomologique du Canada offrira deux bourses aux étudiants en première année d'études post-graduées en préparation d'un diplôme supérieur en entomologie. Les bourses seront accordées aux étudiants ou étudiantes en raison 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 ces bourses.

Toute correspondance relative aux bourses doit être adressée à :

Dr. J.E. Laing, Secrétaire
Department of Environmental Biology
University of Guelph
Guelph, Ontario N1G 2W1

BOURSES D'ÉTUDES POST-GRADUÉES

Deux bourses d'études post-graduées d'un montant de \$1,000.00 chacun seront accordées pour 12 mois à deux étudiants en première année de travaux de recherches entomologiques au Canada.

Éligibilité

Les candidats choisis doivent être citoyens canadiens ou résidents reconnus du Canada avec un baccalauréat d'une université canadienne. Les bourses ne seront accordées qu'en cas où les candidats auront soumis un dossier démontrant qu'ils sont enregistrés aux études supérieures pour l'année académique 1981-82 et que leurs programmes établis en vue d'un diplôme supérieur donne tous les privilèges rattachés au statut d'étudiant post-gradué. À défaut de ce dossier, la bourse sera annulée. Avant de recevoir leur bourses, le Doyen de l'École des Études Supérieures aura soumis par écrit un témoignage d'authenticité du programme d'études et de status de les étudiants. Un étudiant qui s'inscrit en vue de compléter l'obtention de crédits ne peut pas faire une demande pour la bourse de la S.E.C. Si la bourse était accordée à un candidat qui n'aura pu obtenir son admission à une École de Gradués, celle-ci sera annulée.

Endroit

Les bourses ne peuvent être obtenues qu'au Canada. Les candidats pourraient s'inscrire à l'université de leur choix. Les bourses prendront effet en Mai 1981 ou plus tard sans excéder la date du début de l'année académique.

Formalités de la demande

Les bourses seront annoncées avant le 1^{er} octobre 1981. Les candidats devront soumettre leur candidature à l'aide du 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 1981.

RÈGLEMENTS

Démonstration et cours

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

Autres sources de revenus

Sauf pour fins de démonstration et les jours de congé, un 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 d'une 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.

Une bourse est accordée pour poursuivre des études du 2^e ou 3^e cycle conduisant à l'obtention d'un degré en entomologie. Les boursiers 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 en raison de maladie, un boursier est absent pour plus de deux semaines, il doit en informer le Comité de Sélection de la Société.

Paiement de la bourse

Le paiement d'une bourse se fera au cours de Janvier 1982 sur réception d'un rapport satisfaisant du professeur du boursier.

Frais supplémentaires

Une bourse consiste en un montant total. Il n'y a pas d'autres formes de prix accordés par la Société. Des frais supplémentaires pour assister, par exemple, aux réunions scientifiques, ou pour frais de cours, publications, etc., ne sont autorisés pour aucune raison.

Felix Sperling receiving from Past President W.J. Tumboak the Certificate for the Entomological Society of Canada Scholarship for 1981, at the banquet of the Joint Annual Meetings of the Entomological Society of Saskatchewan and Entomological Society of Alberta, on October 24, 1980.
(PHOTOGRAPH by W.A. Nelson)



FELIX A. H. SPERLING

Felix A.H. Sperling, M.Sc. candidate in the Department of Entomology, University of Alberta, received from this institution his B.Sc. (Hons. First Class) in Zoology, in 1979. His general field of interest is evolutionary biology, and his special area is phylogeny and classification of butterflies. Presently, he is studying speciation in the *Papilio machaon* complex in Western North America, which investigation will be the basis for his thesis.

TRIBUTE TO GEORGE E. BALL

The "community of scholars" working in systematic entomology at the U.S. National Museum in Washington, D.C. are on the staffs of the Smithsonian Institution (12 scholars) and the U.S. Department of Agriculture's Systematic Entomology Laboratory (28 scholars). As vital evidence of the educational accomplishments of George Ball (incompletely described in the recent issue of the Bulletin, ESC) is the fact that both staffs greatly benefit from having his students as members: Dr. T.L. Erwin on the Smithsonian staff and Dr. D. R. Whitehead on the USDA staff.

My colleagues and I are grateful to George Ball.



Lloyd Knutson, Chairman
Insect Identification and Beneficial
Insect Introduction Institute
USDA, Beltsville, MC 20705, U.S.A.
January 28, 1981

ED BECKER RETIRES

On January 15, 1981, a crowd of well over 100 friends and colleagues gathered in the conference room of the K.W. Neatby Building in Ottawa to express their best wishes to Edward C. Becker of the Biosystematics Research Institute. Ed retired from active service on December 30, 1980. In attendance for the occasion was Ed's wife Martha and two of his daughters, Marcia and Pat.

Milt Campbell, section head of the Coleoptera Section of which Ed was a part, served as master of ceremonies with the able assistance of Gerry Mulligan, Director of the B.R.I. and Ed LeRoux, Assistant Deputy Minister.

Born and raised on a farm in Missouri, Ed received his Bachelor of Science degree in 1944 while serving his country as a Lieutenant in the U.S. Marine Corps. Ed joined the Marines in 1943, finished his schooling while in the Corps, then served on active duty as a Transport Quartermaster Officer in the Pacific. Ed's fondest memories of his service career are when he was ordered (volunteered?) to escort a shipload of nurses from the Philippines to Japan.

After completing military service, Ed worked for a time with the Standard Fruit Company in Honduras conducting research on the banana weevil. Ed returned to university work and was awarded the M.Sc. and Ph.D. degrees from the University of Illinois, in 1950 and 1952 respectively.

Ed joined the Systematic Entomology Section of the old Science Service in 1952, and continued with that organization through its numerous organizational changes for 28 1/2 years.

During his stay with the Department of Agriculture, Ed was Associate Chief of the Systematics Section for a few years until George Holland's retirement as Director. Ed also served as Chairman of the Library Committee since its inception in the early 60's.

During his career, Ed distinguished himself in three areas of scientific achievement: the development and organization of the Entomology Library at the B.R.I., his research into the systematics of the wireworms and the development of the wireworm portion of the Canadian National Collection, and his long service (20 years) as Treasurer of the Entomological Society of Canada.

Ed is recognized worldwide as a specialist on the systematics and biology of the destructive beetle family Elateridae or wireworms. He has over 30 publications to his credit and has done much to clarify the confusing systematic problems in the Elateridae.

In addition, Ed conceived and developed the CanaColl Foundation, a non-profit organization designed to provide funds for non-B.R.I. researchers to come to Ottawa to work on the Canadian National Collection. He is also active in his church, having served in various other positions; he also was a Scoutmaster for several years.

With his cheery disposition and his everpresent bowtie, Ed is a valued member of the B.R.I. Ed plans to remain in Ottawa, and continue his research as a Research Associate of the B.R.I.



D.E. Bright
Coleoptera Section

PERSONALIA

A.W.A. (Tony) Brown, Professor Emeritus, Michigan State University and Edward H. Smith, Professor, Cornell University have both recently been voted Honorary Members of the Entomological Society of America. We are pleased that these members of the Entomological Society of Canada have been recognized for their contributions to entomology.

ÉTUDE SUR L'APERÇU DE LA MAIN D'OEUVRE (1975)

Le Comité d'Engagement a fait une brève étude sur l'aperçu de la main d'oeuvre levé en 1975 (Bulletin, SEC, Sept. 1976, Vol. 8(3)) pour déterminer si cet aperçu a prévu d'une manière satisfaisante la situation d'emploi des 5 dernières années. Un total de 180 questionnaires ont été envoyés aux différentes institutions qui emploient des entomologistes au Canada et 151 réponses (84%) ont été retournées (Tableau 1). La réponse relativement faible de l'industrie est probablement due au petit nombre d'entomologistes (M.Sc. et Ph.D.) engagés dans ce secteur. Le Comité d'Engagement a appris qu'il si les questionnaires ne sont pas expédiés directement aux entomologistes ils sont rarement retournés. La discussion suivant concerne seulement les entomologistes détenant des degrés maître et doctorate car l'information concernant le niveau de Bachelier est fragmentaire.

En 1975, 81 questionnaires ont été expédiés aux employeurs et 56 ont été retournés (69%) couvrant 391 entomologistes. En 1980, les questionnaires retournés couvraient 371 entomologistes. Cette baisse est probablement due à une décroissance du nombre d'entomologistes employés ou à une erreur dans l'étude. (Certaines informations de l'étude 1975 ont été estimées d'une manière comparable à l'étude 1980).

La distribution géographique des entomologistes, basée sur le pourcentage dans chaque province (Tableau 2) n'a pas changé d'une manière significative dans les 5 dernières années. Aucun changement majeur se manifeste dans la proportion d'entomologistes employés par les 4 groupes principaux d'employeurs.

Le nombre d'entomologistes employé par les universités demeure presque au même niveau. Des tendances significatives dans les universités indiquent une augmentation dans le Québec et en Terre-Neuve, et des baisses en Saskatchewan et en Colombie Britannique. Le nombre total d'entomologistes employés par le gouvernement fédéral demeure le même de 1975 à 1980. L'Alberta, le Manitoba, la Nouvelle Ecosse et la Saskatchewan démontrent une baisse de trois positions respectivement, la seule augmentation significative est dans l'Ontario (10 positions). L'augmentation en nombre de positions dans le gouvernement fédéral prédit par les questionnaires en place en 1975 (i.e., 17) n'a pas eu lieu. Cette tendance était basée plus par rapport au besoin que par ce qui était viable politiquement. L'estimé le plus réaliste (i.e., 5 positions) a été obtenu par des questionnaires séniors. Aucun programme substantiel ou personnel additionnel ont été engagés par le gouvernement fédéral dans les 5 dernières années. Advenant qu'une position additionnelle s'avérait nécessaire dans une nouvelle recherche, une autre position d'entomologie dans le même institution était habituellement perdue. Le changement le plus évident dans la situation d'emploi est la réduction de 15 positions au niveau provincial. La baisse est plus évidente dans l'Alberta et la Saskatchewan. Ceci n'est pas en accord avec le rapport de 1975 qui prévoyait une augmentation substantielle dans le nombre d'entomologistes employés par les provinces. Ceci était basé sur la conviction que le rapport Lamontagne serait exécuté. Ce rapport recommandait une baisse en recherche par le gouvernement fédéral et une augmentation dans l'entreprise de recherches par l'industrie. On s'attendait aussi que le gouvernement provincial augmenterait le personnel de recherche. La recherche d'entomologie entreprise par le gouvernement fédéral comparée aux autres n'a pas augmentée substantiellement. Comme résultat, l'augmentation de personnel d'entomologie dans le gouvernement provincial n'a pas eu lieu. Le nombre d'entomologistes engagés par l'industrie n'a pas démontré un changement remarquable, tout en respectant que la faible réaction de ce groupe nous empêche d'identifier les tendances générales. Le rapport de 1975 suggérait que l'industrie montrerait un développement dû à l'implication du rapport Lamontagne.

Tableau 3a (data du rapport 1975) démontre le nombre anticipé de positions vacantes par discipline pour 1975 à 1980. Tableau 3b montre le nombre actuel de positions vacantes qui se produit, et le nombre et la formation d'entomologistes engagés de 1975 à 1980. Le nombre et la discipline des entomologistes retraitants ont été anticipés avec une précision raisonnable à l'exception de la catégorie "autre". Cette bonne précision a pu être anticipée car les prévisions de plans de retraite sont assez définitives. L'imprécision de la section "autre" est due à sa nature vague et à ce que les "autres" réponses données en 1980 ont été attribuées à des catégories mieux définies. Les positions

REVIEW OF THE 1975 MANPOWER STUDY

The Employment Committee performed a brief review of the 1975 Manpower Survey (Bulletin, ESC, Sept. 1976, Vol. 8(3)) in order to determine if that survey did adequately forecast the employment situation of the past five years. A total of 180 questionnaires were sent in 1980 to employers of entomologists in Canada and 151 (94%) were returned (Table 1). The relatively poor response from industry is probably due to the few (M.Sc. and Ph.D.) entomologists employed by this sector. It has been the experience of the Employment Committee that when questionnaires are not sent directly to entomologists, they are rarely returned. The following discussion pertains only to entomologists holding postgraduate degrees as information concerning Bachelor-level graduates is fragmentary.

In 1975, 81 questionnaires were sent to employers and 56 returned (69%), cover 391 entomologists. In 1980, the questionnaires returned covered 371 entomologists. This decline is probably due to an overall decline in the number of entomologists employed, or a survey error. (Some of the information from the 1975 survey had to be estimated in order to be comparable to the 1980 survey).

The geographical distribution of entomologists, based upon the percent in each province (Table 2) has not changed significantly in the past five years. No dramatic change is shown by the proportion of entomologists employed by the four major groups of employers.

The number of entomologists employed by universities has remained practically static. Significant trends in universities indicate increases in Quebec and Newfoundland, and declines in Saskatchewan and British Columbia. The total number of entomologists employed by the Federal Government has remained the same from 1975 to 1980. Alberta, Manitoba, Nova Scotia and Saskatchewan have shown a decline of three positions each, while the only significant increase was in Ontario (10 positions). The increase in number of positions in the Federal government predicted by field managers in 1975 (i.e., 17) has not occurred. This "prediction" was based more upon need rather than what was politically viable, the more realistic estimate (i.e., 5 positions) was obtained from senior officials. No substantial new programmes or additional personnel have been hired by the federal government in the past five years.

If a new position was established in a new research area, another entomology position at the same institution was usually lost. The most dramatic change in the employment situation is a reduction of 15 positions in provincial government. The decrease is most evident in Alberta and Saskatchewan. This is not in agreement with the 1975 report which predicted a substantial increase in the number of entomologists employed by the provinces. This was based upon the belief that the Lamontagne Report would be implemented. This report recommended a decrease in research by the federal government and an increase in the contracting of research to industry. The provincial government was also expected to increase research personnel. The contracting of entomological research by the federal government to others has not increased dramatically. As a result, the increase in entomology personnel in provincial government has not occurred. The number of entomologists employed by industry has shown no significant change, although the poor response from this group of employers makes it difficult to identify trends. The 1975 report suggested that industry would also show growth due to implementation of the Lamontagne Report.

Table 3a (data from the 1975 report) shows the expected number of vacancies by discipline for 1975 to 1980. Table 3b shows the actual number of vacancies occurring, and the number and education of entomologists hired from 1975 to 1980. The number and discipline of retiring entomologists were predicted with reasonable accuracy, with the exception of the "other" category. This high precision could be expected as retirement plans are fairly definite. The inaccuracy of the "other" section is due to its nebulous nature and the assignment of 1980 "other" responses to more appropriate disciplines. Vacancies that occurred in addition to those due to retirement resulted primarily from transfers to other positions. When the total number of predicted vacancies is compared with the total number of people hired, an overestimate of only ten is evident (i.e., 99 vs. 88). However, when specific comparisons are made by discipline, marked differences are evident between predicted and actual number hired. Significant

vacantes qui se sont produites en plus de celles des retraités sont principalement dues aux mutations à d'autres disciplines. Quant le nombre de positions vacantes anticipées est comparé au total du personnel engagé, un sur-estimé de dix positions seulement est évident (i.e. 99 vs. 88). D'autre part quand des comparaisons spécifiques sont établies par disciplines, une différence significative se manifeste entre le nombre projeté et le nombre actuel engagé. Des sur-estimés importants étaient évidents dans les domaines des maladies transmissibles, général et "autre" catégories. Le sur-estimé dans les maladies transmissibles est probablement dû à l'inquiétude qui entourait l'Encéphalite épidémique qui a eu lieu durant l'étude de 1975. Au lieu d'une expansion anticipée, une réduction est évidente (2 retraités vs. une personne engagée). Le sur-estimé dans la discipline générale peut être dû aux erreurs dans la dénomination (i.e. discipline générale vs. "écologie") ou pourrait être le résultat plus spécifiquement dû aux tâches assignées au nouveau personnel. Le bas estimé de la catégorie "autre" est dû à l'évaluation des réponses "autre" de 1980 qui répondaient à des disciplines plus spécifiques pour clarification. Des sous-estimés importants sont évidents dans le contrôle appliqué (biologique) écologie et physiologie. Les sous-estimés dans le contrôle appliqué (biologique) sont dus au développement plus rapide que prévu. Le sous-estimé dans l'écologie est spécialement dû au grand nombre de positions qui sont vacantes dû à des mutations, bien qu'il est possible qu'en partie, il est possible que des positions d'écologie ont été comptées également sous "general". Comme dans l'écologie, le sous-estimé dans la physiologie est dû au grand nombre de mutations ou à l'accentuation de déplacement de positions.

Table 1. Number of questionnaires sent to and returned by employers of entomologists in Canada in 1980*.
 Tableau 1. Nombre de questionnaires expédiés et retournés par des institutions qui emploient des entomologistes au Canada en 1980*.

	EMPLOYER EMPLOYEUR					TOTAL TOTAL
	Univer- sity Univer- sité	Agriculture Canada Agriculture Canada	Environment Canada Environment Canada	Provincial Government Gouvernement Provincial	Indus- try Indus- trie	
No. question- naires sent Nombre de questionnaires expédiés	59	36	15	29	41	180
No. question- naires returned Nombre de questionnaires retournés	57	36	13	26	19	151
% returned % retournés	97	100	87	90	46	84

*In order to obtain returns from the greatest number of research institutions, several questionnaires were sent to a given location. When returned questionnaires overlapped in content, only one was included in the survey.

*Afin d'obtenir des réponses d'un plus grand nombre possible d'institutions de recherches, plusieurs questionnaires ont été expédiés à un endroit individuel. Au cas où il y avait des retours de questionnaires qui touchaient à des informations semblables, un seul questionnaire a été considéré pour l'étude.

overestimates were evident in disease transmission, general and "other" categories. The overestimate in disease transmission resulted probably from concern surrounding the encephalitis outbreaks that occurred during the 1975 survey. The expansion predicted did not materialize; in fact a reduction is evident (2 retirements vs. one person hired). The overestimate in the general discipline may have been caused by errors in nomenclature (i.e., general vs. ecology disciplines) or by more specific assignment of duties to new personnel. The poor estimate of the "other" category results from the assignment of 1980 "other" responses to more specific disciplines for the sake of clarify. Significant underestimates are evident in applied pest control (biological), ecology, and physiology. The underestimates in applied pest control (biological) is due to greater expansion in this area than was predicted. The underestimate in ecology comes primarily from many positions being vacated as a result of transfers, although it may, in part, be due to the overlap between the ecology and general disciplines. As in ecology, the underestimate in physiology was also caused by many transfers or the shifting of job emphasis.

Table 2a. Number of entomologists employed in each province by employer in 1975.
 Tableau 2a. Nombre d'entomologistes employés dans chaque province par employeur en 1975.

	University Université	Federal Government Gouv. Fédéral	Provincial Government Gouv. Provincial	Industry Industrie	TOTAL TOTAL	% Total % du Total
Alberta Alberta	10	19	11	0	40	10
British Columbia Colombie Britannique	18	28	6	1	53	14
Manitoba Manitoba	9	20	6	1	36	9
New Brunswick Nouveau Brunswick	4	11	2	0	17	4
Newfoundland Terre-Neuve	3	5	2	0	10	3
Nova Scotia Nouvelle Ecosse	6	8	5	0	19	5
Ontario Ontario	49	71	2	11	133	34
Prince Edward Island Ile du Prince Edouard	2	2	0	0	4	1
Quebec Province du Québec	22	13	12	1	48	12
Saskatchewan Saskatchewan	7	18	6	0	31	8
TOTAL TOTAL	130	195	52	14	391	100
% of Total	33	50	13	4	100	

Table 2b. Number of entomologists employed in each province by employer in 1980.
 Tableau 2b. Nombre d'entomologistes employés dans chaque province par employeur en 1980.

	Univer- sity Univer- sité	Agri- culture Canada Agri- culture Canada	Environ- ment Canada Environ- ment Canada	Provincial Government Gouv. Provincial	Indus- try Indus- trie	TOTAL	% Total % du Total
Alberta Alberta	9	13	3	5	0	30	8
Brisith Columbia Colombie Britannique	14	17	11	5	0	47	13
Manitoba Manitoba	9	16	1	5	0	31	8
New Brunswick Nouveau Brunswick	4	3	9	2	0	18	5
Newfoundland Terre-Neuve	7	1	4	0	0	12	3
Nova Scotia Nouvelle Ecosse	4	5	0	4	0	13	4
Ontario Ontario	48	55	26	2	11	142	38
Prince Edward Island Ile du Prince Edouard	2	2	0	0	0	4	1
Quebec Province du Québec	27	6	8	12	0	53	14
Saskatchewan Saskatchewan	4	15	0	2	0	21	6
TOTAL TOTAL	128	195		37	11	371	100
% of Total % du Total	34	53		10	3	100	

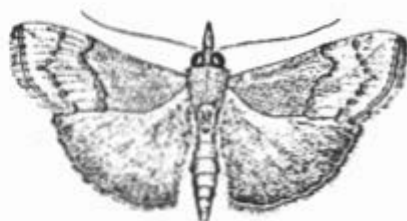


Table 3a. Predicted vacancies due to retirement and expansion of entomologists by discipline between 1975-1980 (based on 1975 data).

Tableau 3a. Les positions vacantes prévues dû à la retraite et l'accroissement d'entomologistes par discipline entre 1975-1980 (basé sur le data 1975).

	Retired Retraité	Expansion Accroissement	TOTAL TOTAL
Apiculture Apiculture	4	0.5	4.5
Applied Pest Control (B)+ Contrôle appliqué (B)+	7	5	12
Applied Pest Control (C)++ Contrôle appliqué (C)++	12	5.5	17.5
Disease Transmission Maladies transmissibles	3	5.5	8.5
Ecology Ecologie	8	1.5	9.5
General Général	11	1.5	12.5
Morphology Morphologie	1	0.5	1.5
Physiology Physiologie	1	0.5	1.5
Systematics Systématique	9	4	13
Toxicology Toxicologie	1	3.5	4.5
Other Autres	10	4	14
TOTAL	67	32	99

†Biological
†Biologique

++Chemical
++Chimique



Table 3b. Actual vacancies and number of entomologists hired by discipline between 1975-1980 (based on 1980 data).
 Tableau 3b. Positions vacantes actuelles et nombre d'entomologistes engagés par disciplines entre 1975-1980 (basé sur le data 1980).

	Released Congédiés			Hired Engagés		
	Retired Retiré	Other* Autre*	TOTAL	M.Sc. M.Sc.	Ph.D. Doct.ès Sci.	TOTAL
Apiculture Apiculture	3	1	4	3	2	5
Applied Pest Control (B)+ Contrôle appliqué (B)+	7	5	12	2	15	17
Applied Pest Control (C)++ Contrôle appliqué (C)++	13	0	13	5	13	18
Disease Transmission Maladies transmissibles	2	0	2	0	1	1
Ecology Ecologie	8	6	14	2	15	17
General Général	8	1	9	3	2	5
Morphology Morphologie	0	0	0	0	0	0
Physiology Physiologie	3	8	11	0	11	11
Systematics Systématique	7	2	9	4	6	10
Toxicology Toxicologie	0	3	3	1	3	4
Other Autres	0	0	0	0	0	0
TOTAL TOTAL	51	26	77	20	68	88

*All returned marked "other" were assigned by the Employment Committee to appropriate descriptives for the sake of clarity.

*Le Comité d'Engagement a transmis tous les retours marqués "autre" à des descriptions appropriées pour raison de clarification.

†Biological
Biologique

††Chemical
Chimique



SCITEC REPORT

1979-80

GENERAL COMMENTS

The Association of the Scientific, Engineering and Technological Community of Canada (SCITEC) was founded in 1970 as a multidisciplinary umbrella organization to facilitate communication relating to science; between scientists from different disciplines, sectors and organizations, scientists and politicians, and scientists and the general public. It was hoped that this would ensure greater support for science and an improvement in the quality of science. In fact, what we have witnessed over the past decade has been a gradual weakening in the support of science by government and a growing disillusionment among the general public with science as the universal problem solver. These events have less to do with the performance of SCITEC than with other external factors. The successes of SCITEC are not easy to identify because they are diffuse and of a long-term nature. Changing government or public opinion is not something that can be done overnight. SCITEC is underfunded for the task it has to perform, it cannot afford a full time executive, which it desperately needs, and it has found it difficult to obtain the commitment necessary from volunteers to implement its programmes. Unless additional funding is forthcoming this situation is likely to continue. The need for an organization like SCITEC is, however, greater than ever. One area where I believe SCITEC should expand its activities is in the education of scientists as to the nature of science, of science policy, and of the social implications of science and responsibilities of scientists. This should not be confused with competence within a discipline, ability to secure grants, and ability to provide a technological fix for a problem in society. Demands by scientists for increased support by government and the general public must be matched by a willingness among scientists to "improve themselves" and SCITEC could play an important role in this process.

SPECIFIC ACTIVITIES

SCITEC has reorganized its activities under the following committees:

1. International Relations (Dr. Michel Bergeron)

This Committee has played an active role in Interscincia, an umbrella Science Association for the Americas, and has attracted funding from IDRC and CIDA. Seven Canadians participated in the 1979 Costa Rica Symposium on "Forest Sciences and their Contribution to the Development of Tropical America"; and three Canadians, under the Chairmanship of your own representative, presented papers at the 1980 Columbian meeting on "New and Underutilized Biological Resources for Food, Energy, and Industrial Products". SCITEC, through Interscincia, organized a half day on Canadian Science at the 1981 AAAS meeting in Toronto.

2. Parliamentarians, Scientists and Engineers (Dr. Vivian Abraham)

In July 1980 a meeting was held to establish a Constitution and to initiate dialogue with the Honorable John Roberts, Minister of State for Science and Technology, concerning the Federal Government's policy on science. It was clear from this meeting that the gap between the expectations of scientists and politicians is very wide and that there is an urgent need for such a committee if mutual understanding is to be achieved. A programme of activities is currently being planned with the first meeting of COPSE scheduled for February.

3. Publications (Dr. Dominique Piron)

The SCITEC Bulletin is published twice a year. The quality is still such that few scientists are likely to take the time to read it. The Publication "Science Forum", which had a considerably higher standard, failed to survive economically. Brief fliers, at least four per year, dealing with specific concerns of the scientific community such as the NSERC 5-year plan, and meetings of SCITEC officers with Ministers, will be prepared and circulated widely to inform scientists of important developments. A useful summary of the election promises relating to science policy of the four major political parties was prepared before the last Federal elections.

4. Science Focus (Dr. Mark Fleiszer)

My understanding is that Science Focus, which organizes Science Week, has incorporated as a separate body for financial and organizational reasons; and that SCITEC will form a New Public Awareness Committee. This year Science Focus has planned Science Weeks in 15 locations.

5. Long Term Planning (Dr. James Mount)

This committee has recently been most active in planning the next annual meeting of SCITEC. This will be held during the second week of November in Toronto on the topic "Education for National Prosperity". Miss Mona Jento, Executive Secretary of the Canadian Association of Physicists will be Conference Coordinator. Proposals for subthemes are solicited. There will be a Spring Meeting of SCITEC council in Ottawa on May 15th. This will be a good time to raise issues of importance to E.S.C. The committee is also developing an evolving five year plan for new initiatives.

6. Society Liaison (Dr. Ernie Criddle)

This is a new committee that will be particularly active in helping societies to work together, particularly in lobbying activities.

7. Finance (Dr. Dominique Piron)

Office expenses have been considerably reduced this year and subscriptions increased. SCITEC remains dependent on NSERC for the bulk of its financial support.

8. Science Policy (Dr. John Adair)

This is a new committee that will react to and make recommendations concerning science policy.

9. CSELS (Mr. Glynn Michael)

Although "The Centre for Scientific Engineering and Learned Societies" (formerly HOSTE) has not materialized, six secretariats have decided to share premises on the second floor of the Burnside Building in Ottawa.

10. Executive Directory

SCITEC is happy to announce that N.J.B. Wiggin M.D., Ph.D. has been appointed as its Executive Director (Part Time). Already communication between SCITEC and member Societies has improved.

QUESTIONS FOR E.S.C.

Has SCITEC benefited E.S.C. and/or is it likely to in the future?

How can E.S.C. input to SCITEC be more effective?

What does E.S.C. want from SCITEC that it is not currently getting and how should E.S.C. go about getting it?

What are the Science Policy issues that interest E.S.C.?

Stuart B. Hill
20 January 1981

(Communicate your ideas to the E.S.C. Executive or Science Policy Committees before the SCITEC meeting of 15 May 1981). Editor

RETIREMENT

Robert S. Forbes



Bob Forbes retired from his position as a Research Scientist at the Maritimes Research Centre, Fredericton, N.B. the first of October, 1980. When I arrived at what was then the Forest Biology Lab to take up my position in 1956, it was Bob who showed me my office, and took me down to meet R.E. (Honorary Member Dr. R.E. Balch, who is still active in retirement not two blocks away) and got me started with the Forest Insect Survey (Disease was added later). Bob had recently succeeded Ed Reeks as Survey Head at Fredericton. Bob became a long time friend, mentor and confidant, as he had to many others who worked in the Lab.

Bob graduated from the University of New Brunswick with a B.Sc.F. in 1944 and an M.Sc. in forest entomology in 1949. He earned his Ph.D. at Ohio State University in 1960 having written a characteristically thorough thesis on the mountain-ash sawfly. He won scholarships and honors at both universities for his high scholastic standing.

With changes in organization of the Maritimes Forest Research Centre in 1974, Bob became head of Technical Services, which included the Survey. A natural teacher, Bob only unleashed this latent talent once, when he replaced Rae Brown, Professor of Forest Entomology at U.N.B., who was on sabbatical during the 1977-78 academic year. He spent his last three years "back at the bench", as we used to jest "looking at insects for a change", because the study of parasitic insects was his greatest interest.

He published numerous scientific papers, articles and reports.

He found time throughout his career to effectively serve, in various offices, the Entomological Society of Canada, the Acadian Entomological Society and the Canadian Institute of Forestry.

Bob and his devoted wife Ann live at 1 Acacia Grover, Fredericton.

D.C. Eidt

PERSONALIA

Thomas R. Yonke has recently been appointed Chairman of the Department of Entomology, University of Missouri, Columbia. As Chairman he will provide leadership for departmental teaching, research and extension programmes. Dr. Yonke is a member of ESC, as well as E.S. America. We wish him success with his new responsibilities.

Ronald E. Hodges, formerly chief of the Systematic Entomology Laboratory (SEL), USDA, Beltsville, Maryland has returned to his first love, the Microlepidoptera. He plans to complete studies of the subfamily Dichomeridinae and the genus Chionodes and replaces Douglas C. Ferguson (an ESC member) as the lead scientist for the Lepidopterist-Hemiptera Research Unit. We congratulate the accomplishments of this ESC member.

Arnold Menke, (an ESC member) was appointed lead scientist for the Hymenoptera-Orthoptera Research Unit, replacing Paul Marsh.

George C. Steyskal, a Diptera taxonomist and member of ESC has retired from SEL as well as Curtis W. Sabrosky.

OBITUARY

ROBERT LIVINGSTON FURNISS

1908-1980



*Among his rhododendrons
Portland, Or. June 1980*

Bob Furniss, a well-known entomologist, died December 7, 1980, of cancer. He was born September 8, 1908, in Portland, Oregon, but grew up in the East where he graduated from Syracuse University in 1930. At Syracuse he studied forest management with a major in forest entomology and was captain of the varsity lacrosse team. His association with western forest entomology began in the summer of 1929 when he worked in Idaho on the Coeur d'Alene National Forest cruising white pines killed by mountain pine beetles.

After graduation, he worked for the Bureau of Entomology in California where devastating bark beetle outbreaks were in progress. His studies included the effects of low winter temperatures on populations of the western pine beetle. While working near Bass Lake on the Sierra National Forest, he met Frances Heath whom he married in 1932.

In 1936 he was transferred to Portland, Oregon, and became head of the Forest Insect Laboratory there in 1942. He was appointed Chief of the Division of Forest Insect Research at the Pacific Northwest Forest and Range Experiment Station in 1954 when the staff and work of the Bureau were incorporated into the Forest Service. A year prior to his retirement in December 1966, he was promoted to Assistant Station Director. His decision to retire was hastened by his desire to devote his time to writing a comprehensive book coauthored by V.M. Carolin, Jr., entitled "Western Forest Insects". Publication of the book was celebrated by a well attended autograph party in 1978 sponsored by the Forest Service and forest industry. The book features a host diagnostic index to aid foresters in identifying insects from host species and damage symptoms.

He was an authority on insects of the Douglas-fir region, including a reproduction weevil that was named for him, and the effects of the Tillamook burn on damage caused by bark beetles and wood borers. The enormous amount of Douglas-fir trees salvaged after that burn resulted in complaints about borer-infested lumber in structure and led him to investigate longevity of buprestid larvae which he maintained in dry boards for nearly 40 years.

An early advocate of the use of the airplane, he aerially mapped locations of western hemlock looper infestations in Oregon during an outbreak in 1944-45. During 1946-47, he mapped a bark beetle outbreak in Alaska in what may be the first such aerial survey. In 1948, he helped demonstrate that western spruce budworm could be controlled by carefully timing the application of aerial spray to the developmental stage of the budworms. This method was applied subsequently to millions of acres of infested forests in several states.

His reputation led to an assignment to Japan in 1949-50 where bark beetles were decimating the pine forests of that country. Subsequently, his recommendations resulted in legislation providing for insect control and more effective organization and methods of preventing and combating damage. While there, he befriended many Japanese foresters, some of whom were his guests during their visits to the U.S. His interest in bonsai culture resulted in his being consulted on selection of the 75th Anniversary tree that was donated by the Forest Service to the National Arboretum on October 28, 1980.

He was a charter member of the Oregon Entomological Society and contributed often to their programmes. He also belonged to the Entomological Society of America and the Entomological Society of Canada. In 1966 he was Programme Chairman of the ESA national meeting in Portland. Because of his contributions to forest protection, he was elected Fellow by the Society of American Foresters in 1963. At the time of his death, he was Gardening Chairman of the Portland Chapter of the American Rhododendron Society and had nearly completed a manuscript on rhododendron insects which he had intensively studied.

He had close working relationships with leaders in industry and governmental agencies which led to creation of the Pacific Northwest Forest Pest Action Council. Similar councils have been established in other regions of the U.S. since then. He also helped establish the Western Forest Insect Work Conference in 1950 which annually provides a forum for persons involved with forest insect management and research in western North America.

Though administrators were not always helpful to the cause, Bob supported his staff in maintaining a fine reprint and technical report library, an excellent photo file, and an extensive insect collection referenced to a wealth of biological information. He believed strongly in the importance of biosystematics in understanding and dealing with populations of forest insects, whether they were well studied, as in the case of the Douglas-fir tussock moth, or lesser known species. Among his many interests, Bob was continually fascinated by all manner of insects and he had a remarkable ability to readily perceive their relationships with their hosts and environment. Bark beetles were perhaps his favorite group and he collected them prolifically whether on vacation in Mexico or while climbing on snowfields in the Cascade Mountains. Rangeland insects -- particularly those on shrubs -- also caught his interest and he regretted that he could not attract more support for their study.

He was a prolific letter writer, arising early to tend to correspondence and to organize the day's activities. His letters always displayed his special wit and amicable, cheerful style. He is survived by his wife, Frances, a sister and four brothers, including Malcolm, of Moscow, Idaho, who also is a forest entomologist. An endowment fund has been established in his memory by the Portland Chapter of the American Rhododendron Society.

V.M. Carolin, Jr.
M.M. Furniss

(He was a member of ESC and the author or co-author of 18 scientific papers and 10 unpublished reports from 1931-1977. His bibliography is available from M.M. Furniss, USDA Forest Service, Forestry Sciences Laboratory, 1221 South Main Street, Moscow, Idaho 83843, U.S.A.), editor.

RETIREMENTS

Richard M. Belyea, B.A., Ph.D. (Toronto)

formerly, and for many years a member of the ESC, retired at Fredericton, N.B., 29 November 1980. Dr. Belyea joined the Forest Biology Division of Agriculture Canada as a Research Officer in 1946, after war-time service in the navy, and before that as an undergraduate Student Assistant. He became Officer-in-Charge of the laboratory at Sault Ste. Marie in 1952, Office-in-Charge of the Forest Entomology and Pathology Laboratory at Fredericton in 1960, and Director at Sault Ste. Marie in 1965. In 1969 he became Director of Operations at Canadian Forestry Service Headquarters in Ottawa. He returned to Fredericton as Director of the Maritimes Forest Research Centre in 1973. He was a Special Advisor on Forestry Policy International to the Director-General, Canadian Forestry Service, from 1977 until his retirement.



Fred G. Cuming, B.Sc.F. (New Brunswick), M.Sc. (Dalhousie), a former member of the ESC, retired from the Maritimes Forest Research Centre, 31 December 1980. He served with the Forest Insect and Disease Survey in Nova Scotia for many years and more recently as Information Officer at the Centre at Fredericton.

BIOLOGICAL SURVEY OF CANADA

(TERRESTRIAL ARTHROPODS)

(Invertebrate Zoology Division, National Museum of Natural Sciences, Ottawa K1A 0M8)

Scientific Committee

The next meeting of the Scientific Committee has been arranged for April 9-10, 1981 in Ottawa. This report is abbreviated pending the decisions of that meeting.

Visits to entomological centres

During November, December and January, Dr. H.V. Danks of the Secretariat has visited major cities in Western Canada (Victoria, Vancouver, Edmonton, Calgary, Lethbridge, Regina, Saskatoon, Winnipeg), and southern Ontario (Toronto, London, Waterloo, Hamilton, Vineland). These visits allowed profitable discussions especially of the scientific projects being developed by the survey (see Bull. ent. Soc. Can. 12(4): 89-90), notably on the arthropod fauna of the prairies, and the aquatic insects of freshwater wetlands. Formal seminars on the Survey and its work were delivered, under the titles "The Biological Survey of Canada", "The Insect Fauna of Canada", "Insects of the Arctic", "Adaptations of Arctic Insects", and "Insect Winter Survival". Two seminars were also delivered in Ottawa, to the Ottawa Entomology Club and in the seminar series of the National Museum of Natural Sciences. A list of material or information required to assist studies of the fauna, compiled from request forms circulated during these visits, will be distributed in early spring.

Based on the information collected during visits, and on other documents, the Secretariat's inventory of personnel and their current projects on the taxonomy and ecology of the fauna of Canada is being updated.

Leaflet on the Biological Survey of Canada

A leaflet indicating current projects of the Survey, information and assistance available, and so on, has been prepared. Copies were distributed during the recent visits to entomological centres, and copies are also available from the Secretariat on request.

Arctic Arthropods

The major manuscript from the Society's contract "Review and synthesis of knowledge on northern and arctic insects" has now been examined by reviewers from the Scientific Committee and outside, and is proceeding towards publication.

MEETING ANNOUNCEMENTS

The Acadian Entomological Society will hold its annual meeting on 8-9 April 1981 at Kentville, N.S. For further information write to: H. June Herbert, Research Station, Agriculture Canada, Box 400, Kentville, N.S. B4N 1J5.

"Science in Society: Its Freedom and Regulation", a conference to be held from 12-14 June 1981 at Carleton University, Ottawa, sponsored by the Canadian Student Pugwash. Contact: Fraser Homer-Dixon, national coordinator, 474 Wilbrod Street, Apartment 806, Ottawa, Canada K1N 6M9.

Canadian Federation of Biological Societies, annual meeting from 16-19 June 1981 at McGill University, Montreal, Que. Contact: John Scott Cowan, Department of Physiology, Faculty of Medicine, University of Ottawa, Ontario K1P 9A9 (613-231-3383). (Jointly with the Canadian Biochemical Society, Canadian Society for Cell Biology and Canadian Society for Immunology).

Canadian Phytopathological Society annual meeting will be held from 21-25 June 1981 jointly with the Canadian Society of Microbiologists in Ottawa. Contact: CSM, 500-85 Albert Street, Ottawa, Canada K1P 6A4 (613-238-5678).

MEETING ANNOUNCEMENTS

The North American Benthological Society is holding its 29th Annual Meeting on 27-30 April 1981 at Brigham Young University, Provo, Utah. Special sessions will include: Ecological Aspects of Rocky Mountain Watersheds (organizer Dr. G.Z. Jacobi); Testing of the General Ecological Theory in Stream Ecosystems; and "The Taxonomy and Ecology of the Stoneflies (Plecoptera) (organizer Dr. S.W. Szczytho). Wednesday 29 April is reserved for a choice of four field trips. Registration is \$25.00 (\$15.00 for students). For more information contact: Dr. Richard Baumann, Monte L. Bean Life Science Museum, Brigham Young University, 290 MLBM, Provo, Utah 84602, U.S.A. (phone 801-378-5052).

The Canadian Society of Zoologists will hold their annual meeting on 10-13 May 1981 at the University of Waterloo, Ontario. For further information contact Dr. Roger G.H. Downer, Department of Biology, University of Waterloo, Waterloo, Ontario, Canada N2L 3G1 (telephone 519-885-1211, ext. 3226).

The Eastern Branch of the Entomological Society of America will hold its 53rd annual meeting in the Hotel Syracuse, Syracuse, N.Y., Monday through Wednesday, 5-7 October 1981. For details contact Gerald L. Jubb, Jr., Sec.-Treas. Pennsylvania State University, 622 Cemetery Road, North East, PA, 16428 U.S.A.

Entomological Society of America, National Meeting at the Town and Country Hotel, San Diego, California, U.S.A. from 29 November through 3 December 1981. For further information contact W. Darryl Hanson, Executive Director, E.S.A., 4603 Calvert Road, College Park, MD 20740 U.S.A.

Under the sponsorship of the Council for Optical Radiation Measurements, an International Conference on Optical Radiation Measurements of Fluorescent and Retroreflective Materials will be held at the Thunderbird Motel, near Minneapolis-St. Paul, Minnesota, on June 17-19, 1981. The importance of fluorescent and retroreflective materials for signs, signaling, traffic control, warning devices, and other high conspicuity applications is well known. The accurate determination of the reflective and retroreflective properties of these materials, under a variety of practical conditions such as daytime (daylight) and nighttime (incandescent, retroreflective) viewing, poses some of the most serious problems of measurement, standardization, and specification in the field of optical radiation measurements. The purpose of this Conference is to provide a forum for the in-depth discussion of these problems and the present state of the art for their solution.

The Council for Optical Radiation Measurements is a non-profit organization of industrial and academic scientists and engineers founded to advise the United States National Bureau of Standards on national needs in optical radiation measurements. In recent years the Council, known by the acronym CORM, has enlarged its scope to include the following aims and purposes:

- A. To establish consensus among interested parties on national industrial and academic requirements for physical standards, calibration services, and inter-laboratory collaboration programs in the field of optical radiation measurements, including the measurement of the transmitting and reflecting properties of specimens.
- B. To maintain liaison with the National Bureau of Standards and advise the Bureau of requirements and priorities.
- C. To assure that information on existing or proposed standards, calibration services, collaboration programs, and its own activities is widely disseminated to interested parties.
- D. To answer inquiries about such standards activities or forward such inquiries to appropriate agencies.
- E. To cooperate with other organizations, both public and private, to accomplish these objectives for the direct and indirect benefit of the public at large.

To receive further information and a registration form for this Conference contact: CORM Conference, Dr. Fred W. Billmeyer, Jr., Department of Chemistry, Rensselaer Polytechnic Institute, Troy, New York 12181, U.S.A., (518) 270-6458.



“Natural Death” for lepidopterous Insects



Insect death from “natural causes” in a poison-free environment has been accomplished with the introduction of Dipel.

Dipel is a biological insecticide containing live microscopic bacteria in the spore stage. This bacterium (*Bacillus thuringiensis* or B.t.) is a naturally-occurring disease that is fatal to larvae of the lepidoptera. And this is the only life-form that B.t. can infect.

HOW IT WORKS

Dipel contains B.t. spores plus protein crystals named delta endotoxin. When a larva ingests a leaf sprayed with Dipel, the crystal endotoxin begins to breakdown the worm's gut-wall. Feeding stops within minutes. As the gut-wall lining decomposes, the bacterial spores penetrate the body and grow rapidly.

Within a day the larva becomes discoloured and is dead in three to five days.

WHY DIPEL IS SAFE

Dipel attacks only the larvae of lepidopterous insects. It is non-toxic to humans, animals, birds, fish and beneficial predacious and parasitic insects. In seven years of widespread use not one toxicity case has been reported.

WIDE RANGE OF USE

Dipel is used for control of cabbage looper, diamond back and imported cabbageworm on vegetables. Tobacco and tomato hornworms; European (Essex) skipper.

Trees and shrubs:- tent caterpillars, spruce budworm, gypsy moth, bagworm, cankerworm, webworm and spanworm.



For detailed
information write to:

DIPEL*

SAFE, NATURAL INSECTICIDE

ABBOTT LABORATOIRES, LIMITED • Chemical and Agricultural Products Division, Box 6150 • Montréal, Canada

*R.D.T.M.

BOOK REVIEWS

Locke, M. and Smith, D.S. (Editors) 1980. *Insect Biology in the Future "VBW 80"*. Academic Press, Toronto. XV + 977. \$50.00 U.S.A.

A discipline comes of age when its practitioners can look back over its history with appreciation (and, no doubt, with a great deal of nostalgia) and anticipate the future with confidence. The publication of *Insect Biology in the Future* and its dedication to the doyen of insect physiologists, Sir Vincent Brian Wigglesworth, on the occasion of his 80th birthday is a milestone in the coming of age of insect physiology. Sir Vincent's career encompassed the laying of the foundations of modern insect physiology, and he himself contributed vigorously to the establishment of many of its principles. Sir James Beament writes the opening chapter dealing with Wigglesworth's contribution to insect biology and the state of the art.

The book itself is a well-ordered collection of no fewer than 42 contributions on a wide range of topics in insect biology, prepared by many of the field's stellar researchers (many others are regrettably absent). Multi-authored volumes by their very nature unfortunately cannot escape the litany of complaints that must accrue to all such endeavors, and this book is no exception. I found, for example, the space allotted to the physiology of the insect nervous system inadequate, even though there are one or two outstanding contributions dealing with some aspects of the nervous system. The absence of reference to the myotropic peptide proctolin, the first of its kind ever to be discovered in insects and the meagre reference to octopamine are telling points in a book that advertises itself to be about insect biology "in the future". (Can you imagine a book on vertebrate physiology that ignored adrenaline and noradrenaline!?) The chapter on "Hormone Action - A Search for Transducing Mechanisms" by M.H. Berridge virtually ignores insects and presents material that is already found in texts and reviews of biochemistry. Diapause merits no space in this book that claims to be about insect biology. The list goes on and can be as long or as short as each reader's predilection for finding fault. Nevertheless, few insect physiologists will pass up the opportunity to browse *Insect Biology in the Future* and I suspect that many professionals will want to own a copy of their own.

Robert P. Bodnaryk
Research Station, Winnipeg

Huffaker, C.B. (ed). 1980. *New Technology of Pest Control*. Wiley Interscience Put. John Wiley and Sons.

This tightly edited summary of the progress attained since 1971 by the NSF/EPA Integrated Pest Management Project is a valuable source of information on modern approaches to pest management. The six projects (on soybeans, cotton, alfalfa, pome and stone fruits, citrus and pine bark beetles) each offer an insight into how the "pest management" approach can identify the aspects of the crop/pests system that are amenable to manipulation to minimize crop losses, control costs and environmental side-effects and develop a management package to integrate these aspects into a potentially effective management system.

Progress toward implementation of the goal of an improved, ecologically-oriented pest-management system has not been equal among the six projects. Nevertheless, this progress report exposes to the reader a wealth of information and references on each crop and its pests. The progress reported in this book suggests that a satisfactory solution to the complex pest problems facing modern man must be based on:

- 1) Coordination of the effects of a wide variety of specialists. (This requires adequate funding and a system of identifying priorities for allocating funds and research effort.)
- 2) Emphasis on the bio-ecology of pests and crops, their interactions and the effects of management practices on these complex systems.
- 3) Use of mathematical models to describe and integrate the many sub-systems and to enable the effects of the manipulation of the system to be predicted.

The attempt to cover results derived from the efforts of some 250 scientists, presented by 52 contributors, in a single book inevitably resulted in terse reporting of many aspects of the program. Thus the book should be regarded as an introduction to this complex program and a source of ideas and references rather than a full exposition of results.

W.J. Turnock
Winnipeg, Manitoba

BOOK NOTICES

Maretic, Z. and D. Lebez. 1979. *Araneism*, with special reference to Europe. Pula, Yugoslavia: Nobit Publishing House, 255 pp. Available through National Technical Information Service, U.S. Dept of Commerce, 5285 Port Royal Road., Springfield, Virginia, U.S.A. 22161

Araneism is defined by the authors as "intoxication produced by spider bite", yet their book, *Araneism*, is more than simply a study of these toxic responses. They have successfully placed the responses to spider bite in perspective in a clinical sense as well as an historical one. After reading the book, I felt a greater understanding of the problems rather than just symptoms, treatment and patient response as one might infer from the title.

Approximately three-quarters of the book includes a concentrated interpretation of European latrodoctism and the genus *Latrodectus*, while the remainder deals with other forms of European araneism. In each case, the authors have examined the biology of the spiders involved, some aspects of clinical response and pathology, nature of the venom and general epidemiological features.

T.D. Galloway
Department of Entomology
University of Manitoba
Winnipeg, Manitoba R3T 2N2

Pielou, E.C. 1979. *Biogeography*. Wiley - Interscience, New York. ix + 351 pp. U.S. \$21.50.

Dr. E.C. Pielou, a Professor of Biology at Dalhousie University is familiar to many entomologists through her previous books on mathematical ecology, ecological diversity and population and community ecology, as well as her research on aphid distributions and invertebrate community structures. Obviously Dr. Pielou's interests are broad and perhaps it is no surprise that she has turned to the most comprehensive and multidisciplinary of biological topics, biogeography. As the author points out, mathematical methods are just beginning to play a significant role in this field. While Dr. Pielou's mathematical skills are applied in some sections, this is the least mathematical of her books. It provides a modern overview of the major topics in biogeography, a subject that should be of interest to all entomologists.

R.J. Lamb
Department of Biology
University of Waterloo

Hecht, M.K., W.C. Steere, and B. Wallace (Eds.) 1980. *Evolutionary Biology*. Vol. 12. Plenum Press, New York. xii + 388 pp. U.S. \$32.50

This volume continues the tradition of the series by publishing five substantial papers on diverse aspects of evolutionary biology. Two of the papers deal with *Drosophila* evolutionary genetics; the others deal with fossil plants, lizards, and high Andean birds. While particular papers might be of great interest to specialists, most entomologists, even those with broad interests, are unlikely to find this volume very useful.

R.J. Lamb
Waterloo, Ontario

Nielsen, A. 1980. A comparative study of the genital segments and the genital chamber in female Trichoptera. Kommissioener: Munksgaard, Copenhagen V, Denmark. 200 pp. Soft cover.

This book contains descriptions of the anatomy of the genital segments and genital chamber of 28 species of female Trichoptera representing all sub-families in Northern Europe. This work is a pendant to a previous paper published by the author on male Trichoptera (1957).

For each species, the author describes segments VIII - X, the genital chamber, common oviduct, bursa copulatrix, spermatheca, colleterial glands, and musculature, and presents good illustrations of most of these structures. In concluding remarks, the author speculates on the plesiomorphic conditions in Trichoptera and on the backward shift of the gonopore in insects other than Thysanura and Ephemeroptera.

The descriptions and illustrations are sufficiently detailed and accurate that this book should be of great value to morphologists and taxonomists working on Trichoptera.

George H. Gerber
Research Station, Winnipeg

Darsie, R.F. Jr., and R.A. Ward. 1980. Identification and Geographical Distribution of the Mosquitoes of North America, North of Mexico. Supplement #1 to Mosquito Systematics. Hardcover \$35.00, paper cover \$30.00 (without accompanying payment add \$1.50 for postage). Order from American Mosquito Control Association, 5545 East Shields Avenue, Fresno, CA 93727, U.S.A.

This book is concerned with the identification and geographical distribution of the 167 species of mosquitoes occurring in the contiguous United States, plus Canada and Alaska. Keys are provided for the identification of adult females and fourth stage larvae of the above species. All couplets in the keys are accurately illustrated by original figures depicting the characters employed. The publication contains 983 figures largely based upon specimens from the National Collection in the Smithsonian Institution. Morphological characters mentioned in the keys are discussed in detail with appropriate illustrations. In addition, there are 40 maps showing the geographical range of each taxon and the states and provinces in which they occur along with the confirming literature citation. State and province records are summarized in four tables. A bibliography of more than 500 items summarized the pertinent taxonomic and distributional references for the period 1955-1978.

The manual is designed for mosquito control workers, medical entomologists, epidemiologists, students of entomology and other interested personnel who wish to have a concise, easy-to-use single volume for the identification of vector and pest populations of mosquitoes.

NEW BOOKS

Steffan, W.A., N.L. Evenhuis, and B.L. Manning. Annotated Bibliography of *Toxorhynchites* (Diptera: Culicidae). Journal of Medical Entomology Supplement No. 3. \$11.00 to subscribers, \$12.00 to others from Bishop Museum Press, Box 19000-A, Honolulu, Hawaii, 96819, U.S.A.

Maire, A., et A. Aubin. Les Moustiques du Québec (Diptera: Culicidae). Essai de Synthèse Ecologie. Mémoires de la Société Entomologique du Québec, No. 6, pp. 107, March 1980.

McNabb, Gordon. 1979-80 Report of the Natural Science and Engineering Research Council's (NSERC) Five-year Plan.

In addition to financial statements, the report contains a summary of plans for the Council for 1980-81 and beyond, and a description of its scholarship and grant programmes. Copies free from NSERC, Building M55, Montreal Road, Ottawa, Ontario K1K 0R6.

MEETING ANNOUNCEMENTS

An informal Workshop on the "Care and Maintenance of Natural History Collections", sponsored by the National Museum of Natural History, is being planned for two days during the period 28-31 May 1981 on the campus of the University of Ottawa, Ontario. There will be oral and visual presentations (zoological, botanical, paleontological, geological, mineralogical) in the mornings and visits to local Ottawa collections during afternoons. If you are interested in attending or contributing a presentation (poster or 10 to 15 minute talk) at this Workshop, or only wish to develop communication with others, contact the following:

G.R. (Gerry) Fitzgerald, (613-996-4518), National Museum of Natural Sciences, Ottawa, Canada, K1A 0M8

INTERNATIONAL COMMISSION ON ZOOLOGICAL NOMENCLATURE

The following Opinions have been published recently by the International Commission on Zoological Nomenclature in the Bulletin of Zoological Nomenclature, Volume 37, part 4, 15 December, 1980.

Opinion No.

- 1160 (p. 216) Tipula oleracea Linnaeus, 1758 and related species (Insecta, Diptera): stabilisation by the use of the plenary powers.
- 1161 (p. 221) Chaitophorus C.L. Koch, 1854 (Insecta, Hemiptera): designation of a type species by use of the plenary powers.

The Commission regrets that it cannot supply separates of Opinions.

R.V. Melville,
Secretary



NOTICE
To Zoologists, Librarians and Users of
ZOOLOGICAL RECORD
A Publication of the Zoological Society of London
from
BIOSCIENCES INFORMATION SERVICE
PHILADELPHIA, PA. • USA



On March 12, 1980 an agreement was signed between the Zoological Society of London and Biosciences Information Service (BIOSIS) which provides that BIOSIS assume publication of Zoological Record effective with Volume 115.

1. Under the agreement the editorial policies which have made *Zoological Record* the world's leading authority in zoological bibliography will be continued and the standard of quality of the publication maintained.
2. To assure a smooth transition, all processing of orders and delivery of publications for Volume 114 will be handled by the Zoological Society of London. It is expected that initial order processing will be completed for Volume 114 by January, 1981.
3. Order processing for Volume 115 will be initiated by BIOSIS on or about July 1, 1981. Complete delivery of all sections of Volume 115 is planned to be accomplished in 1981.
4. New computing equipment has been ordered for *Zoological Record*. It is expected that accelerated processing and delivery of *Zoological Record* will be accomplished in 1981.

For information pertaining to Volume 114 and earlier volumes please contact: Zoological Society of London, Regent's Park, London NW1 4 RY, England. Phone: 01-722-3333.

For information pertaining to Volume 115 please contact: User Services Department, BIOSIS, 2100 Arch St., Philadelphia, PA, USA 19103. Telex: 831-739 Phone 215-568-4016 or 800/523-4806 (USA only).

PUBLICATIONS OF CANADIAN INSECTS AND ARACHNIDS

The Biosystematics Research Institute initiated a few years ago the publication of a series on "The Insects and Arachnids of Canada". The following eight parts of the series are available from the Canadian Government Publishing Centre, Hull, Quebec. K1A 0S9

- Part 1 Collecting, Preparing, and Preserving Insects, Mites, and Spiders. J.E.H. Martin (compiler). 182 pp. Price: Canada \$3.50, other countries \$4.20 (Canadian funds). Cat. No. A42-42/1977-1.
- Part 2 The Bark Beetles of Canada (Coleoptera: Scolytidae). D.E. Bright, Jr. 241 pp. Price: Canada \$7.00, other countries \$8.40 (Canadian funds). Cat. No. A42-42/1976-2.
- Part 3 The Aradidae of Canada (Hemiptera: Aradidae). R. Matsuda. 116 pp. Price: Canada \$4.00, other countries \$4.80 (Canadian funds). Cat. No. A42-42/1977-3.
- Part 4 The Anthocoridae of Canada and Alaska (Heteroptera: Anthocoridae). L.A. Kelton. 101 pp. Price: Canada \$4.00, other countries \$4.80 (Canadian funds). Cat. No. A42-42/1977-4.
- Part 5 The Crab Spiders of Canada and Alaska (Araneae: Philodromidae and Thomisidae). C.D. Dondale and J.H. Redner. 255 pp. Price: Canada \$7.50, other countries \$9.00 (Canadian funds). Cat. No. A42-42/1978-5.
- Part 6 The Mosquitoes of Canada (Diptera: Culicidae). D.M. Wood, P.T. Dang and R.A. Ellis. 390 pp. Price: Canada \$8.00, other countries \$9.60 (Canadian funds). Cat. No. A42-42/1979-6.
- Part 7 Genera des Trichoptères du Canada et des États adjacents. F. Schmid. 296 pp. Price: Canada \$7.75, other countries \$9.30 (Canadian funds). Cat. No. A42-42/1980-7F. (Available in French only.)
- Part 8 The Plant Bugs of the Prairie Provinces of Canada. Heteroptera: Miridae. L.A. Kelton. 408 pp. Price: Canada \$9.95, other countries \$11.95 (Canadian funds). Publ. 1703. Cat. No. A42-42/1980-8.
- Also: Manual of Nearctic Diptera. Volume 1. 674 pp. 2026 illust. Sponsored by Dipterist Section, Biosystematics Research Institute. 1980. Agric. Canada Monog. 27 (Cat. No. A54-3/27E).

Readers who would like to have their names placed on a mailing list to receive order forms for future publications in this ongoing series may write to: Director, Biosystematics Research Institute, Agriculture Canada, Ottawa, Ontario, K1A 0C6.

RECENT DEATH

- DERRAUGH, Sarah Reeta Vida, Ottawa, Ontario. On January 30, 1981, age 85. Formerly secretary for Dominion Entomologist, Agriculture Canada.