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CHANGE OF ADDRESS

The headquarters of the Entomological Society are now located at 1320 Carling Avenue, Ottawa, Ontario K1Z 7K9. All correspondence dealing with dues, missing and back issues of *The Canadian Entomologist* or the *Bulletin of The Entomological Society of Canada* and especially changes of address should be sent to the new address.

E. C. Becker
Treasurer

CONTRIBUTIONS

Contributions and correspondence should be sent to: D. C. Eide, Editor, *Bulletin of the Entomological Society of Canada*, P. O. Box 4000, Fredericton, New Brunswick. Inquiries about subscriptions and back issues should be referred to the Treasurer, Entomological Society of Canada, 132 Carling Ave., Ottawa, Ontario, K1Z 7K9.

DEADLINE

The deadline for the next issue, Vol. 5, No. 2 for June 1973 is 15 May.

Editorial

THE EDITOR

This number of the **Bulletin** contains two articles concerning the editorship of the Society's publications: one a testimonial to Pat Pielou whose term of office ended in 1972, the other an announcement of the appointment of Vic Vickery and four associate editors.

A great deal of difficulty was encountered in appointing an editor. Preferred was an Ottawa-based editor, but when someone with the aptitude, motivation, and acceptibility to the Board of Directors was found in a federal government department in Ottawa, the employer said no. Among the reasons given was that it would result in a conflict of duties, and the work of the institution would suffer.

We find it impossible to rationalize this decision. The federal government conducts entomological research in many of its institutions, and sponsors entomological research by many other agencies. The principal media of communication for the results of this research are **The Canadian Entomologist** and the **Memoirs**. What could be more relevant to their objectives? Is it not within the best interests of all of us to contribute to the work of others? Why is service to this Society not equally meritorious to the many institutions that employ entomologists? We prefer to believe that the difficulty is temporary and may only represent one of the many shifts of policy that occur as successions of administrators come and go in our public institutions.

COMMUNICATION

There is generally a resistance among scientists to the mass media. They communicate well among themselves, but are usually unable or unwilling to take the time to make their specialized knowledge palatable to the public and prefer to let someone else dig it out. Glennis Zilm expressed it well in the last issue of the **Bulletin** (5:12). Zilm's organization has come to the rescue of scientists, information people, and science writers themselves, with publication of "A Usually Reliable Source" priced at 50 cents, slightly more than a cent a page; a bargain obtainable from the Canadian Science Writers' Association, Box 1406, Station B, Ottawa, K1P 5R4. Une édition en français sera publiée par la suite.

LETTER TO THE EDITOR

Sir:

Re: G. E. Shewell's letter "Ordinary, and Preferred", *Bulletin of the Entomological Society of Canada* 5(1): 3.

Could the gold medallists then be referred to as "gilt edged"?

Ian Outram
Maritimes Forest Research Centre
Fredericton, N.B.

CANADIAN ENTOMOLOGIST — APPOINTMENTS

Dr. V. R. Vickery, Lyman Entomological Museum and Research Laboratory, Macdonald Campus, McGill University, Ste. Anne de Bellevue, P.Q. has accepted appointment as Editor of the *Canadian Entomologist* for the balance of the term of office of President D. K. McE. Kevan and the present Executive Committee. Four Associate Editors have also been appointed and will be responsible for papers on particular subjects. They are:

C. V. G. Morgan, Canada Agriculture, Summerland — Taxonomy, Morphology.
Rita Wensler, University of Guelph — Physiology.

R. F. Morris, Canadian Forestry Service, Fredericton — Ecology, Biology.

C. R. Harris, Canada Agriculture, London — Economic Entomology.

The positions of Assistant Editor are intended to disperse the work load and provide better service to authors.

Miss Margaret McBride continues as Managing Editor. We hope the new arrangement may make her task somewhat lighter. She has done an admirable job during the difficult transition period between Editors.

Papers and Memoirs submitted for publication should be sent to Miss M. McBride, *The Canadian Entomologist*, 1320 Carling Ave., Ottawa, Canada, K1Z 7K9.

Dr. Vickery, has issued the following statement:

"We hope the new system will work well and that members will bear with us during the initial stages of operation. Any suggestions will be most welcome. We will welcome papers on all aspects of entomology. Our wish is to serve you well."

FROM THE CANADIAN ENTOMOLOGIST 100 YEARS AGO

At the annual general meeting of the Society, held at London on the 25th ult., the Rev. C. J. S. Bethune tendered his resignation of the office of General Editor, and Mr. Wm. Saunders was unanimously elected to take his place. (5:181)

THANK YOU PAT

Dr. D. P. Pielou, who has served the Society as its Editor for nearly eight years, retired from this responsible and onerous positions as of January 1973.

Pat Pielou's term of office was marked by two important aims that he set for himself from the beginning. In the first place the Society's journal should include all phases of entomology as practiced in Canada; it should be a comprehensive, representative journal not weighted towards particular aspects. It would thus serve the needs of the Society as a whole. Secondly, he was concerned to provide a place of publication not only for mature or established entomologists but also for less experienced workers, and for those whose ideas, perhaps more original, perhaps merely less fully organised, might not always find favour with a formal referee. Thus he used his influence to encourage the student, to safeguard open discussion, and, again, to serve the requirements of the membership as a whole. If a small proportion of papers of questionable merit were accepted in the process, this was perhaps a small price to pay.

His time in office was characterised by a steady and extensive growth of *The Canadian Entomologist* both in range and size, and a sustained flow of *Memoirs*. He and his Assistant Editors — at first Mrs. D. M. Archibald, but since December 1966 Miss Margaret McBride — took these developments in their stride, and publication has continued with precision, and usually with pleasingly brief waiting times 'in press'. The good working relationship with officers of the Runge Press has also contributed to this satisfactory situation. During this period also the *Bulletin* was founded, edited at the start by Pat Pielou, but now an entirely separate, and flourishing, undertaking. Some time ago Dr. Pielou suggested that *The Canadian Entomologist* might well be divided into two series, to control both the size and diversity of the volumes, and although no decision was taken the question may arise again, not far in the future.

In 1971 Dr. Pielou resigned his position with the Canada Department of Agriculture, Ottawa, to take up a Fellowship at Dalhousie University. The close partnership with Margaret McBride, and the latter's industrious competence with manuscripts and in relations with the printer, ensured however that publication continued as before, with a minimum of difficulties and no loss of quality. The Society is now in the happy position of having an editorial office of its own and a demonstrated ability to do the job smoothly wherever the Editor may be located.

The Society offers to Dr. Pielou its sincere thanks at the conclusion of this long and valuable service. It is understood that he will also relinquish his position at Dalhousie University at the end of the present academic year, and we wish him and his distinguished wife, Chris Pielou, a prosperous and happy future.

FROM THE CANADIAN ENTOMOLOGIST 100 YEARS AGO

For some time past Mr. Bethune has desired to vacate the position of Editor — not from any diminution in interest in the publication, or from any cooling in zeal and attachment to the cause of Entomology — but solely because his position as Head Master of Trinity College School entails upon him so much labour and engrosses so much of his time that he cannot satisfactorily perform the duties that properly devolve upon the Editor of the *CANADIAN ENTOMOLOGIST*. (5:181)

ENTOMOLOGICAL SOCIETY OF CANADA GOLD MEDAL



Awarded to Professor Brian Hocking

Professor Brian Hocking, Chairman, Department of Entomology, University of Alberta, Edmonton has been awarded the Entomological Society of Canada Gold Medal for Outstanding Achievement in Canadian Entomology. The formal presentation will be made in early October when the Society holds its Annual Meeting in Banff in conjunction with the Entomological Society of Alberta.

Professor Hocking is an internationally recognized authority on insect flight, and on the behaviour and control of mosquitoes and blackflies. As an expert on biting flies, he has held long-term appointments to the Advisory Committee on Entomological Research of the Defence Research Board of Canada, and has conducted research on insect-borne diseases in Burma for the World Health Organization. He is the author of more than 100 papers on a wide variety of entomological topics, as well as three books.

Professor Hocking has an outstanding record as a university teacher of entomology, at both the undergraduate and graduate levels. As chairman of his department, he has guided its growth into a leading centre of graduate training and research.

He has been a stimulating and persuasive advocate of the study of biology, and especially entomology, through his books and his numerous radio talks and television appearances. He has served his community also by playing a major role in developing a high school curriculum in biology, and in the field of extension entomology.

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

BIOLOGICAL CONTROL OF WHITE MAN

Freetown, May 7 — The malaria-carrying mosquito was honoured in Sierra Leone today for making the country the "white man's grave" in the past and preventing Europeans setting here.

The Order of the Mosquito has been created to reward acts of military or civil gallantry, the President's office announces.

— Agence France Presse.

WRITING PRIZE 1973

Entomological Society of Canada

To encourage people to enter the field of popular science writing, the Entomological Society of Canada is offering three prizes, one of \$500 and two of \$250 each, for good popular articles on entomological subjects. Five additional prizes of \$100 each are being provided by *Insect World Digest* for five runners-up.

Entries will be expected to show the beauty, intricacy and interest of the insect world to the non-scientist. Attractive illustrations, color photographs and subjects that demonstrate relationships between insects and man may be advantageous, but each entry will be judged on its own merits with regard to literary style, scientific accuracy and general interest. Entries should be of a quality acceptable to widely read magazines and journals.

As a condition of entry, authors will assign all rights to prize-winning articles to the Entomological Society of Canada. All other entries will be returned to the authors after judging is complete, provided that they are accompanied by a self-addressed envelope and return postage (Canadian stamps or international reply coupon).

The eight prize-winning articles will be published by *Insect World Digest* within twelve months of announcement of the awards, without additional payment to the authors. Other entries will be reviewed by *Insect World Digest* with a view to publication and payment at their regular rates, subject to direct negotiation with the authors.

The Entomological Society of Canada may submit prize-winning articles to other magazines or journals after they have appeared in *Insect World Digest*. The proceeds from these and any other sales will be divided between authors (70%) and the Entomological Society of Canada (30%).

Entries will be judged by a committee appointed by the Entomological Society of Canada. The decisions of the committee will be final and prizes will be awarded only to entries of satisfactory quality.

To be eligible an entrant must be either a resident of Canada or a member of the Entomological Society of Canada. Entry forms may be obtained from

K. S. McKinlay,
Chairman, Entomological Society of Canada
Committee on Publicizing Entomology,
Agriculture Canada Research Station,
University Campus,
Saskatoon, Sask. S7N 0X2

and entries must be despatched to reach that address by 31 December 1973.

E.S.A. REPRESENTATIVE TO BOARD OF E.S.C.

Dr. C. R. Harris has been appointed by Dr. G. E. Guyer, President of the Entomological Society of America, to be the representative of that Society to the Governing Board of the Entomological Society of Canada. He replaces Mr. H. F. Madsen.

JEAN-PAUL PERRON A LA RETRAITE A ST-JEAN



Monsieur Jean-Paul Perron, de la Station de Recherches de St-Jean, a pris sa retraite en mai 1972 après 35 années de service au Ministère de l'Agriculture du Canada.

Jean-Paul est né à Ottawa où il fit ses études primaires et secondaires. Ensuite, il s'inscrivit à la Faculté d'Agronomie de l'Université Laval où il obtint en 1935 le titre de Bachelier en Sciences Agricoles (B.S.A.). De 1936 à 1939, il travailla à la Ferme Expérimentale d'Ottawa où il poursuivit des études de biologie et de répression sur la mouche de l'oignon (*Hylemya antiqua* (Meig.)), la piéride du chou (*Pieris rapae* (L.)), et la chrysomèle rayée du concombre (*Acalyma vitatta* (F.)). Ses talents l'ont amené à travailler ensuite sur la biologie et la répression de la pyrale du pois (*Laspeyresia nigricana* (Steph.)) à New Carlisle en Gaspésie, de 1939 à 1941. Après ce court séjour dans la région de la Baie des Chaleurs, il revint à la Ferme Centrale où, de 1941 à 1947, il entreprit des essais de répression chimique sur trois insectes d'importance économique, i.e., la mouche de l'oignon (*H. antiqua*), le puceron du chou (*Brevicoryne brassicae* (L.)), et la cicadelle de la pomme de terre (*Empoasca fabae* (Harr.)). En 1946, il contribua largement à la réalisation d'un film intitulé "Les insectes du potager".

En 1947, lorsque le laboratoire de St-Jean prit de l'expansion dans le domaine des légumes, on fit appel à l'expérience de M. Perron qui accepta de poursuivre sa carrière d'entomologiste à St-Jean. Malgré certaines difficultés communes à tous les pionniers, Jean-Paul réussit à faire des études de biologie, d'écologie et de répression sur la mouche de l'oignon (*H. antiqua*), la pyrale du maïs (*Ostrinia nubilalis* (Hbn.)), le charançon de la luzerne (*Hypera postica* (Cyll.)) et le charançon de la carotte (*Listronotus oregonensis* (Lec.)), et la cicadelle à six points (*Macrostelus fascifrons* (Stål)) sur la laitue.

En somme, il s'est grandement intéressé à la plupart des problèmes entomologiques des cultures maraîchères au Québec.

Jean-Paul était membre de la Société Entomologique d'Amérique, de la Société Entomologique du Canada, de la Société Entomologique du Québec, dont il fut directeur et vice-président de la Section de Montréal, de la Société de Protection des Plantes du Québec dont il fut plusieurs années directeurs, de la Société de Biologie de Montréal et de la Corporation des Agronomes de la Province de Québec. Il continue à participer aux activités de plusieurs de ces associations.

Jean-Paul présenta plusieurs communications scientifiques à ces différentes associations et publia la plupart de ses travaux dans des revues entomologiques, notamment dans les Rapports Annuels de la Société Entomologique d'Ontario (1943-1944-1945), dans Scientific Agriculture (1944), dans les Rapports Annuels de la Société de Protection des Plantes du Québec (1950-1951-1952-1954-1956), dans Canadian Entomologist (1952-1953-1954-1955-1956-1958-1959-1960-1961-1963-1970-1971), dans les Annales de la Société Entomologique du Québec (1956-1959-1962-1969-1972), dans Canadian Journal of Plant Science (1960-1962), et dans Phytoprotection (1965-1968-1972). Il publia également plusieurs articles de vulgarisation dans Agriculture, La Terre de Chez-Nous, Québec Horticole, et dans des Circulaires du Ministère de l'Agriculture du Canada.

Jean-Paul est marié et père de trois enfants: Louise (Mme J. Tremblay), Marc et Jocelyne. Même à sa retraite, il s'intéresse encore aux sciences naturelles. Ornithologiste averti, il est un de ceux qui connaît le mieux les oiseaux de la région de Montréal et de la Belle Province. Sur les bords du Richelieu où il possède un chalet d'été, il s'adonne à son sport favori, la pêche.

B. J. Parent

CANACOLL FOUNDATION

Canacoll Foundation is a newly formed, independent, nonprofit organization, incorporated and operating under the laws of Canada. The objectives of Canacoll are to advance taxonomic research on the Canadian National Collection (C.N.C.), one of the largest insect collections in North America, and to establish and maintain the Canacoll Endowment Fund to further this activity.

The main function of Canacoll is to support outside specialists for short periods of time to curate and review parts of the C.N.C., in accordance with the needs as determined by its curators, the staff of the Entomology Research Institute (E.R.I.). The C.N.C. benefits from having its collections more completely arranged and therefore more useful as a reference and research tool for entomologists the world over. The outside specialists benefit from working with and learning what is present in the collection.

The effectiveness of Canacoll will depend on the cooperation, already established, between it and the E.R.I. and on contributions to its endowment fund.

Tax-deductible contributions to the Canacoll Endowment Fund may take the form of donations, bequests, memorial funds, donations in lieu of flowers, etc. Only the interest accruing from the fund will be used to support the objectives of Canacoll. No staff member or research associate of the E.R.I. may benefit financially from the endowment fund. Anyone interested in becoming a member of Canacoll may do so by paying an initial fee of \$11, and \$1 per year thereafter; this money will be used for operating expenses.

More information about Canacoll may be obtained by writing to: Canacoll Foundation, K. W. Neatby Bldg., Room 4058, Carling Avenue, Ottawa, Canada. K1A 0C6.

ENTOMOLOGICAL SOCIETY OF BRITISH COLUMBIA

The 72nd annual meeting of the Entomological Society of British Columbia was held 29 March 1973, at the CDA Vancouver Research Station. Twenty-eight members attended the presentation of papers during the day. The meeting concluded with a banquet at the Faculty Club, University of B.C., where Dr. G.G.E. Scudder gave an illustrated talk on his recent sabbatical study trip to New Guinea.

The 1973 meeting of the Society will be held jointly with the Washington State Entomological Society at a location to be selected in the Okanagan Valley of British Columbia.

GEORGE BERNARD RICH 1914-1973

Those who knew George Rich, as a friend and citizen, as a scientist or as one who aided the livestock industry, will be sorry indeed to learn of his death. Never an outgoing person, in his quiet way, he contributed a great deal to his community and won local recognition and esteem for valued time he donated to the Boy Scout and Girl Guide movements, philatelic and garden clubs and school Science Fairs. His knowledgeable and friendly advice and willing help to all ages was always available for those who sought it.

His contributions to science arise mainly from his last 15 years with the Canada Department of Agriculture during which period he published 15 papers on livestock pests and their control. Because of its scientific thoroughness and quality, much of this work has come to be recognized on an international level and is regarded highly by colleagues in the U.S. and Europe. All of his studies have a conscientious and applied aspect, and it is to this end that his loss will particularly be reflected by those engaged in the production of animal products. His statistical studies on losses due to the warble fly (estimated at \$654,000 for 1968 for Alberta and Saskatchewan) and his recommendations for appropriate control measures have been valued by advisors at Ottawa, livestock processing plant operators, and farmers alike.

George Bernard Rich was born in Southey, Saskatchewan in 1914. His early life was spent on his father's farm where he gained his early and valuable experiences in handling livestock, trapping and woodsmanship — qualifications that fitted well into his final career.

In 1940 he enlisted in the army of World War II and, after preliminary training, served overseas with the 44th Battery Royal Canadian Artillery until 1946. He took part in the Normandy landings and continued in active service through France and Holland. At the end of the war he enrolled at the University of British Columbia and, under the tutelage of Professor G. J. Spencer, whom he admired greatly, graduated with honours in the biological sciences.

George's first job as an entomologist was in 1949 when, as Student Assistant, he was employed during the summer at the Kamloops C. D. A. Livestock Insect Laboratory. After a further year of graduate study, he was taken on full strength as a Technical Officer, and as such, quickly adapted himself to research on the effect of the newly discovered insecticides, DDT and BHC, on parasite and host. His first studies were on hog lice and marked the beginning of his future work on systemic materials. Although his tests ruled out BHC as being too hazardous as an oral panacea, he foresaw a day when parasites might be killed in or on a host by having its body absorb a material toxic only to the parasite.

The warble fly, at this time, was still being controlled by the use of derris powder, but serious thought was being given to the effect of natural factors as an aid to its suppression. With geographical barriers and predation in mind, Rich made preliminary flight-mill studies on the flight range of the fly in the laboratory and conducted extensive observations on the natural mortality of its grubs in the field. He showed that birds and mice may destroy up to 95% of a grub drop. However, as literature brought to light more promising systemic insecticides, he abandoned these basic studies for the more pressing need of controlled experiments with the new materials in actual ranch herds. To the latter task he devoted all his energy and farming experience. Laboratory and Provincial participants in the "warble crew" will well remember him, spattered in mud and cow saliva, as he, alone, gave appropriate doses of bolus pills to bellowing stanchioned cattle. This was strenuous and exacting work,



George Rich (with net) and Imants Bergis collecting *Monoxia grisea* beetles from big sagebrush, during a period of unusual abundance in 1972. They were interested in the possibilities of the beetle for biological control of big sagebrush.

for each dosage had to be adjusted in accordance with the recipient's weight. In one test, George and his crew treated 530 cattle at the rate of one every 1.4 minutes! The later "Pour-on" systemics eliminated much of this chore, but the grueling job of evaluating the materials remained. Every grub, dead or alive, that had shown up the following spring had to be manually squeezed out of the animals' backs. An untreated control calf might harbour as many as 229 grubs; the average number in one early test was 63.5 per animal. Between the years of 1956 and 1964 his observations had been made on more than 11,500 cattle. The results of these tests served to evaluate materials being presently recommended to ranchers and to discover dates that were most appropriate for the treatment of cattle in British Columbia. His last tests showed that 96.5% grub control can be expected of the better materials. His statistical studies from "area control projects" showed at what level of grub control treatment was no longer economical.

With ever an eye for fill-in projects in the cattle industry, George sandwiched between his warble studies a series of tests involving louse control by systemic materials. He was also the first to witness cattle dying from the effects of the spinose ear tick — a pest with which he became well acquainted and which he showed to exist in the ears of large numbers of wild deer in British Columbia.

Lately, when certain pesticides were banned for use on livestock, Rich sought substitutes for the recommended form of BHC for tick control. While he was testing alternative materials on tick-infested cattle he observed that even untreated control animals often showed a poor response to tick infestations. He reasoned and showed that an immunity to ticks from earlier infestations may occur, and when this happened on the range, it could have a bearing on the

prone to tick paralysis. This opened up a study similar to his earlier interests in cattle-warble relationships, when he sought to determine the immunological response of cows to their earlier invasions of grubs. Unfortunately, he was never able to finish these explorations.

The passing of George Rich also marks the close of 45 years of continuous livestock entomological research at Kamloops which over the years employed a total of 15 entomologists with more than 60 persons in supporting positions and at its peak period, employed seven entomologists. Since then, work was gradually phased out, finally leaving Rich as the remaining entomologist to tidy the threads of warble, tick and newly acquired biological-control studies. This, he had hoped to do during the next couple of years.

Although his death was not entirely unexpected — he had survived three heart attacks in 13 years — his passing came as a shock to all. His fourth attack took him quickly and quietly on the 25th of February, 1973, while he was watching a neighbour prune one of his trees. A perfectionist gardener, George took great pride in the symmetry of his lilacs and birches. Besides gardening, he took pleasure in stamps and woodworking. He had a keen appreciation for art, particularly ceramics and carvings, and was an ardent reader of history. His memory for facts and literature was remarkable; on one occasion when returning from a field trip, he entertained his fellow passengers with an hour's recitation of the works of Burns, Service and other poets.

He leaves to mourn, his wife, Mary, three children, Ian David, Janet Sheilagh and Lindsey Edith, two sisters and one brother.

J. D. Gregson

BOOK REVIEW

The Butterflies of Georgia, Lucien Harris Jr., 1972. University of Oklahoma Press, Norman. 326 pp, 23 pls (10 colour). \$7.95.

This volume presents data of considerable interest to those interested in the geographical distribution of North American butterflies. Georgia, situated as it is, has a mixture of both northern and southern species. The author, aware of the importance of Georgia from the distributional point of view, has presented extensive data dealing with occurrences in the Mountain, Piedmont and Coastal regions together with date of captures, food plants and general ecology.

The literature has been well covered with well-written digests of some of the more important contributions to the ecology of particular species.

The taxonomy has been brought up to date with a note concerning previous designations.

In addition to the value of this work to the professional lepidopterist it is also of considerable interest to the amateur. Common names, where applicable, have been given without in any way distracting from the accuracy of the scientific name and the description. In addition the author has added the naturalist's touch, unfortunately absent in so many modern lists, by describing his personal experiences in the field.

The Butterflies of Georgia is a valuable addition to the library of all interested in butterfly ecology and takes its place along with other state books such as those for Florida, Colorado, California and Virginia.

Fred A. Urquhart

CUTWORMS GAIN RESPITE



Dr. Howard McDonald, a key figure in many battles against crop-destroying insect pests on the prairies for nearly 40 years, retired in July 1972. At the time of his retirement, Howard was head of the Entomology Section at the Canada Agriculture Research Station, Saskatoon, a post he held for 20 years; he was also Assistant Director of the Station.

Raised on a farm at Glenside, Saskatchewan, Howard attended the School of Agriculture in Saskatoon, obtaining his diploma in 1931. Continuing his education at the University of Saskatchewan, he earned his B.S.A. in 1935 and his Master's degree in 1938. He studied for his Ph.D. at Ohio State University, doing his thesis on the biology and control of the flax bollworm, *Heliothis ononis* Schiff., and graduated with his doctorate in 1947.

Dr. McDonald began his career with the Canada Department of Agriculture in 1933, as a student assistant in what was then known as the Dominion Entomology Laboratory. In 1946, after working under Dr. K. M. King on a variety of studies of insect pest problems, he was placed in charge of investigations of the biology and control of cutworms and armyworms. The redbacked cutworm was the main object of his attention, but at the same time he was making a thorough study of the new pest of flax in Western Canada — the flax bollworm. He also directed initial studies of the biology and control of the bertha armyworm on rape, a crop first introduced to the Canadian prairies in the mid-1940s. In 1952 Howard was appointed Head of the Entomological Laboratory, which in 1957 became the Entomology Section of the new C.D.A. Research Station on the University campus in Saskatoon. As head of the entomology program, he was actively involved in directing a broad range of studies carried on by colleagues, as well as conducting himself a continuing series of wars against grasshoppers, cutworms, beet webworms, the bertha armyworm, and others.

Dr. Howard McDonald applied unstintingly his enviable knowledge and understanding of the Prairie Provinces, with his entomological know-how, for the benefit of those who wanted his advice. It was not just a case of hard work, though he was continuously guilty of that; Howard knew his stuff, and he passed it on to the people who needed it in an exceptionally intelligent and effective way. He is the author of 65 research papers and reports, and he has served as a leader on numerous advisory committees including the Western Committee on Crop Pesticides, the Saskatchewan Advisory Council on Insect Control, the Canada Committee on Pesticide Usage in Agriculture, and the International Great Plains Conference of Entomologists. He is a member of the Entomological Societies of Saskatchewan, Canada, and America.

Howard has not restricted his considerable talents entirely to his vocation. He has always shown a praiseworthy thoughtfulness regarding the needs of other people, and has contributed unselfishly his time and abilities to community affairs. Howard has by no means "retired" from these nor, for that matter, from entomology, and his associates look forward to his continuing participation in activities in Saskatoon and the Prairies. He and Audrey plan to stay in Saskatoon, and will always be "at home" to their many friends.

R. H. Burrage

ACTIONS OF THE GOVERNING BOARD

12-13 March 1973

- | | |
|------------------------|---|
| Appointments | 1. Appointed R. E. Bellamy, Chairman, Membership Committee; D. M. Wood, member, Finance Committee. |
| Fellowships | 2. Established an ad hoc Fellowship Committee to prepare a proposal on a Fellowship Class with J. W. McB. Cameron and W. G. Wellington as members. |
| Photo Salon | 3. Established an ad hoc Insect Photo Salon Committee with R. A. Brust as chairman. |
| Silver Medal | 4. Proposed that the Society establish an annual award "The ESC Silver Medal", to be awarded to distinguished entomologists under 40 years of age, using selection criteria similar to those of the Gold Medal. |
| Service Awards | 5. Service Award Shields have been presented to 25 former presidents, secretaries, treasurers and editors (or their widows). This will be continued. |
| Editorial Policy | 6. The Editorial Board was asked to develop a system of Associate Editors to help the new Editor (when appointed) with the refereeing of manuscripts for The Canadian Entomologist and the Memoirs , and to provide a report on long-term publication policy. |
| Achievement Award | 7. Announced that Brian Hocking is the recipient for 1973. |
| Employment | 8. The Employment Committee is preparing a report on employment opportunities for entomologists in Canada, and on the justification of biological research on economic grounds, and would appreciate input from members. |
| Finance | 9. The Finance Committee is to examine long-term financial policy related to possible purchase of a permanent headquarters, journal costs and the feasibility of separating membership fee from journal subscription. |
| Annual Meeting | 10. Noted that the plans for the 1973 Annual Meeting with the E.S. Alta. in Banff are well in hand. |
| Publicizing Entomology | 11. Approved the awarding of three ESC Science Writing Prizes in 1973 totalling \$1000 for articles that would be then published in Insect World Digest . The feasibility of the Society publishing a journal on popular entomology aimed at the schools will be explored. |
| Science Policy | 12. A report is being prepared on "The Contemporary Role and Responsibility of the ESC". |
| | 13. The members of the Society can influence the Biological Council of Canada through ESC Directors and ESC representatives to the B.C.C. The Society will present to the B.C.C. recommendations for action on important biological matters, such as 1) greater financial support |

for increased communication between Canadian scientists, and 2) a faunal survey of Canada. Members are asked to suggest important concerns on which the B.C.C. might act.

Student
Encouragement

14. The Society makes available annually \$100 to each Regional Society for student encouragement. It was suggested that this might be used for subscriptions to *Insect World Digest* at \$10 each to be placed in High School libraries.

15. Noted a Modular Course in Entomology being prepared at the Macdonald Campus of McGill University. It will have 47 modules, such as "Biocides as Pollutants", with audio-visual aids, models, specimens and a few taped lectures.

By-Laws

16. Revisions to the By-Laws are to be presented to the members for comment before being voted upon.

REVIEW

Canada, Science and International Affairs. Science Council of Canada, Report No. 20

This report deals with the interaction of politics in Canada's participation with international scientific affairs. It is a first "broad-brush" attempt to shed light on the complex issues surrounding international scientific affairs. For the specific problems identified in this report, the Council states implications and outlines the direction in which solutions will most likely be found. No "cook-book" recommendations are made in this report. Attitudes must change before substantial progress can be made.

Some of the Conclusions

Science, within the area examined by this report, enters the international scene in at least four ways: 1. As the force binding individual scientist to individual scientist, resulting in the "international community" of international science. 2. As an organized activity which appears through the specialized agencies of United Nations and through a variety of non-governmental organizations. 3. As an optional strategy for the diplomatic contacts between countries. 4. As an input in aid programs to developing countries.

To integrate Canadian science policy considerations with international affairs, it is essential to act at three important levels: 1. The mechanisms necessary to maintain an overview of the extent of Canadian participation in international scientific affairs must be developed. The Ministry of State for Science and Technology should establish a centralized Information Service on participation in scientific affairs. 2. The mechanisms must be used as a basis for selecting the areas of international scientific affairs where Canada feels it wants to participate actively. 3. Through such an integrated outlook, science can become a truly useful instrument for foreign policy and help Canada decide on its role vis-à-vis the advanced and less developed countries.

Contributed by S.C.C.

23rd ANNUAL MEETING

Entomological Society of Canada

21st ANNUAL MEETING

Entomological Society of Alberta

1-5 October 1973

Banff School of Fine Arts

Banff, Alberta, Canada



Feature Symposium
(2 October)

SYSTEMS APPROACH TO PEST MANAGEMENT

This subject of current entomological importance will be broadly based so as to attract participation and interest in all facets of entomological activity and to unify the scientific and technological aspects of entomology.

Discussion Groups
(2, 3, 4 October)

As an alternative to submitted papers, members are invited (see **Bulletin** 5(1):18) to participate in discussion groups on timely and interesting topics and problems. The participation form was due 15 June 1973. If you have not yet returned yours, do so now, you will not necessarily be excluded.

Special Interest Groups
(1, 5 October)

Informal conferences on specialized topics are being organized, and will be announced later.

Submitted Papers
(2, 3, 4 October)

Contributors must complete and submit the adjacent form to Dr. Charnetski, not later than 6 July 1973.

ACCOMODATION REGISTRATION

(Deadline - 5 September 1973)

RETURN TO: Dr. G. E. Swailes, Agriculture Canada
Research Station, Lethbridge, Alberta T1J 4B1

Name:

Address:

Date of Arrival:

- (a) After Breakfast - 8:00 a.m.
(b) After Lunch - 12:30 noon
(c) After Supper - 6.00 p.m.
(Please circle)

Date of Departure:

- (a) After Breakfast - 8:00 a.m.
(b) After Lunch - 12:30 noon
(c) After Supper - 6:00 p.m.
(Please circle)

- (a) Active
(b) Retired
(Please circle)

PLEASE TURN OVER

SUBMITTED PAPER REPLY FORM

(Deadline - 6 July 1973)

RETURN TO: Dr. W. A. Charnetski, Agriculture Canada Research
Station, Lethbridge, Alberta T1J 4B1

PLEASE TYPE

Author's Name:

Institution and address:

.....
.....

PLEASE TURN OVER

ACCOMMODATION REGISTRATION (Cont'd)

Accommodation Required:

..... Single with bath at \$18.00 per day including three meals.

(Limited availability - refer below).

..... Twin beds with bath at \$14.00 per day sharing, including three meals.

Will share with

PLEASE NOTE:

1. If many requests are received for single accommodation and this exceeds the quota for our group, it may not be possible to reserve your preference for a single room. As an alternative, please indicate the name of the person with whom you wish to share. After the Centre is filled, accommodations will be made in the city. These may be a 10-20 minute walk from the Banff Centre.
2. If you plan to attend but arrange your own accommodations please advise us. Meals without accommodations at the Banff Centre can be arranged.

PLEASE TURN OVER

SUBMITTED PAPER REPLY FORM (Cont'd)

Title of Paper (not to exceed 15 words):

.....

.....

To be read by:

Projection equipment required: 2 x 2 , 16 mm movie

(Other sizes and glass mounts not acceptable).

An abstract of less than 200 words must be received at Lethbridge by 31 August 1973.

PLEASE TURN OVER

THIRD ANNUAL INSECT PHOTO SALON ENTOMOLOGICAL SOCIETY OF CANADA

Members of the Entomological Society of Canada and biological photographers are invited to submit black and white prints and color prints of insects, related arthropods, insect damage, nests, tracks, etc. for exhibit at the Banff Meeting, 1-5 October 1973.

First prize in each category is a beautiful bronze plaque. Second, third and merit awards will be given. All entries fulfilling entry requirements will be judged and displayed at the Banff meetings.

A public showing of the photographs will be on display during the Meeting. The winners will be announced in a future issue of the *Bulletin of the Entomological Society of Canada*.

Judges: Mr. Eric Holland, Professional Photographer,
University of Manitoba

Dr. Andy Hamilton, Entomologist, Environment Canada

Dr. John Martens, Research Scientist, C.D.A.

Note: The success of the photo salon depends on you. Please notify your photo section and any other potential contributor. Facsimiles of the entry form are acceptable.

ENTRY FORM THIRD ANNUAL INSECT PHOTO SALON

Name

Street

City Province/State

Zone/Zip Code Member Ent. Soc. Canada

Fee enclosed \$ + return postage

INSECT PHOTO SALON

Conditions of Entry

1. Subject: Entomology in the broad sense.
2. The competition is open to amateur and professional photographers.
3. Two categories: Black and White prints and Color prints.
4. Prints must be 8" x 10" or larger, mounted on 11" x 14" cards.
5. Entries may not exceed a total of 4 prints per person.
6. Prints may be titled but not otherwise identified.
7. Judging will be completed before the meeting. First prize will not be awarded more than twice to the same person.
8. A completed entry form or a facsimile must accompany each entry.
9. Entry fee is \$1.50 per person.
10. Entries must be postmarked 14 September or earlier.
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 R. A. BRUST. 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 Photo Salon Committee will be responsible for loss or damage.

Insect Photo Salon Committee

Sheldon Zettler - Environment Canada, Winnipeg
Bob Cheale - CDA, Winnipeg
R. A. Brust, Chairman, University of Manitoba,
Winnipeg

IMPORTANT

Have you enclosed - prints, return self-addressed envelope with postage, entry form and fee? All conditions must be complied with or entries will not be judged.

Address enquiries and make cheques and money orders payable to:

Dr. R. A. Brust
Department of Entomology
University of Manitoba
Winnipeg, Man. R3T 2N2

From the Journals

MERCURY IN THE ENVIRONMENT

The occurrence and effects of mercury in the environment have been reviewed in detail by J. G. Saha, Canada Agriculture, Saskatoon (*Residue Review* 42: 103 - 163).

Mercury is a volatile metal and its common ore, cinnabar, generally occurs in shallow deposits. Thus mercury occurs throughout the environment and in every living thing in minute amounts. All living things have therefore evolved in its presence.

It is estimated that 100,000 tons of mercury fall on the earth every year in rain. Man's annual production of mercury on a world basis is only 10,000 tons. However, man's activities can cause dangerous, very localised concentrations. For example, the discharge of mercury-containing effluents into bodies of water by industry has given rise to high levels of methyl mercury in fish (over 1 part per million). The notorious Minimata affair when a number of people died of mercury poisoning had this kind of origin.

In general, however, the risk of mercury poisoning under normal conditions appears small. Analyses have shown that over the last thirty years mercury levels in food have not changed.

From the Journals

A MOVE IN THE RIGHT DIRECTION

One sure way to minimise any risks involved in the use of pesticides is to reduce the total amount used. R. P. Jaques at Canada Agriculture, Harrow, has been studying the effects of combining viruses or bacteria with reduced amounts of insecticides (*Can. Ent.* 105: 21-27. 1973).

He has found that these biological agents can be substituted for chemical insecticides or used in combination with chemicals for control of the cabbage looper and cabbageworm. For example, 0.25 lb. of methomyl/acre combined with viruses that kill the cabbage looper and cabbageworm controlled larvae of these insects on late cabbage as well as did 0.5 lb. of methomyl/acre used alone. Control of the looper and cabbageworm by the viruses applied alone was slightly inferior to that by methomyl used at the higher rate but applications of the bacterium *Bacillus thuringiensis* gave control equal or superior to that by methomyl.

His work is a good example of the potential of integration of biological and chemical insecticides for insect control and is certainly a move in the right direction.

ACHIEVEMENT AWARD, TERMS OF REFERENCE

(April 1973)

I. TERMS OF THE AWARD

1. The Entomological Society of Canada Gold Medal for Outstanding Achievement in Canadian Entomology (referred to hereafter as the Award) shall be awarded annually by the Society, save when the Achievement Award Committee or the Governing Board deem that no Award should be made.

The following conditions shall govern the Award:

2. The recipient shall be judged to have made an outstanding contribution to entomology in Canada on the basis, not only of demonstrated competence, but also of one or more of the following criteria:
 - (a) Superior research accomplishment, either as a single contribution or as a series of associated endeavours, which may be in either entomology per se or a related field in which the results obtained are of great consequence for entomology in Canada;
 - (b) Meritorious contribution to entomological scholarship or literature, whether or not this be based upon the recipient's own original research, and whether or not it be based upon predominantly Canadian material, providing that the contribution be indentifiably Canadian in origin;
 - (c) Dedicated and fruitful service in the field of entomological education in Canada;
 - (d) Unusually valuable practical application of scientific or technological expertise to the credit of entomology in Canada;
 - (e) Special contributions in the fields of advisory, extension, industrial or public relations work in, or to the credit of, entomology in Canada;
 - (f) Administrative abilities leading to the achievements of others or to general advances in the science or prestige of entomology in Canada;
 - (g) Long and meritorious service to the Society, or to an affiliated society.
3. No more than one such Award shall be made each year, but, where circumstances warrant, more than one individual may be cited in connection with a single Award.
4. Recipients of the Award need not be members of the Society, nor need they be domiciled in Canada, providing that their contribution be judged to have, or to have had, major impact on entomology in Canada.
5. The Award may be made on more than one occasion to the same individual or group of individuals, but only for distinctly different contributions to entomology in Canada.

II. ACHIEVEMENT AWARD COMMITTEE

1. The Committee shall consist of three persons who shall be members of the Society: the President-Elect, who shall act as Chairman (*ex officio*), and two Assessors nominated by him.
2. At the first meeting following his taking office as President-Elect, the Chairman shall present to the Governing Board for their approval the names of his choice of Assessors.
3. The names of the Assessors shall not be publicized, but as soon as the Committee is formed, this information shall be made available to any member of the Society in good standing who requests it.
4. The names of nominees for the Award reaching the Committee shall be held in confidence by the Committee alone, save that they shall be passed on to succeeding committees (see II.13).
5. The Award Committee shall make no nomination of its own and shall not consider previous nominees unless they be formally renominated by other members of the Society. This provision does not preclude the Committee from suggesting such renomination.
6. The Committee shall not divulge to anyone its reasons for selecting any particular nominee; no written record of the Committee's deliberations on this matter shall be preserved.
7. The Governing Board shall be informed of the Committee's choice of nominee by the Chairman of the Award Committee, or his delegate (who shall be a member of the Board, normally the President of the Society), at the first meeting of the Board subsequent to the selection being made. The name of the recommended nominee shall normally be reported verbally to the Board in the course of the Award Committee's report. A simple written statement of the recommendation, signed by all members of the Award Committee, shall be presented to the Governing Board and deposited with the Secretary of the Society at that time.
8. The Governing Board shall not question the Award Committee regarding the recommendation, but shall be free to discuss or reject the latter. In the event of the Award Committee recommending that no Award be made, such a recommendation shall be final.
9. The recommendation of the Award Committee shall require the endorsement of a simple majority of the Governing Board present at the meeting at which the Committee's recommendation is made known. The Chairman of the Governing Board shall have the casting vote.
10. In the event of the rejection of the recommendation of the Award Committee by the Governing Board, no award will be made for the year in question.
11. The name of the recipient of the Award shall be made public as soon as this has received the endorsement of the Governing Board and the recipient has been informed, usually by telegram, on the same day. The means by which the Award shall be announced shall be at the discretion of the Governing Board, but shall include a brief statement in the **Bulletin** of the Society in the first possible issue following the announcement of the Award.

12. As soon as possible after the Governing Board's endorsement, the Chairman of the Award Committee shall provide the Secretary of the Society with two texts relating to the recipient: a press release of 200-300 words; and biographical material to be used in the **Bulletin** and any brochure that may be distributed when the Award is presented.
13. The Chairman of the Award Committee shall keep in strict confidence a cumulative file of names, together with the appropriate documentation, for all nominations for the Award received from the Membership, and shall pass this file in confidence to his successor when his term of office expires.

III. RECOMMENDATIONS ON NOMINATION PROCEDURE

1. When the final announcements for the Annual General Meeting are sent out to the Membership, there shall be included a reminder that nominations for the Achievement Award should be made in writing and sent in a sealed envelope marked "Confidential - Achievement Award" to the incoming Chairman of the Achievement Award Committee as soon as possible following the Annual General Meeting. A notice to this effect shall also be included in the last issue of the **Bulletin** of the Society **preceding** the Annual General Meeting, together with a statement of conditions governing the Award and the name and address of the incoming Chairman, if this is known in time. A provisional deadline for submission of nominations shall also be indicated in both documents (see III.4).
2. Nominators shall be asked to provide, in addition to the name and address of the nominee, as full a documentation on their candidate as they care to provide. Such documentation should stress the particular achievement or achievements to be considered and not merely the general competence of the nominee.
3. Nominations shall be made only by members of the Society: they shall be signed by the nominator and by at least one seconder who shall also be a member of the Society.

(NOTE: Directors of the Society shall be responsible for encouraging members to make nominations for this award.)

4. The closing date for nominations shall be set at approximately ten weeks prior to the Governing Board meeting succeeding that held in association with the Annual General Meeting, or a similar period after the latter, if the approximate date of the Board meeting concerned is not known.
5. Nominations received after the closing date shall not normally be considered, but may be so at the discretion of the Chairman of the Award Committee.
6. Renomination of unsuccessful candidates shall not be discouraged. In the case of those originally nominated after 1971, renomination need be accompanied only by the signatures of the nominator and seconder (see III.3) and a reference to the existence of previously submitted documentation (see II.12); the submission of pertinent additional documentation, however, shall be encouraged.

(NOTE: Documentation for nominations prior to 1972 has not been preserved.)

IV. PRESENTATION OF THE AWARD

1. The successful nominee, at the time the Award is made known to him, shall be requested to present an Address (of specified maximum duration), to be known as the Entomological Society of Canada Gold Medalist's Address, at the Annual General Meeting of the Society and immediately following the presentation of the Award to him by the President of the Society or by his delegate.
2. The subject of the Address shall be at the discretion of the nominee, but he shall be informed as soon as possible, preferably at the time he is informed of the Award, of the approximate date and of the length of time available to him for the Address.
3. The cost to the Membership of any function, such as a Gold Medal Luncheon, associated with the presentation of the Award and the Address, shall be included in any registration fee levied in connection with the meeting at which these events take place.
4. The Society shall offer to meet any reasonable travel expenses incurred by the Gold Medallist, and spouse, in connection with the presentation of the Address.

REVIEW

Current Programs. World Meetings Information Center, Inc., 824 Boylston Street, Chestnut Hill, Mass. 02167. Monthly. \$75 annually. **Indexes**, published quarterly and annually. \$140 annually.

Current Programs, with its first issue published in January 1973, is an index to the world's scientific and technical papers presented at conferences and meetings. It gives us a quick way of knowing what is going on in research and development in science and technology before publication in the journals.

The fields are well covered. The table of contents is well laid out according to the broad subject fields of the meetings, with starting date of meeting, place of meeting and starting paper number indicated. An author index in each monthly issue is not provided. The only solution is to subscribe to the separately published **Indexes**. The **Indexes** also provide subject cross references to meetings of interdisciplinary interest appearing in other sections. Each entry is numbered. The address of the first author is given, which is convenient for requests of reprints, and permits exchange of information among researchers.

As for the librarians, SDI service is available. Tapes may be in either PX or MARC II format.

It is kind of unusual to find that chemical formulae are not printed in the conventional way. For example, alpha-Fe (sub 2) O (sub 3) for haematite. Printing errors are numerous. Since this is the first issue, improvement can be expected in the later issues.

Ah Bi Wang, Librarian
Maritimes Forest Research Centre
Fredericton, N.B.

BOOK REVIEW

The phylogenetic classification of Diptera Cyclorrhapha, with special reference to the structure of the male postabdomen. G. C. D. Griffiths. Dr. W. Junk N. V., The Hague, 1972. 340 pp., illus., 70 Dutch Guilders

This is an interesting and useful book. It is full of technicalities and somewhat difficult to read, but it is a brave and valuable essay that takes a complex and very poorly understood organ system, the hypopygium of the male in the cyclorrhaphan flies, and applies it to the study of the natural classification, i.e. the phylogeny, of this large and difficult section of the Diptera. The higher classification in most of the large orders of insects is poorly understood, and not studied by the majority of systematists, and for this reason alone a sustained analysis of the Cyclorrhapha – the only one we have in English – is to be commended.

The first chapter is on principles and procedures of classification and is essentially an account of Hennig's ideas but written in an interestingly independent manner. He sums up this section with admirable directness in defence of the phylogenetic system (as against the claims of the currently fashionable applied taxonomies). "The argument that phylogenetic systematics is non-operational because phylogeny cannot be known with certainty could be applied to the whole of natural science (see Hull 1967). Our observations of the real world and the inferences which we make from these observations are never invested with absolute certainty, and it can only be assumed that authors who demand absolute certainty misunderstand the dependence of all physical and biological sciences on inductive hypotheses".

The main part of the book opens with a discussion and analysis of the morphology of the male hypopygium and of the 360°-rotation that it undergoes, usually within the puparium. It continues with a discussion of the relationship of the Cyclorrhapha to their probable (or possible) sister group, the Eremoneura (=Empididae + Dolichopodidae), and then proceeds to an extended account, full or new or little known facts, of the families and higher groups of the Cyclorrhapha themselves.

With no specialist knowledge of Cyclorrhapha, I can comment only on the broader aspects. There are many interesting, if sometimes controversial, items. Based on a comparison with Empididae, the somewhat mysterious surstyli are homologised with the distal joint of the claspers (parameres). The long, slender and upcurved aedeagus, as seen in Empididae, is shown to be the plesiotypic form for the Cyclorrhapha. The Acalyptratae are not recognised as a classificatory unit, as in other recent treatments, and the Calyptratae become a mere family group in one of five superfamilies of the Schizophora. Kessel's observations on the hypopygium of the Platypezidae become the key to the interpretation of the normal cyclorrhaphan type. The rotation takes place (in Platypezidae) in two stages, the first within the puparium, the second after emergence; and torsion occurs both between segments 7 and 8 and between 8 and the hypopygium, in approximately equal amounts.

There are other interesting things also. Most dipterists (i.e. those who, including myself, do not read Russian) have been puzzled by the apparent phylogenetic diagrams in Rohdendorf's works, where a very high status is accorded to curiously modified groups such as *Braula* and *Nymphomyia*. Griffiths explains that Rohdendorf understands these diagrams in a phenetic sense, and quotes him as writing that *Termitoxenia*, which he ranks as an infraorder ('Termitoxeniomorpha') on its own, is 'a very altered descendant of the Phoridae' (p. 72). There is a comparative discussion of the imaginal discs, and although it

does not in fact lead to any very significant conclusion it seems an important step even to attempt to apply the facts of morphogenesis to formal systematics. But I was surprised that there is no mention of Jobling's work on the mouth-parts of the bat flies, so different from those of *Glossina* and the hippoboscids that it is hard to believe they were derived monophyletically from a muscoid type. I am surprised also that the author refuses, if I understand him correctly, to make an association between the rotation of the hypopygium and the very general asymmetry of segments 7 and 8. What other function can the structural asymmetry have, than that of bringing about, or facilitating, the rotation? Some further account of the studies on pupal development, alluded to on p. 41, might have been helpful.

The book is in no sense a full study of the classification and phylogeny of the higher Diptera; it makes no attempt to assess all the available evidence. It is a detailed comparative study of one organ system, and sets out what has been learned in this way. In so doing it presents many new facts and makes many interesting deductions, and probably makes its quota of mistakes in both areas. A useful contribution.

J. A. Downes

REVIEW

Essays on Aspects of Resource Policy. Science Council of Canada, Special Study No. 27.

This study is made up of four independantly written essays.

Dr. Donald Bennett, Science Counsellor at the Canadian Embassy in Washington, in the first essay, deals principally with integrative techniques that are already fairly well developed but which can be applied more widely with a bit of extra effort.

Dr. Alan D. Chambers, Assistant Professor of Forestry at the University of British Columbia, in the second paper, makes a case for a major effort to bring the strengths and insights of systems analysis and simulation modelling to bear directly on the problems of resource allocation. In this we can profit from the development of techniques of the systems approach taking place in many centres around the world; however, nobody is going to apply them to Canadian problems effectively but Canadians.

The third paper, by the well-known authority on constitutional law, Professor A. R. Thompson and his colleague at the University of British Columbia, Dr. H. R. Eddy, pulls together in a very few pages the principal jurisdictional problems facing Canada and Canadians in natural resource management. These problems are embedded in the British North America Act and are feeding on the current crop of political conflicts.

The final paper by Dr. A. J. Cordell, Science Advisor with the Science Council of Canada on the implications of ownership of resources (i.e., foreign or indigenous), shows a return to this general subject by the author of the Science Council background study on the Multinational Firm (Special Study #22). It draws on many of the insights gained in the course of the Science Council study of industry over the last three years.

Contributed by S.C.C.

BOOK REVIEW

The Horse Flies of Europe (Diptera, Tabanidae). Milan Chvala, Leif Lyneborg, and Josef Moucha. Entomology Society of Copenhagen, Copenhagen, 1972, 499 pp. 8 plates. Distributor: E. W. Classey Ltd., Hampton, England £9.30

The European Tabanidae has been the subject of extensive study since the first five species were described by Linnaeus in 1758. Innumerable papers, both faunistic and systematic, have since been published, the majority on the fauna of individual countries or regions of Europe. Syntheses of this information for the whole of Europe are less common; those by Krober in the 1930's are now dated while Leclercq's more recent so-called revisions of the Palaearctic Tabanidae are of limited use, because they lack descriptions and illustrations of the taxa to supplement the keys. Thus, the appearance of this book fills a great void, a void that has been especially difficult for people unilingual in English.

The introductory chapters of the book contain a brief historical review of European taxonomic and faunistic studies, a modern analysis of the latter that includes useful tabular summaries of the pertinent data, and a very brief treatment of tabanid biology and economic importance. The major portion of the book is devoted to the taxonomy and identification of the 166 species of European Tabanidae here recognized.

It is in the taxonomic category that the book will probably have its greatest value. The authors seem to have created some order out of a confusing fauna to which an overabundance of names have been applied at one time or another. Synonymic changes as well as consolidation of many taxonomically meaningless subspecies or varieties has meant, for example, in the genus *Hybomitra* reducing from 46 to 36 the number of European taxa that were recognized as recently as 1967 by Leclercq.

In the area of identification, the book may not prove entirely satisfactory without some prior experience with the fauna and a named reference collection. This will be in large part due to inherent difficulties in satisfactorily dealing with many closely related morphologically variable species. But also troublesome is the unfortunately too frequent obscure descriptive phrasings and inaccuracies between keys, descriptions and illustrations.

Despite these latter problems, to which mental corrections can often be applied once recognized, the book is an outstanding contribution and a must for every devotee's library. The quality of printing and binding is excellent. Illustrations both black and white and colour are also very well done.

H. J. Teskey

FORTHCOMING MEETINGS

Lepidopterists' Society, Sarasota, Florida, 22-24 June 1973. Contact Lee Miller, Allyn Museum of Entomology, 3701 Bayshore Rd., Sarasota, Fla. 33580 U.S.A.

An Annual Workshop on Biting Fly Research will be held 25-27 July 1973 at Ipswich, Massachusetts.

PROPOSED AMENDMENTS TO THE BY-LAWS

(For 1969 By-Laws see **Bulletin** 2(1): 9-13)

*The following proposed amendments are included with this number of the **Bulletin** so that members can consider and comment on them prior to the Annual Meeting at Banff in October.*

Article IV, item 1a (2), 1. 1 — add "or former member" after "Any member".

add item (4) "Emeritus Member - Any Active Member in good standing who has retired from active service may, on request and on approval of the Board, continue as an Emeritus Member without payment of dues".

item 2.

add section (c). "Emeritus Members may attend and take part in discussions at meetings but shall not vote or hold office in the Society. (They do not receive **The Canadian Entomologist** nor the **Memoirs**.)"

item 3 (a), 1. 1 add "submitting" after "by".

1. 2 delete "delivered" after "resignation".

Article V, item 1, 1. 3 write "by mail ballot" instead of "at an annual meeting".

item 2, 1. 1 add "and Student" after "Active".

Article VI, item 1c:

add section (4) "The Editor (**Bulletin**)".

item 4, 1. 1 write "Changes in" for "Maximum".

Article VII in title add "AND EXECUTIVE COMMITTEE" after "OFFICERS"

item 1, reword to read "The President, President-Elect and Past President shall hold office for one year."

item 4, add a second sentence "A vacancy shall be filled by the person who has most recently completed a term of office as Past President."

add item 5 "The President, President-Elect and Past President shall constitute an Executive Committee. The function of the Executive Committee shall be to supervise or conduct the affairs of the Society within the framework of established policy in the intervals between meetings of the Board, and to seek ratification by the Board of actions taken."

Article VIII, item 2, at end of second sentence add, "but normally should not exceed three successive years."

Article IX, item 4

add section (d) "To notify the Board and members of the Society of forthcoming meetings, and to distribute reports and other material as necessary."

item 6, at end of sentence add, "except the **Bulletin**."

add item 7 "The Editor (**Bulletin**) shall be responsible for editing and publishing the Society's **Bulletin**."

Article X, items 1-5 reword to read

1. The standing committees of the Society are: Achievement Award Committee, Common Names Committee, Editorial Board, Election Committee, Employment Committee, Finance Committee, Gift Subscription Committee, Honorary Membership Committee, Insect Colonies Committee, Membership Committee, Nominating Committee, Program Committee, Committee on Publicizing Entomology, Science Policy Committee, and Student Encouragement Committee.

Other standing committees may be established, or established committees dissolved, by recommendation of the Board and approval by the Society at an Annual Meeting.

The terms of reference and chairmen of standing committees shall be determined by the Board.

Standing committees shall report directly to the Board.

2. The President may appoint *ad hoc* committees to serve until the next Annual Meeting of the Society.
3. With the exception of the Achievement Award and Honorary Membership Committees, standing committees will consist of members nominated by the incoming President, appointed by the Board, and approved by the Society at an Annual Meeting. Members of the Nominating Committee and Achievement Award Committee are not eligible for re-election the following year; members of the other committees are eligible to serve for a maximum of three years in succession.
4. The Achievement Award Committee shall consist of the President-Elect and two assessors chosen by him and approved by the Board.
5. The Honorary Membership Committee shall consist of members appointed by the presidents of the Affiliated Societies. Each president shall appoint one member who shall normally serve for three successive years. Two members shall retire each year, and an additional member every third year.

Any five Active Members of the Society may submit a name for consideration by this Committee. The number of names placed on the ballot shall not exceed the number of vacancies.

Article XII item 3, 1. 3 add "Active" after "twenty-five".

item 4 reword as follows: "At all meetings of the Society and of the Board every question shall be determined by a simple majority of votes cast except that questions dealing with Membership, or Finances including Dues, or Amendments or Repeal of By-Laws shall require a two-thirds majority to pass."

Article XIII item 1, 1. 2 write "nominees" for "nominations".

1. 5 write "Additional" for "Other".

1. 7 add "Active" after "three".

1. 9 write "signed" for "written".

item 7 add final sentence "Each question on the ballot shall be determined by a simple majority of the votes cast, except that questions

dealing with Membership, or Finances including Dues, or Amendments or Repeal of By-Laws shall be determined by a two-thirds majority of the votes cast."

Article XIV item 3, l. 2 reword last half of sentence to read "twenty-five cast ballots returned from Active Members shall constitute a quorum".

Article XV item 1 reword to read "Proposals to amend or repeal the By-Laws of the Society shall be made by the Board or by ten or more Active Members of the Society in a signed letter to the Secretary, and shall be transmitted to the members at least two months in advance of the next following Annual Meeting.

2. The By-Laws may be amended or repealed by a two-thirds majority vote by Active Members, the vote being taken, subsequent to a discussion at an Annual Meeting, by a letter ballot distributed not later than the ballot for the next annual election; and providing further that such repeal or amendment shall not be in force or be acted upon until approved by the Minister of Consumer and Corporate Affairs, or appropriate officer in accordance with prevailing law.

ENTOMOLOGICAL SOCIETY OF CANADA

COMMITTEE CHAIRMEN, REPRESENTATIVES AND GOVERNING BOARD

The following additions and changes to the list in Bulletin 5(1):4 should be noted:

Editor (*pro tem.*): V. R. Vickery

Committee on Publicizing Entomology: K. S. McKinlay

Membership Committee: R. E. Bellamy, 217-325 5th Ave. N., Saskatoon, Sask., S7K 2P7

Finance Committee: D. M. Wood, interim Chairman

H. F. Howden

C. R. Sullivan

W. T. Cram

P. H. Westdahl, 40 Garnet Bay, Winnipeg 19, Manitoba

E. C. Becker, *ex officio*

Photo Salon: Committee: R. A. Brust

SCITEC Representative: Robin K. Stewart

Alternate: S. B. Hill

B. C. C. Representatives: B. N. Anne Hudson

D. R. Oliver

Alternates: Robin K. Stewart

S. B. Hill

Director appointed by E. S. Manitoba: Cameron Jay replaces V. Hildahl

THE XERCES SOCIETY

To everyone who wants to help perpetuate rich, natural populations of butterflies:

Butterflies are declining. They are subject to the same environmental pressures faced by peregrines and pumas — but until now there has been no butterfly defense movement in North America. The Xerces Society has been founded to resist the destruction of butterfly populations. It promotes and will eventually sponsor research in the ecology and habitat needs of butterflies. The Society takes its name from the Xerces Blue, which was the first American butterfly to be lost. For further details write: Robert Michael Pyle: College of Forest Resources, University of Washington, Seattle 98195, U.S.A. — after 1 September 1973: School of Forestry and Environmental Studies, Yale University, New Haven, Connecticut.

POST GRADUATE DEGREES

University of Manitoba

- WIENS, A.P. 1972. M.Sc. Supervisor, R.A. Brust
"Bionomics of the Pitcher Plant Midge *Metriocnemus knabi* (Coquillett) (Diptera: Culicidae)"
- TRIMBLE, R.J.M. 1972. M.Sc. Supervisor, A. J. Thorsteinson
"Ecological Studies of Mosquitoes in the Area of Pinawa, Manitoba"
- HOWE, G. J. 1972. M.Sc. Supervisor, G. M. Findlay
"Ecology of Slugs in Manitoba, and Accumulation, Storage and Excretion of DDT in Their Bodies"
- KEERATIKASIKORN, M. 1972. M.Sc. Supervisor, W. Hanec
"The Biology of the Cabbage Root Maggot in Manitoba"
- ELLIS, R.A. 1973. Ph.D. Supervisor, R.A. Brust
"Sibling Species Delimitation in the *Aedes communis* (Degeer) Aggregate"
- BARKER, R.G. 1973. M.Sc. Supervisor, S.C. Jay
"Effects of Various Honey and Sugar Treatments on the Foraging Activity of Honey Bees"
- WAIKAKUL, Y. 1973. M.Sc. Supervisor, S.C. Jay
"Behavioral Studies of Virgin Queen Honey Bees"
- LIU, Ying-shin. 1973. Ph.D. Supervisor, S.C. Jay
"Biological Factors Affecting the Laboratory Rearing of Queen Honey Bees"
- TAYLOR, B.W. 1973. M.Sc. Supervisor, R.A. Brust
"Colonization and Diapause Studies of *Aedes dorsalis* (Meigen) (Diptera: Culicidae)"

EMPLOYMENT

The Entomological Society of Canada maintains a list of employment opportunities in Canada for members, and has an employment office at annual meetings of the Society. Positions wanted and available are published in the *Bulletin*, for details see *Bulletin* 4(4):114.

POSITION WANTED

Ph.D. specialist in toxicology and metabolism of insecticides and herbicides, with wide experience, desires position in industry, government, or university. Ref. No. 37-2-73.

POSITIONS AVAILABLE

Applications are invited from qualified African graduates preferably at M.Sc. level for research and high level technical assistance, to fill five positions with the International Centre of Insect Physiology and Ecology, Nairobi, Kenya. These are in the discipline of reproductive physiology (insect endocrinology, insect biochemistry), aestivation, behavior and sensory physiology of armyworms, ecology of ticks. Age, between 21 and 35 years. Liberal salaries and separate housing allowances.

Applications (four copies) or requests for further information should be directed to: Administrative Officer, International Centre of Insect Physiology and Ecology, P.O. Box 30772, Nairobi, Kenya. Closing date for receipt of applications is March 12, 1973 for East Africans and March 31 for Africans from other areas.

NEW PROGRAM — MASTER IN PEST MANAGEMENT

Simon Fraser University has established a new graduate program leading to the degree of Master in Pest Management (M.P.M.).

The purpose is to produce generalists in pest management, primarily for work at decision-making levels. The program covers the theory, principles, and practice of integrated control of pest vertebrates, plant pathogens, and weeds, in addition to insects. It deals with management of pest problems of agricultural, forest, orchard, urban, industrial, and recreational environments.

Experts on aspects of pests and their control from outside the University, notably from government research centres, will be involved as instructors or visiting professors, especially in the intensive practical field courses that comprise the summer semester.

This is a full-time, structured professional program based on course work and field experience and not on a major research thesis. However, it permits some specialization by the individual student. The program can be completed in a full 12-month year of three consecutive semesters starting in September.

For further information contact: Dr. B. P. Beirne, Director, Pestology Centre, Department of Biological Sciences, Simon Fraser University, Burnaby 2, British Columbia.

PERSONALIA

Dr. Robert Glen has retired from his post as Scientific Advisor to the Commonwealth Secretariat in London, England, and is now residing at 4523 Juniper Place, Victoria, B.C.

. . .

Dr. Frank E. Webb has been appointed advisor on environmental impact questions to the Director-General, Canadian Forestry Service, Department of the Environment. He will be posted in Ottawa where he will advise on and arrange for special work forces both within the C.F.S. and in interagency undertakings where C.F.S. plays the lead role. Frank will also manage and direct the newly announced program of financial assistance to the provinces on forest pest control operations.

. . .

Dr. R. M. Belyea has been appointed Director, Maritimes Forest Research Centre, Fredericton. After eight years away from the region, as Director of the Great Lakes Forest Research Centre, Sault Ste. Marie, and as Director of Operations, C.F.S., Ottawa, Dick returns to a greatly expanded operation, through amalgamation and growth, than the one he left.

. . .

Dr. C.D.F. Miller has been appointed Research Coordinator (Biosystematics) of the Research Branch, Canada Agriculture. Doug will move to Ottawa from Harrow, where he was Head of the Entomology Section.

. . .

Dr. David D. Shaw will take up the post of Fellow, in the Department of Population Biology, Research School of Biological Sciences, Australian National University, Canberra, in August. He will study the evolutionary consequences of recombination in natural populations of Orthoptera. The past few years he has been studying the genetics of spruce budworm endemic and epidemic populations, and the genetics of insecticide tolerance, at the Maritimes Forest Research Centre, Fredericton.

. . .

Dr. David F. Hardwick is the new Director of the Entomology Research Institute, Canada Agriculture, Ottawa. He succeeds W. B. Mountain, who was recently appointed Assistant Director General, Institutes and Services.

VISUAL AIDS

Advance submission and review of slides as practiced in Montreal appears to be an improvement over previous procedures. Slides were well handled and generally of good quality. Unfortunately, however, despite the efforts of many program chairmen during recent years to educate speakers to the contrary many persist in confusing slides by crowding too much information, thus showing a lack of communication skill. Efforts to prevent such slides from being screened should be continued.

Bull. E. S. America 19:50-51

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