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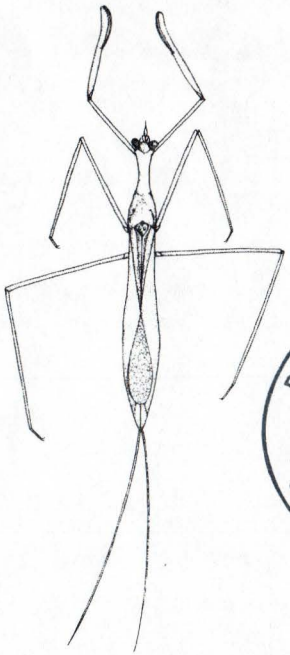
BULLETIN



ENTOMOLOGICAL SOCIETY OF CANADA
LA SOCIÉTÉ D'ENTOMOLOGIE DU CANADA

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BULLETIN

VOL 21 (1) - March/mars, 1989

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EDITORIAL

Sliding Down Parnassus

I have just finished marking the final examinations in a second year course in general ecology. It was not an uplifting experience, treated as I was to such insights as "Insecticides are used to kill plants." A subsequent coffee time gripe session with a few colleagues revealed that my course was not unique. The academic quality of the average undergraduate is slipping.

So what's the problem? As I see it, there can be one of three options: the average undergraduate is less intellectually adept (i.e. stupider) than his/her counterpart of a decade or two ago, the current crop of university lecturers are inferior teachers or the students are inadequately prepared for university in their high school programs.

Unless we are to believe in an incredibly rapid evolutionary degradation, the first option can be dismissed out of hand. Students today are no more or less intelligent than their predecessors. The second option can also be dismissed. First, because it smacks of the same kind of degradation mentioned above and secondly because, given the keen competition for academic jobs, bad lecturers rarely make it.

That leaves the third option - the quality of pre-university preparation. I will take as an initial point of argument that students are so poorly prepared that the first year or two of university education is remedial. I would further submit that while high schools may dispense facts they fail utterly in teaching students even the most basic rudiments of critical and logical analysis and writing.

I believe that one of prime villains in this is the constraints of our so-called Information Age. Most of us get our information about our world in condensed, predigested packages that fit into a thirty second news item or a one minute commercial. Students, having been exposed to this type of packaging of information, have little appreciation of what sustained intellectual effort is. In most instances, the analysis is done for us and presented as a fait accompli. As far as I can determine, high school training does little to remedy this and instil the notion that good ideas are more often than not the product of a great deal of concentrated thought.

The quality of student writing has often been lamented by many. It is the rare undergraduate that writes in good English and not some perverse parody of it. Students simply do not understand the value of expressing themselves clearly and precisely. For many, close seems to be good enough. Secondly, they have never been taught how to write, how the language is constructed or how to be critical of their own writing.

And now the bad news - this situation will become progressively worse. It will become worse because the very students who have never been taught proper writing or critical thinking are now in the education system busily teaching another generation of students what they don't know. It will also become worse because of the proliferation of personal computers and their associated word processing software. Computers themselves are not the problem if the user already has some knowledge of proper writing. Now, however, we have programs that will check spelling and grammar and no one has to know what a gerund is or how to avoid a dangling participle or how to spell. Skills are being lost - *sic gloria transit* .

R. Aiken,
Mount Allison University

SOCIETY BUSINESS

Meeting Notices

39th Annual General Meeting

The Annual General Meeting of the Entomological Society of Canada will be held in St. John's, Newfoundland on October 3, 1989.

Matters for consideration for this meeting or for the Governing Board Meeting to be held on September 30 and October 1, 1989 in St. John's, Newfoundland, should be sent to the Secretary, Mr. J.A. Shemanchuk, Agriculture Canada Research Station, P.O. Box 3000, Main, Lethbridge, Alberta, T1J 4B1

39e Réunion Générale Annuelle

La Réunion Générale Annuelle de la Société d'Entomologie du Canada aura lieu le 3 octobre 1989 à St. John's, Newfoundland.

La conseil de direction sa réunira le 30 septembre et 1 octobre, 1989. Tous sujets pour être considérés devont être soumis au secrétaire, M. J. A. Shemanchuk, Station de recherche, Agriculture Canada, C.P. 3000, Lethbridge, Alberta, T1J 4B1

Executive Council Meeting

The mid-term meeting of the Executive Council will be held on April 23 and 24, 1989 at the Embassy West Motor Hotel, 1400 Carling Avenue, Ottawa. Matters for consideration for this meeting should be sent to the Secretary, Mr. J. A. Shemanchuk, Agriculture Canada Research Station, P.O. Box 3000, Main, Lethbridge, Alberta, T1J 4B1

Réunion de l'Exécutif-Conseil

La réunion mi-semestre de l'Exécutif-Conseil aura lieu le 23 et 24 avril 1989 à l'Hotel Embassy West Motor, 1400 avenue Carling, Ottawa. Tous sujets pour être considérés devont être soumis au secrétaire, M. J.A. Shemanchuk, Station de recherche, Agriculture Canada, C.P. 3000, Lethbridge, Alberta, T1J 4B1

President's Update

The Governing Board decided, as a result of a mail-phone vote, to sponsor a workshop on "Future Challenges for Systematic Entomology in Canada". This is the proposed workshop on which Stuart Hill and I met with representatives of the Biological Survey and the Biosystematics Research Centre 5 November. The Workshop will take place 22 April 1989 in Ottawa and will have as its objective to build the case for biosystematics in the context of global climatic and habitat change and the accelerating rate of species extinctions. A strategy will be developed with which to argue for increased, rather than decreased support for systematic entomology. There will be a limited number of invited participants to reflect a range of opinions, including those of clients of systematics, and to keep the cost to the Society under $3500. Ian Smith, BRC is the chief organizer.

The Society was asked to contribute $1000 to help publish a book - *The Butterflies of Manitoba* - by McKillop, Westwood, Preston, and Klassen. Because it was not in the budget, the Governing Board was again polled. The proposal was defeated. The book, which the Board regarded as a commendable undertaking, will be published nonetheless, perhaps with fewer color illustrations. It will be only one of two first class regional butterfly books in Canada, the other being Ray Morris' *Butterflies and Moths of Newfoundland.* In normal times, Agriculture Canada might have picked up the tab.

Last year's Science Policy Committee identified insect transmission of plant disease as one of the neglected areas of entomological research, and asked for an ad hoc committee. Enquiry led to the discovery that there are only two entomologists working in the field, and both are too busy to undertake the assignment now. One, ESC member Lloyd Chiykowski, is President of the Canadian Phytopathological Society. There once were three or four in the discipline at the Fredericton CDA Research Station alone. Considering the outstanding problems in the field, that's what I call neglected.

Joe Shorthouse came back from the Orlando meeting of Sigma Xi (the scientists' society) with notebooks of information on the plight of science in North America and ideas on what to do about it. Joe is preparing material for the Bulletin and is attempting to organize or help the program committee organize public education initiatives for the St. John's meeting. I have, incidentally, spoken with David Larson, and he assures me that preparations for the early October joint meeting with the Acadian Entomological Society are going very well.

I have seen the draft document of amalgamation between the Biological Council of Canada and the Canadian Federation of Biological Societies under the latter name. The CFBS has a strong influence on science funding, but a medical bias, which the amalgamation should change. It will require a majority of the BCC member societies' members to effect the amalgamation, and we are the largest member Society. If union with the CFBS is not achieved first the BCC will cease to exist after 1 June 1990. I have already said that membership in the new CFBS may cost about $30 per member, which may be awkward after our recent dues hike, but it would be well worth it in my opinion. NSERC views the proposed merger as a very positive move. Members of the ESC as individuals have to realize just how desperate the plight of our science has become and be prepared to make hard decisions about whether we can counter the trend best alone or through the new CFBS. With present policies of privatization, matching funds for grants, and everything we do having to have short term payoffs, the effects will reach all of us, regardless of how basic or applied our work is.

I gave an address on "The Future of Spruce Budworm Research" to the 13th Eastern Spruce Budworm Research Workshop in Fredericton 24 January. My prognosis was 'bleak', although things seem to be going well right now. (Actually researchers are confident they are doing the right things.) There are roughly half as many people working on the budworm as at the peak of effort in northeastern North America, there is only one acceptable control tactic based on *Bt* in most jurisdictions, and the time to learn what causes populations to collapse is now, when populations are low and falling, thus it takes much more investment to collect data.

The date of the hearing for the Society's brief to the House of Commons Committee on Forestry and the Environment has not yet been set. Five of the seven members of the Committee were not returned at the last election, so it is apparently taking a while to get reorganized.

Please continue to make your opinions on these, and any other issues, known to me or other members of the Board. When this was written, my first "President's Update" in the December 1988 Bulletin, had not been distributed, but I am interested in your reaction to the column, and the issues discussed.

Je regrette que, parce que j'ai eu la grippe (l'éspece prolongée), la delimitation pour les manuscrits s'est passé avant que je ne puisse faire une traduction du rapport intérimaire.

D.C. Eidt,
President

ACANADENT 89

JOINT ANNUAL MEETING OF THE ENTOMOLOGICAL SOCIETY OF CANADA
AND THE ACADIAN ENTOMOLOGICAL SOCIETY

Radisson Plaza, St. John's, Newfoundland
October 2 - 4, 1989

Notice and Call for Papers

September 30:	09:00 - 17:00	ESC Governing Board Meeting
October 1:	09:00 - 17:00	ESC Governing Board Meeting
October 2:	09:00 - 12:00	Opening Ceremonies ESC Awards Gold Medal Address Heritage Lecture
	13:00 - 17:00	**Plenary Symposium: Interactions between Insects and Stressed Hosts.** Participants: W. Turnock(Moderator), D. Janzen, D. Jones, Y. Mauffett, D. Pimentel, K. Raffa, G. Surgeoner
	19:00 - 20:00	Graduate Students meet the Governing Board
	20:00	Wine and Cheese Reception
October 3:	08:00 - 09:00	AES Business Meeting
	09:00 - 16:30	**Symposium: Arthropod Faunas of Springs.** Moderators: D. and N. Williams **Symposium: Role of Plant Derived Substances for Insect Control.** Moderator: J. Arnason Submitted Papers
	16:30 - 17:30	ESC Business Meeting
	18:30	Banquet
October 4:	09:00 - 12:00	Submitted Papers **Workshop: Insect Pests of Seeds and Cones.** Moderator: R. West
	12:00 - 13:30	ESC Governing Board Meeting
	13:30	Submitted Papers Special Interest Groups Field Trips / Tours

Note: There is room in the program for additional workshops and special interest groups. Members planning to organize informal workshops should send details to the Program Chairman before June 1. When submitting proposals, provide title, moderator, anticipated attendance and projection equipment needed

ACANADENT 89

List of Possible Conference Tours

Tour 1. Pre-Conference Wilderness Tour (Sept. 30 - Oct. 1).

Includes boat tour of sea bird islands, visit to a gannett colony, cod jigging, visits to small coastal communities and an abandoned fishing village. Cost $175/person. Includes transport ation and lunches but not accomodation on Sept. 30.

Tour 2. St. John's Area Tour (Oct. 3)

A three hour bus tour of the scenic and historic highlights of the city of St. John's and surrounding area. Tuesday afternoon. Cost $20/person.

Tour 3. Harbour Tour

A fishing schooner tour of St. John's harbour and Cape Spear. Cod-jigging. Itinerary depends on weather. 2.5 hours. Cost $20/person.

Tour 4. Bog Trot (Oct. 4, 13:00 - 20:00)

Bus and hiking tour of wetlands and barrens. Cost depends upon group size. Over 20 persons - $45/person, under 20 - $65/person. Includes traditional meal.

Tour 5. Post-Conference Tour on Forest Insects of Newfoundland. (Oct. 4 - 8)

A 4 1/2 day tour organized by Forestry Canada, Newfoundland Forestry Centre highlighting major forest insect pests of the Island. Agenda includes visits to spruce budworm and bark beetle damaged black spruce stands and plantations damaged by black army cutworm in central Newfoundland, hemlock damaged balsam fir in Gros Morne National Park, balsam wooly aphid damage in tree improvement areas in southwestern Newfoundland and a visit to a paper mill. The route will include come of the scenic attractions of Newfoundland. Tour commences Oct. 4, 14:00 in St. John's and terminates Oct. 8, 16:00 in Stephenville, with overnight stops in Gander (Oct. 4), Badger (5th), and Pasadena (6th and 7th). Transportation and accomodation at Newfoundland Forestry Centre Field Stations in Badger and Pasadena will be provided at no cost. A $15/day fee will charged for meals taken at the field stations. Participants will be responsible for the cost of their accomodation at Gander and meals eaten away from field stations. Flights depart from Stephenville on Oct. 8 for themainland . Attendance is limited to 30 on a first-come basis. Participants should reply on or before 1 June 1989.

ACANADENT 89

JOINT ANNUAL MEETING OF THE ENTOMOLOGICAL SOCIETY OF CANADA
AND THE ACADIAN ENTOMOLOGICAL SOCIETY

Radisson Plaza, St. John's, Newfoundland
October 2 - 4, 1989

REGISTRATION FORM

Check one: Regular ____, Student ____

Name _____ Title _____
(last) (first) (initial)

Address: _____

City: _____ Province/State: _____

Postal Code: _____ Phone: _____

Registration Fees - figures are $ Cdn
(Registration fee includes banquet ticket)

Registration, regular	$75	_____
Registration, student	$45	_____
Registration, spouse	$35	_____

_____
(name of spouse)

TOTAL _____

FIELD TRIPS AND TOURS: Several possible trips are listed on the previous page with their projected cost. Level of interest will determine whether these trips will be offered. Please do not pay for these trips at this time. Those interested in Tours 1, 4 or 5 will be contacted by the tour leader.
I am interested in the following tour(s) _____

ACCOMODATION - Rooms have been set aside at the Radisson Plaza Hotel for the Conference. Please make your own reservations through: Radisson Plaza Hotel, 120 New Gower St., St John's, Nfld. A1C 1J3 (709-739-6404). Reservations: 1-800-228-9822

Please return this form and registration fees to:

Acanadent 89
Newfoundland Forestry Centre,
P.O. Box 6028,
St. John's, Newfoundland A1C 5X8

ACANADENT 89

SUBMITTED PAPER AND POSTER PRESENTATION REPLY FORM

Please return to: Dr. Peggy Dixon,
Program Chair, Acanadent 89,
Newfoundland Forestry Centre,
P.O. Box 6028,
St. John's, Newfoundland A1C 5X8

Deadline: Postmarked on or before June 30, 1989

Title (not to exceed 15 words):_____

Author's Name(s):_____

Institution and Address:_____

To be presented by:_____

Abstract(not to exceed 50 words):_____

Form of Presentation Desired (check one):

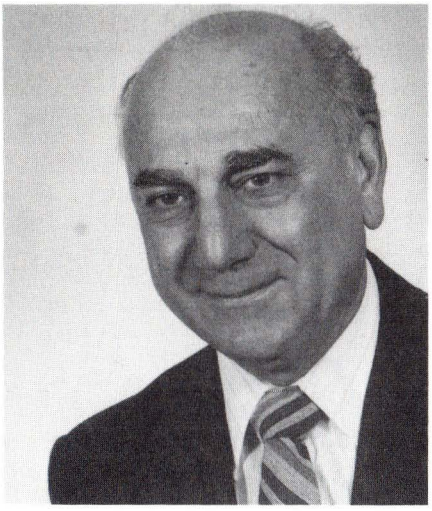
Oral presentation of 12 minutes plus 3 minutes discussion ☐

Poster presentation ☐

Student competition (same time and format as oral presentation) ☐

Projection Equipment: A Kodak Carousel projector and an overhead projector will be available for each session. Slides should be provided in a carousel. Please contact the program chairman if other equipment is required.

PERSONALIA



S.R. Loschiavo - Honorary Member

Congratulations are extended to Dr. S.R. Loschiavo, Agriculture Canada Research Station, Winnipeg, who became an Honory Member of the Entomological Society of Canada at the Annual Meeting in Vancouver on 6 July 1988.

Dr. Loschiavo received his post secondary education at the University of Manitoba (B.Sc., 1946: M.Sc., 1950: Ph.D., 1964), with an intervening pre-doctoral year (1961-62) at the University of Wisconsin. He was appointed as a Research Scientist with Agriculture Canada in 1957, where he began his research career investigating stored product pests. He was made an Honorary Professor at the University of Manitoba in 1965, and served as the head of the Stored Product Section at the Research Station in Winnipeg for 3 years. Dr. Loschiavo has published over 65 scientific papers in refereed journals and numerous publications and reports. He was also integral in the development of an effective trapping method for detection of insects in stored grains, and he has devised an environmentally safe method for the control of stored product insects in buildings and closed areas.

Dr. Loschiavo has maintained a very active interest in both the ESC and the Entomological Society of Manitoba. He has served on numerous ESC committees, including the Science Policy, Employment, Nominations and Fellowship Selection Committees. He was President of the Society in 1980-81 and was a member of Steering and Organizing Committee for the XVII International Congress of Entomology in 1988. As a life member of the ESM, he has served as Editor of the Proceedings and chaired numerous committees, including Student Awards, Elections, Publicity and Nominations. He has served as Secretary and President of the ESM and was a co-founder and trustee for the Endowment Fund.

Dr. Loschiavo has always taken a keen interest in community affairs as well. He is a member and leader of the Leonardo da Vinci Association and he helped fund the Italian-Canadian League in 1963. He was subsequently awarded Community Service Awards in both Winnipeg and Fort William in 1967 and 1968. Since then he has been actively involved in the Manitoba Folk Art Council, Manitoba Opera Association and Citizens Against Impaired Drivers.

Dr. Loschiavo has had a long and productive career in entomology in Canada and it is only fitting that we welcome him as an Honorary Member of the Society.

Selwyn S. Roback

Selwyn S. "Sam" Roback, 63, Curator of the Entomology Department at the Academy of Natural Sciences of Philadelphia died on July 1, 1988.

Through his 102 scientific papers, he gained an international reputation for his research on the systematics and ecology of chironomids, in particular the subfamily Tanypodinae. The comprehensiveness of his monograph "*The adults of the subfamily Tanypodinae in North America*" is a benchmark for the study of adult systematics and his most recent research on the immature chironomids of the eastern United States is a valued addendum to the systematics of immature chironomids.

A native of Boston, he grew up in New York City. After serving in the Army during World War II, he received his Bachelor of Science degree from Cornell University in 1948. In 1949 and 1951, he received his Master of Science and Doctor of Philosophy degrees from the University of Illinois after completing a doctoral thesis entitled " *An introduction to the evolution and taxonomy of the Sarcophagidae (Diptera: Sarcophagidae)* ". He joined the Academy of Natural Sciences of Philadelphia in 1951 as an Assistant Curator of Limnology where he conducted research on river surveys. The difficulties in identifying immature chironomids from this program led him to tackle the systematics of the tanypodine chironomids. By 1963 he was made the Curator of Limnology and in 1982, he became the Curator of Entomology. Sam was also an adjunct faculty member at the University of Pennsylvania.

Sam was Editor of the Transactions and Memoirs of the American Entomological Society, a member of the Explorers Club, the Chironomid Society and, in 1964, was elected to the Royal Entomological Society of London. In 1985, he was honoured as the Thienemann Memorial Lecturer at the Chironomid Symposium in Bergen, Norway.

Sam is survived by his wife, Helen, a son and a daughter and his mother, Bessie Tamer Roback. The loss of this articulate and dedicated scientist will be most felt within the chironomid community where systematic research on the adults and immatures is desperately needed.

-from the Bulletin of the North American Benthological Society

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Charles Wilmot Maxwell

Charles Wilmot Maxwell, a retired research officer in Entomology with Agriculture Canada, died on 7 December 1988 in Fredericton, N.B. He was a former member of the ESC, and an honorary member of the Acadian Entomological Society and New Brunswick Fruit Growers Association.

He is survived by his wife, two sons, four grandchildren and three great grandchildren.

-from the Fredericton Daily Gleaner

Le frère Firmin Laliberté n'est plus

Le frère Firmin Laliberté est décéde au début de novembre à l'âge de 83 ans. Je reprends ici quelques éléments d'information parus dans le journal "Le Soleil" de Québec, édition du mercredi 2 novembre 1988.

"Le frère Firmin est né Joseph-Louis Laliberté à St-Anselme de Dorchester le 3 septembre 1905. Il prit goût a l'entomologie au contact du frère Germain Ouellet vers l'âge de 21 ans.

Il a stimulé l'intérêt de plusieurs entomologistes amateurs dans les colonies ce vacances, notamment au camp Rolland-Germain à Frelighsburg et au Lac-Beauport. Il fut pendant 10 ans l'éditeur de la revue Fabreries, revue de l'Association des entomolgistes amateurs du Québec. En 1982, il publia, à l'intention des entomologistes amateurs, le *Glossaire entomolgique*.

Peu de temps avant sa mort, il léguait sa collection de 100,000 spécimens à l'Insectarium de Montréal. Cette institution a par ailleurs nommé la salle où l'on retrouvera les collections de référence en l'honneur du frère Firmin".

La Société d'Entomologie du Québec a reconnu le travail du frère Firmin en lui décernant le prix Léon-Provancher (catégorie amateur) en 1982.

Plusieurs personnes (souvent hors Québec) m'ont confié leur étonnement face au dynamisme débordant des entomologistes amateurs au Québec. Le frère Firmin était sans doute un des grands responsables de ce phénomène.

Charles Vincent
Station de Recherches, Agriculture Canada
Saint-Jean-sur-Richelieu, Qué.

In Memoriam: Wilhelm Kühnelt

It is with deep regret that we have learnt of the death, on 5 April 1988 of Professor Wilhelm Kühnelt, late of the Zoological Institute of the University of Vienna. Professor Kühnelt was an internationally renowned terrestrial invertebrate ecologist whose influence on the development of soil zoology as a discipline in its own right was outstanding. He also had a strong indirect effect on the study of soil structure and formation through his influence on his friend Professor W.L. Kubiëna, who more than anybody, brought the importance of soil arthropods to the attention of pedologists. Kühnelt's general ecology text, *Grundriss der Ökologie: Mit besonderer Berücksichtigung der Tierwelt*, Jena, 1965, is widely known and appreciated in Europe. His earlier pioneer book on soil zoology, *Bodenbiologie: Mit besonderer Berücksichtigung der Tierwelt*, Vienna, 1950, had already brought him international acclaim. Professor Kühnelt once told me, when visiting our home in England, that his work was written largely during his internment as an "enemy alien" in the United States during the latter part of World War II. The book was, through Kubiëna's influence, translated into Spanish as *Biología del Suelo*, and published in Madrid in 1957. In 1961, it was published in English as *Soil Biology with Special Reference to the Animal Kingdom*.. A second, revised edition of this (augmented with the assistance of three well-known English-speaking soil entomologists) will stand as but one memorial to Wilhelm Kühnelt's name.

D.K. McE. Kevan
Lyman Museum

NEWS OF ORGANIZATIONS

THE BIOLOGICAL SURVEY OF CANADA (TERRESTRIAL ARTHROPODS)

SURVEY REPORT

The Scientific Committee met in Ottawa on 13-14 October 1988. Selected developments are reported below. A fuller account appears in the Spring 1989 issue of the Newsletter of the Biological Survey of Canada (Terrestrial Arthropods).

Notes on Selected Scientific Projects

1. *Illustrated keys to the families of arthropods in Canada*

The first part of the Survey's series of illustrated keys, treating the myriapods was published by the Survey after the meeting (Kevan, D.K. and G.G.E. Scudder. 1988. *Illustrated keys to the families of terrestrial arthropods of Canada. 1. Myriapods (Millipedes, Centipedes, etc.)*. Biological Survey of Canada (Terrestrial Arthropods)).

2. *Arthropods of freshwater springs in Canada*

An introductory bibliography of spring habitats was completed after the meeting and will appear in 1989. Plans are complete for a symposium on the arthropod fauna of springs at the 1989 Entomological Societies' meeting. The springs subcommittee is considering preparing a brief discussing the protection and conservation of spring habitats.

3. *Arthropods of peatlands in Canada*

A symposium on peatland arthropods will take place at the 1990 Entomological Societies' meeting and the proceedings will be published. A presentation about the Survey and its interest in peatlands was given soon after the Scientific Committee meeting by Dr. S.A. Marshall at the Ontario Wetlands Conference in Toronto.

4. *Arthropods of the boreal zone*

A lengthy review of insects of the boreal zone of Canada, intended to underpin additional research activities in the zone, has been submitted for publication.

Other Scientific Priorities

1. *Origins of the North American insect fauna*

A memoir on this subject resulting from an earlier symposium sponsored by the Survey has now been published (Downes, J.A. and D.H. Kavanaugh (eds.) 1988. *Origins of the North American insect fauna*. Mem. ent. Soc. Can. 144. 168 pp.).

2. *Entomology and systematics in Canada*

The Survey is organizing jointly with the Entomological Society of Canada and the Biosystematics Research Centre a 1989 workshop to consider questions and perspectives related to systematics in Canada.

3. *Arctic invertebrate biology*

A small subcommittee was established to propose and coordinate appropriate action to try to establish concerted studies of arctic invertebrate biology on a continuing basis.

4. *Climatic change*

The Survey continues its discussions with other agencies to ensure that the biological effects of climatic change are considered.

Secretariat Activities

The 1988 round of visits to entomological centres by H.V. Danks was completed after the meeting. Various informal discussions about entomology in Canada and Survey activities took place, and in addition, Dr. Danks presented lectures or seminars on various topics.

Liason and Exchange of Information with other Organizations

1. *National Museum of Natural Sciences*

Dr. S. Cumbaa, Acting Assistant Director for Collections and Research of the National Museum of Natural Sciences, reported that arrangements for hiring a research scientist as permanent curator for the Museum's entomology collection are progressing. Facilities for the collection and the current interim curator have been improved. Dr. Cumbaa reported that exhibits and an interactive "kids space", both of which include some use of live insects, are being put into place in the Museum's exhibit building. Dr. Cumbaa added that the Museum is convinced that the concept of the Biological Survey of Canada works very effectively and continues to consider possibilities for expansion of the Survey to other groups of organisms.

2. *Biosystematics Research Centre*

Dr. R. Trottier, Director of the Biosystematics Research Centre, confirmed that internal reorganization of the Biosystematics Research Centre into 5 major scientific projects has been completed. Dr. Trottier emphasized that a national network and linkages are required to make the best use of limited resources, and the BRC is attempting to relate its functions to the needs of its clients and the scientific community. To define these roles, the Centre has been consulting with other outside individuals.

3. *Canadian Forestry Service*

Dr. B.H. Moody, Forest Insect and Disease Survey, has pointed out that the Canadian Forestry Service is now a separate Department of Forestry. The position of Director of Scientific Surveys and Information (formerly Director of the Forest Insect and Disease Survey) remains vacant. Dr. Moody reported some ongoing activities of interest to the Committee.

4. *Conservation and Protection Service, Environment Canada*

Dr. Rober Chénier, Conservation and Protection Service, pointed out that the Service has a two-fold potential interest in the work of the Survey. The Pesticides Division, Commercial Chemicals Branch, is interested in the effects of pesticides on non-target organisms, and is developing guidelines relating to the environmental fate and toxicology of these substances. The State of the Environment Reporting Branch monitors the state of the environment, looking at trends and changes in environmental health, and prepares appropriate reports including a major report every 5 years on the state of

the environment. The Committee emphasized the value of community studies and of baseline faunal knowledge for environmental monitoring.

5. *Other Organizations*

The Survey has been in touch with the Consortium of (U.S.) State Biological Surveys, the Xerces Society, the Royal Society of Canada, the Hawaiian Invertebrate Survey and other groups.

Other Items

1. *Biological Survey of Canada Foundation*

A foundation designed to support publications of the Survey has been formally incorporated, and Trustees to administer the Foundation on behalf of the Scientific Committee were elected at the meeting.

2. *Biological Survey of Canada Publications*

The Committee approved a set of general guidelines for the production of the publications of the Biological Survey of Canada (Terrestrial Arthropods).

3. *Other Matters*

The Committee also discussed developments in different regions of the country, the successful 1988 International Congress of Entomology, current publications on the Canadian fauna, membership of the Scientific Committee and other subjects.

H.V. Danks

Eagle Hill Wildlife Station

Advanced and Professional Field Seminars

The Eagle Hill Wildlife Station is offering two seminars this summer that may be of interest.

Forest Entomology for Professionals (25 June - 1 July)

Emphasis: overall role of insects of the northeastern forest; extensive field work, lab identification and discussions of life history stages, including immatures. Instructor: R. Dearborn, Maine State Forest Service.

The Lepidoptera: Moths, Advanced Techniques (2 - 8 July)

Emphasis: extensive field work and use of advanced techniques for identification, including use of wing venation, genitalia preparations; discussions of systematics. Instructor: Dr. C.V. Colvell, University of Louisville.

The Station also offers opportunities for research and scholarships and stipends.

For more information contact: Eagle Hill Wildlife Research Station,
Steuben, Maine
U.S.A. 04680
(207-546-2821)

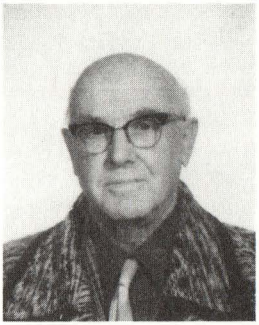
XVIII INTERNATIONAL CONGRESS OF ENTOMOLOGY

DELEGATES BY COUNTRY BREAKDOWN

Country	Number	Country	Number
Argentina	3	Malaysia	7
Australia	60	Mexico	9
Austria	10	Nepal	1
Belgium	8	Netherlands	50
Brazil	17	New Zealand	22
Bulgaria	1	Nigeria	10
Cameroon	1	Norway	6
Canada	474	Pakistan	1
Chile	4	Papua-New Guinea	1
Columbia	1	Panama	1
Costa Rica	3	Peru	1
Czechoslovakia	5	Phillipines	9
Denmark	14	Poland	10
East Germany	11	Portugal	1
Egypt	15	Puerto Rico	1
Ethiopia	1	P.R. China	18
Finland	18	Qatar	1
France	37	Senegal	1
French Guiana	1	Singapore	1
Fed. Rep. Germany	101	South Africa	17
Ghana	1	Spain	11
Great Britain	148	Sri Lanka	2
Greece	3	Sweden	27
Guatemala	3	Switzerland	35
Guinea-Gissau	1	Syrian-Arab Republic	2
Honduras	1	Taiwan	20
Hungary	3	Tanzania	2
India	32	Thailand	2
Indonesia	8	United Arab Emirates	1
Iran	6	USA	1160
Iraq	1	USSR	7
Ireland	1	Venezuela	1
Israel	34	Yugoslavia	7
Italy	45	Zambia	2
Jamaica	1	Zimbabwe	1
Japan	215		
Kenya	13		
Korea	12		
Kuwait	2		
Libyan-Arab Jam	2	Total	2765

HERITAGE

Remembering Our Entomologists



Lorne Caswell Paul (1904 -)

Lorne Paul's parents settled in the MacDowall district a few miles southwest of Prince Albert, then in the Northwest Territories. Because Sakatchewan was not established as a province until 1905, and since Lorne was born in 1904, he is fond of reminding people that he was born in the Northwest Territories, not in Saskatchewan. The "Caswell" in Lorne's name derives from a member of the family that settled early in the Saskatoon district. The name still persists in the residential district of Caswell Hill, and in Caswell Public School.

To attain secondary schooling, he had to take board and lodging in North Battleford. The approach to higher education at the University of Saskatchewan was one commonly taken in those days: a few months at Normal School followed by teaching to earn money for tuition and living expenses while taking classes. He was awarded a B.Sc.(Hons) in 1930, having worked as an Insect Pest Investigator at the Dominion Entomological Laboratory (Saskatoon) every summer since 1928. Instructorships in the Biology Department of the University permitted the pursuit of a Master's degree. After obtaining an M.Sc. degree in 1932, he was promoted to Junior Entomologist at the laboratory of which K.M. King was the Officer-in-Charge at the time. Permanent employment followed quickly.

In those days, the work at the Laboratory was organized by project based on major crop insect pests. Lorne's field was the grasshopper project of which he was soon placed in charge. He had a major role in developing methods for conducting adult and egg abundance surveys to collect data needed for the preparation of the annual grasshopper outbreak forecasts. Several of his contemporaries in graduate school and in the Laboratory, such as R. Glen, A. P. Arnason, G. F. Manson and C. W. Farstad, had parallel careers at this stage and later gained leadership positions in entomology.

He studied for a Ph.D. at the University of Minnesota and Iowa State, working on the economics of grasshopper control. In the mid-thirties, grasshoppers had been an almost overwhelming pest problem in parts of Saskatchewan. This work was something of a pioneering effort at the time and remains a difficult field that has not been adequately pursued in other precincts of western Canadian entomology. His Ph.D. from Iowa State was granted in 1940.

During World War II, he was assigned by the Bureau of Technical Personnel to continue work on grasshopper control methods including the use of dry poisoned baits - a technique that he had poineered.

Lorne and Midred Wright were married in 1934 and have four daughters and several grandchildren. One daughter, married and, until recently, living in Mexico City led to the Pauls' interest in Hispanic people and culture. Following retirement, the Pauls spent several winter months in Mexico.

In 1944, Lorne left the Entomological Laboratory to accept a professorial position with the Extension Division, University of Saskatchewan. Considerable experience in extension work, and a wide circle of acquaintances made during his time in the grasshopper project may have predisposed

him to this move. He worked closely with the farming public in adapting research findings to farm operations. On a British Council grant, Lorne had opportunities for overseas travel and contact with British extension workers where he studied the liaison between research institutions and farmers. Lorne remained with the Extension Division until his retirement in 1972.

He has a number of publications to his credit in entomology and extension. One paper, *Research in Extention* , was published in seven languages. He is a member of the Agricultural Institute of Canada (AIC) and has served as the Saskatchewan Director of the Board. He was made an Honorary Life Member of the AIC and of the Saskatchewan Institute of Agrologists. Lorne has received British and Nuffield Awards to study in Britain and has served a term as President of the University of Saskatchewan Faculty Club.

Lorne and Mildred Paul still have their permanent residence in Saskatoon but with winter sojourns in more kindly climes.

L.G. Putnam,
Saskatoon, Sask.

PUBLICATIONS

BOOK REVIEWS

Noyes, J.S. 1988. *Encyrtidae (Insecta: Hymenoptera)*. Fauna of New Zealand No. 13. Science Information Publishing Centre, DSIR, Wellington, N.Z. (Outside N.Z. and Australia: E.J. Brill, Plantijnstraat 2, 2321 JC Leiden, The Netherlands). 188 pp. Soft cover. $44.95 in N.Z./Australia (no price given outside region).

This work revises the genera and species of the family Encyrtidae (Chalcidoidea) from New Zealand and adjacent subantarctic islands. Dr. Noyes has previously authored or co-authored revisions of the encyrtid genera from the Neotropical and Indo-Pacific regions and thus possesses the expertise necessary for a sound taxonomic analysis of this very diverse group of parasitoids.

Thirty-five named genera and 67 named species are recognized of which four genera and 32 species are described as new. One additional genus and three species are recognized but are not named. Nomenclatural changes include three generic names and 11 species names newly synonomized, five new combinations and the elevation of one subtribe to tribal status. Introductory sections include a diagnosis of the family and a valiant effort to classify the genera within the tribal classification proposed for the Palearctic region by V.A. Trjapitzin. Three tables summarize the faunal relationships of the species including the fauna of the North and Sound Islands and of the offshore islands. Also included is a review of encyrtids introduced into New Zealand for biological control, a summary of the diagnostic characters and measurements employed and excellent synopses of the biology and methods of collecting and preserving encyrtids. The detailed description of preparing slide mounts of specimens should be of particular interest to other chalcidologists and to entomologists in general. An introductory checklist of taxa and a taxonomic index make it unusually easy to locate specific information; the index uses various conventions to indicate on which page the taxon is keyed out, described or illustrated - an idea that should be copied by other taxonomists.

The key to genera employs the inevitable use of the number and shape of mandibular teeth, which is the curse of encyrtid taxonomy. However, additional characters are given in most instances. Three hundred and eighty-three line drawings, mostly of antennae, forewings, mandibles and male genitalia illustrate the most important diagnostic characters of the the taxa. Species treatments include concise descriptions of each sex and sections on biology (including known hosts) and material examined (including notes on habitats and temporal and geographic distribution).

This comprehensive and highly informative work is an important addition to the taxonomy of Encyrtidae; it will be indispensible for chalcidologists and any one interested in the insect fauna of New Zealand or the southern hemisphere.

G.A.P. Gibson,
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Ottawa, Ont.

Six recent French language paperback publications for locust and grasshopper workers in western Africa:

Duranton, J.-F., M. Launois, M.H. Launois-Luong, M. Lecoq and T. Rachadi. 1987. *Guide antiacr idien du Sahel*. CIRAD (Centre de Coopération Internationale en Recherche Agronomique pour le Développement), Paris and PRIFAS (Acridologie Opérationnelle Eco-force Interna tionale), Montpelier (B.P. 5035 - 34032 Montpelier Cedex, France). 344 pp. 69 plates. 99 figs. FF90.00

Launois-Luong, M.H. and M. Launois. 1987. *Catalogue iconographique des principaux Acridiens du Sahel*. CIRAD (Centre de Coopération Internationale en Recherche Agronomique pour le Développement), Paris and PRIFAS (Acridologie Opérationnelle Eco-force Internationale), Montpelier (B.P. 5035 - 34032 Montpelier Cedex, France). Pagination i-ix, 170-256. FF40.00

Mestre, J. 1988. *Les Acridiens des formations herbeuses d'Afrique de l'Ouest*. PRIFAS (Acridolo gie Opérationnelle Eco-force Internationale), Montpelier (B.P. 5035 - 34032 Montpelier Cedex, France). 330 pp. Numerous illustrations, many in colour (Price not indicated but in excess of FF 100.00)

Lecoq, M. 1988 *Les Criquets du Sahel*. (Collection Acridologie Opérationnelle, no. 1). Niamey, Département de Formation en Protection des Végétaux. (B.P. 126225, Niamey, Niger. 129 pp. Numerous illustrations, most in colour. (Price not indicated - about FF 50.00).

Lecoq, M. and J. Mestre. 1988. *La Surveillance des Sauteriaux du Sahel*. (Collection Acridologie Opérationnelle, no. 2). Niamey, Département de Formation en Protection des Végétaux. (B.P. 126225, Niamey, Niger. 62 pp. Illustrated. (Price not indicated - about FF 40.00).

Launois, Luong, M.H. M. Launois and T. Rachadi. 1988. *La Lutte chimique contre les Criquets du Sahel*. (Collection Acridologie Opérationnelle, no. 1). Niamey, Département de Formation en Protection des Végétaux. (B.P. 126225, Niamey, Niger. 83 pp. Numerous illustrations, most in colour. (Price not indicated - about FF 45.00).

These handbooks continue the long French involvement in the field of locust and grasshopper research and control in western Africa (though the last three were partially financed by the Netherlands). They all relate essentially to the former French territories south of the Sahara, west of 25° E and between about 5° and 17° N although they are applicable to all of the Sahel and Subsahelian ("Sudanian") regions. They are, however, not or but little concerned with the relatively less extensive transitional "Guinean" and forest zones of West Africa. They are also for the general worker and not for the specialist and are written by members of a long standing team of field research workers with formidable publication records behind them.

The *Guide antiacridien du Sahel* includes chapers on various aspects of acridology: general (morphology, biology, life-cycles, ecology, swarming, damage and the influence of human activity); gregarization and (where applicable) phases and phase transformation (particularly the desert locust, *Schistocerca gregaria gregaria* and the African migratory locust, *Locusta migratoria migratoria*, the so-called tree locusts, *Anacridium* spp., the Senegalese grasshopper, *Oedaleus senegalensis* and the pyrogomorphid "criquet puant" or stinking or variegated bush-hopper, *Zonocerus variegatus*); "pro-spection" (scouting, collecting, reporting, etc.); examination of samples and specimens (including

identification of various stages and species, preparation, preservation, etc.); and organization of surveillance and control services (including transmission of information and various control methods) with some reference to biological control agents. The book concludes with and 11-page, comprehensive bibliography, an alphabetical index to species (nearly 70) and a classified list acording to family and subfamily (using widely accept names which are not necessarily correct as decreed by the International Code of Zoological Nomenclature!). For anybody in need of a general, up-to-date indication of the locust and grasshopper problem in West Africa, this handbook should prove invaluable. I would suggest that anybody going to West Africa on an agricultural (not necessarily entomological) mission for C.I.D.A. or some similar agency should acquire a copy in advance. My only major criticism of the book is the rather confusing way in which the illustrations are numbered.

The *Catalogue iconographique des principaux Acridiens du Sahel* is merely a reprint of the adult identification section of the foregoing (using unchanged pagination for pp. 170-252), prefaced by introductory matter (pp. I-IX) and to which the alphabetical and classified species lists from the "*Guide* " (pp. 341-344, repaginated 253-256) are appended. For those needing only a quick means of identification of the more commonly encountered Sahelian and Subsahelian grasshoppers, this is a very handy reference. As in the "*Guide* ", the family group names are conventional, not necessarily accurate. An unusual feature is that, as in the "*Guide* ", the 69 species are sequentially arranged more or less according to average size and not with taxonomic affinity.

Les Acridiens des formations herbeuses d'Afrique de l'Ouest is basically a taxonomic (but its author stresses, not systematic) handbook for the use of non-specialists. It is of high quality and profusely illustrated. It deals not only with Acridoidea, but also with a few Eumastacoidea. Of the estimated 360 or so species of grasshoppers known to occur in the region covered about 250 are considered, most of them admirably illustrated - usually by both sexes with a high proportion in colour. Coloured maps showing the distribution within the vegetation zones of the region are given for the great majority of species. For each (except those for which dissection of phallic structures is needed for identification, or the species is rare or very localized), measurements, a diagnosis and usually bio-ecological comments are given. The arrangement is by family and conventionally (rather than validly) named subfamily. Within subfamilies, the arrangement is more or less in accordance with increasing size though there is recognition of taxonomic affinities. The book begins with brief, illustrated accounts of vegetation zones, the arrangement of included material, the classification scheme adopted and the conventions of specific and subspecific zoological nomenclature. Then follows a good illustration section on morphological terms, some bio-ecological terms, etc. At the end of the work, there is some most useful auxillary information on problematic genera, a most originally arranged key to genera (a pity this was not placed before the species were treated individually) and an original revision of the West African species of the genus *Orthochtha* by G.G. Popov and L.D.C. Fishpool. The book ends with a comprehensive bibliography of relevant literature, an alphabetical index to species (according to genus), families and subfamilies and a very useful list of a score of species whose names have been "changed" in recent years. This handbook is a most valuable addition to the taxonomic literature on African Orthoptera and should be on the shelf not only of every specialist but of anybody involved in any way with the identification of African grasshoppers for many of the species are by no means restricted to the region indicated and almost all of the genera are widely distributed in Africa south of the Sahara.

Les Criquets du Sahel. is an excellent little (shirt pocket size) field guide to 41 of the more common species of Sahelian and Subsahelian Acridoidea, illustrated by excellent enlarged photo-

graphs of each. Opposite each is a page of ingenious, coloured diagrams, illustrating key morphological and colour characters and the seasonal occurrence and ecology with an indication (scaled from 1 to 4) of economic importance. There are also outline drawings for each species for quick comparison and a taxonomically arranged list of species.

La Surveillance des Sauteriaux du Sahel is another "shirt pocket" publication. It deals with the strategy and technique of watching out for and predicting the likelihood of locust depradations with special reference to Sahelian and Subsahelian conditions. It is illustrated by excellent cartoon - like pictures and diagrams in black and red by T.M. Luong relating the insects' attacks to weather, cultivation and so forth. It also deals with the taking of samples and the capture of specimens, how to tell the sexes and instars of grasshoppers as well as the stages of maturity of adults and eggs. There is also a section on preservation and preparation for the transmission of material (with appropriate data) to experts. The booklet is designed for people with little formal education or training but more sophisticated public relations officers and even university professors could learn much from it (particularly how to get a message across).

La Lutte chimique contre les Criquets du Sahel is the third shirt pocket sized manual in the series. As its title indicates, it deals with the chemical control of grasshoppers and, to a lesser extent, locusts. Some 21 important species are listed but, in the text, those specifically referred to are *Aioloplus simulatrix*, *Kraussaria angulifera*, *K. amabile*, *Oedaleus senegalensis* and the brown and desert locusts, *Locusta pardalina* (more important in southern Africa and not on the list) and *Schistocerca gregaria gregaria* . The first section of the booklet covers general principles of grasshopper and locust control, the second discusses insectides that have been used in the past and those that are currently in use and the third deals with various modes of spray and dust formulation and application ranging from that used by farmers to aerial operations. All are simply expressed and illustrated (vignettes by T.M. Luong). Prior to a brief general index, the text ends with a short fourth section entitled "*Bilan des interventions* " which is a salutary list of about 30 factors that must be considered in relation to insecticide application.

Another number in this series is still in press.

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Rentz, D.C.F. 1986. *A monograph of the Tettigoniidae of Australia. Vol. 1. The Tettigoniidae*. With an appendix by D.H. Colless. CSIRO, Melbourne, E.J. Brill, Leiden, Netherlands. ix + 384 pp. $(U.S.) 40.00. (Distributed in North America by International Specialized Book Services, 5602 N.E. Hassalo St., Portland, Oregon. 97213-3640).

The importance of this work is clearly established in the Foreword by M.J. Whitten, "when Dr. Rentz began this project there were 7 Australian species known but this revision deals with 72 species belonging to 17 genera". Rentz describes 64 new species and erects 12 new genera. Two of the seven earlier genera are removed, one as a synonym of an existing genus and the other is transferred to a different subfamily.

The field work required to generate this volume has covered nearly all of the Australian

continent. The complete survey of the vast area involved has required a high degree of dedication and tenacity, especially considrering the short span of years for completion.

An introductory section of the book includes topics such as the format and terms used, methods of collecting and preservation of specimens, morphological and acoustical characters, material examined, biology, history and zoogeography and habitats (with photographs of several types).

A key to the 17 genera is given, plus a comparison of the important characters in tabular form.

Each genus is discussed in turn with a complete generic diagnosis, information on the type species and, where necessary, a key to the species in the genus. Some genera are monotypic. Each species (formerly established or new) has complete data on the primary types, type locality, a detailed description of both sexes (including details of colouration), a list of specimens examined with complete data on collection, map of distribution and discussion of preferred habitats, food, etc. The book is well illustrated throughout. Excellent photographs of the male stridulatory files are included, together with oscillograms of the male calling songs.

Many of the type specimens were immature when collected and were reared to adults. All species but one were reared in the laboratory. This made possible the descriptions of immature stages which are included for many species. As far as I am aware, the description of immatures as well as adults of a new species is a first for the saltatorial orthopteroids.

Colour photography was used with excellent results to produce a plate of eight species in their normal habitats. Four additional species are shown in colour on the attractive dust cover. I, for one, will stick these inside on the first blank page before the dust cover becomes soiled or torn.

An appendix entitled "Appendix: Numerical Taxonomy", by D.H. Colless, is an exhaustive numerical treatment of the genera included in the volume. In general, the result substantiate Rentz's generic structure of the group.

Dr. Rentz has maintained the high degree of excellence that has come to be expected of him. This book, the first in a series, deals not only with the Australian genera of Tettigoniidae: it is a model that other systematists could adopt to their advantage. Thus, it is of interest to a much wider audience than systematists interested in only the Australian orthopteroids.

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Lyman Entomological Museum
and Research Laboratory
Ste-Anne-de-Bellevue, Qué.

Ives, W.G.H. and H.R. Wong. 1988. *Tree and shrub insects of the prairie provinces* . Can. For. Serv. North. For. Cent., Edmonton, Alberta. Inf. Rep. NOR-X-292. 327 pp. 117 plates. Soft cover. Available at no charge.

This book includes over 1100 colour photographs of more than 600 species of insects and mites that feed on trees and shrubs in the prairie provinces. The text is arranged acording to major tree groupings and within this, by similarity of habitats (e.g. "wood borers in conifers" and "tent - forming insects"). Each of these subject areas includes one or more colour plates and a text that contains information on the species illustrated and their relatives. The text is arranged under four headings: "distribution, hosts and importance", "life cycle and appearance", "damage" and "bibliography". The emphasis is placed on the stage of the insect that causes the damage - usually the immature stage. The colour plates are excellent.

The book gives a good overview of the subject. However, as stated by the authors, it is not intended to be a textbook on forest entomology but rather a pictorial guide to aid in the identification of insects attacking trees and shrubs. It is important for the nonspecialist to realize that there are closely related species that are not mentioned in the book. It is a good book to narrow down an unknown insect to a group but not to provide a definitive species identification. The coverage varies considerably, depending on both the host plant and the group of insects being considered. It has very good coverage for trees. For example, of the 150 species of Lepidoptera recorded on white spruce by the Forest Insect and Disease Survey (McGugan *et al* . 1958 - 1965), half are included in the book. Only insects on larger, more showy shrubs, such as dogwood and juniper, are treated: insect groups on other shrubs, such as blueberry and other Ericaceae, are completely missing.

In summary, this book provides a good synopsis and excellent illustrations of insect species on trees and shrubs in the prairie provinces. It is well written and will be very useful to biologists and forest entomologists as long as they are aware of its limitations.

Reference

McGugan, B.M. et al . 1958 - 1965. *Forest Lepidoptera of Canada recorded by the Forest Insect Survey*. Can. Dept. Agric. For. Biol. Div. Vol. 1(1958), Papilionidae to Arctiidae. Publ. 1034; Vol.2 (1962), Nycteolidae, Notodontidae, Noctuidae, Liparidae. Bull. 128; Vol. 3 (1963),Lasiocampidae, Drepanidae, Thyatiridae, Geometridae. Publ. 1013; Vol. 4 (1965), Microlepidoptera. Publ. 1142.

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Wooley, T.A. 1988. *Acarology. Mites and human welfare* . Wiley Interscience. New York. xix + 484 pp., appendix, index. Hard cover. $(U.S.)57.50.

This is the first general textbook of acarology since *Mites or the Acari* by Hughes (1959) and*Terrestrial Acari of the British Isles* by Evans, Sheals and Macfarlane (1961). As the author notes, an up-to-date general textbook to provide students and professionals with basic information on morphology, biology and ecology of mites is sorely needed. As a result the publication of this book was awaited with pleasure and anticipation.

The book is divided into 4 parts. Part one, an introduction with 3 chapters, treats and overview of the topic (9 pp., 2 figs.), characterization of the subclass (8 pp., 6 figs.) and arachnid relatives (18 pp., 7 figs.). Part two, dealing with internal and external morphology in 10 chapters, comprises over two thirds of the text and treats size, integument and tagmatosis (33 pp., 24 figs.), gnathosoma (27 pp., 22 figs.), musculature and legs (14 pp., 11 figs.), digestive system 56 pp., 22 figs.), circulatory system (7 pp., 4 figs.), respiratory system (17 pp., 13 figs), excretory system (12 pp., 4 figs.), nervous system (39 pp., 16 figs.), reproductive system (78 pp., 40 figs.) and pheromones (10 pp.). Part three, with 8 chapters, is on classification and comprises about 20 percent of the text. Unfortunately, it presents the

reader with another modification of the many classification systems in acarology. This part has an overview chapter (13 pp., 20 figs.) and chapters on what the author considers to be orders: Opilioacrida (4 pp., 2 figs.), Holothyrida (5 pp., 3 figs.), Gamasida (14 pp., 5 figs.), Ixodida (13 pp., 4 figs.), Actinedida (17 pp., 3 figs.), Astigmata (15 pp., 4 figs.) and Orbatida (16 pp., 6 figs.). Part four has two short chapters treating historical aspects (6 pp.) and ecology (6 pp., 1 fig.). The appendix (8 pp.) has short treatments on collection, preservation and preparation techniques and control. Selected references at the end of each chapter provide an adequate and useful introduction to the literature (unfortunately, primarily in English). Certain chapters or sections of chapters (e.g. ecology) and the appendix consist primarily of references. Some references in the appendix have been annotated which is helpful. The index is incomplete. Many terms used in the text are absent (e.g. ptyctimous (p. 313), acanthions (p. 97)) and many page numbers given are incorrect (p. 413 rather than 414 for genital papilla) or inappropriate. There is no glossary. The text is abundantly illustrated with many good illustrations and scanning electron micrographs and most figures are compound. Unfortunately, some figure captions are reversed (e.g. p. 8) and some are upside down (e.g. p. 90, 94).

Overall, this book, though attractive in format, is a disappointment. Undoubtedly, my expectations were heightened by the subtitle "*Mites and human welfare* ". I expected substantial chapters on mites as pests in agricultural systems, stored products and apiculture, as biocontrol agents, as bioindicators and especially on their medical and veterinary importance - all fields where intensive and innovative work is being carried out. I assumed there would be a synopsis of the close association of mites and humans (e.g. two species of *Demodex* on humans) and diseases caused or transmitted by mites such as scabies and Lyme disease. In all of these, I was disappointed.

Contrary to the title, this book deals primarily with morphology and classification. Unfortunately, these sections are full of irritating contradictions and incorrect statements. The problems range from the minor (such as conflicting statements in different parts of the text about the size range of mites and considering the terms Actinotrichida/Anactinotrichida secondary to Acariformes/Parasitiformes in the overview of classification although the former terms are used continuously in the subsequent text) to the major (e.g. noting that coxae are fused to the venter in Acariformes (p. 348) and stating that the tritosternum has no recognized function although it has been shown clearly that it has a role in fluid distribution during feeding).

Although the book is comparatively free of typographical errors, it is riddled with inconsistencies and mistakes such as using the ordinal names Gamasida and Actinedida in the classification but the adjectives 'mesostig' and 'prostig' in the text and treating words as synonyms (e.g. notogaster/hysterosoma (p. 64)) when they are not.

Because of its poor treatment of the discipline, the many mistakes and inconsistencies and its overall lack of synthesis, this book will be of limited use for the entomologists, zoologists and pest managers for whom, according to the dust jacket, it is intended. Its audience is essentially those who, for teaching or research purposes, need rapid access to information on acarine morphology and those who are discerning enough to recognise the contradictions. Unfortunately, it is unlikely to stimulate or initiate research in this dynamic discipline.

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Prestwich, G.D. and G.J. Blomquist (eds.). 1987. *Pheromone biochemistry* . Academic Press, New York. xix + 565 pp. Hard cover. $(U.S.)85.

Seldom does one encounter the initial book in a new field, so when it comes the onus is on the authors to make an excellent first impression.

Pheromone biochemistry unpretentiously accomplishes this goal in a collection of articles, broad in their historic and scientific venue and rich in their detail. This volume provides a turning point for the exploration of a subject that has been under intensive scientific investigation for the last quarter century. Pheromones, or better semiochemicals, signal crucial messages between individuals of a given species. Their presence and identity has been recognized and well established but the means by which the signal is produced and detected has remained obscure. Investigations into the metabolic pathways by which insects produce semiochemicals and the means by which these very small amounts of material are detected have begun and the initial investigations are highlighted in this volume.

Pheromone biochemistry comprises two sections and a total of fifteen chapters. The first section of 10 chapters contains detailed information on the site and characteristics of the structures producing pheromones. Pheromone structure, function, site and endocrine regulation of semiochemicals produced by lepidopterans, coleopterans, dipterans and ixodid ticks are rigorously elaborated in the first section. The information is highly descriptive and informative, the details described are often yet to be found in the published literature. The chapters are somewhat uneven in presentation but all are well documented with an extensive index which includes insect species.

The second section comprising 5 chapters focuses on the reception and catabolism of pheromones. This area is much less well understood than those topics discussed in the first portion of the book and still controversial. The morphology, molecular biochemistry and neurobiology of insect pheromone reception are carefully reviewed. Again, description and detail are abundant. As in the first section, the morphology of sites of interest is extremely well detailed in excellent reproductions of scanning electron micrographs and the results reported in figures are precise and clear. Chemical studies of pheromone reception using radioligands and mimics on a variety of insects demonstrate their utility in establishing the site and nature of receptor tissue. The volume concludes with a review of the current understanding of the molecular mechanisms of vertebrate olfaction.

The chapters in this volume clearly illustrate the multidisciplinary approach that will ultimately provide an adequate understanding of semiochemical emission and reception. The high cost of the volume ($(U.S.)85) is tempered by the value received in quality binding, presentation and production and especially the detailed insights provided. This volume is essential to anyone who wants to be fully cognizant of this new field of semiochemical biochemistry.

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Laufer, H. and R.G.H. Downer (eds.). 1988. *The endocrinology of selected invertebrate types* . Series of invertebrate endocrinology. Vol. 2. Alan R. Liss, New York. 500 pp. Hard cover $(U.S.) 195.00, soft cover $(U.S.)75.00.

It is eleven years since the publication of the second edition of *Comparative endocrinology of the invertebrates* by Highnam and Hill. Since that time there have been substantial advances in our

understanding of endocrinological phenomena and the literature has become too extensive for even exceptionally talented and broadly based individuals to present a current perspective of invertebrate endocrinology. As a consequence, the editors have maintained the policy established in Volume 1 of this series in which they invited experts to present an analysis of the current understanding of their particular topic. This strategy worked extremely well since the analyses were restricted to insect endocrinology and the subject of each chapter was determined on functional grounds. The editors also had the advantage of being themselves involved in insect endocrinology and consequently could select topics with authority and confidence.

The second volume of this series examines the endocrinology of organisms from a number of different phyla. The criteria determining the initial subdivisions are phylogenetic but, on occasion within these phylogenetic groupings, the editors have commissioned chapters focused on specific endocrine functions. This reader found certain of the resulting subdivisions to be somewhat unsatisfactory. Perhaps each section could have had a "lead in" introduction integrating the topics covered in that section. This would have been especially helpful I think for the crustacean section.

The sequence of topics is broadly phylogenetically based. In the first grouping, there aere three chapters dealing with the endocrinology of coelenterates, acoelomate worms and nematodes. The format of these chapters is similar, starting with a description of the nervous system which in each phylogenetic group offers the most promising anatomical basis for endocrine activity and proceeding to review evidence for endocrine activity. In both coelenterates and acoelomates, that activity is most convincingly associated with regeneration, whereas in nematodes the best evidence of endocrine control comes in the control of moulting. Endocrinological studies in these three groups of organisms have been hampered by the absence (or our failure to recognize) discrete endocrine organs amenable to classic ablation and replacement therapy experiments.

Molluscan endocrinology is treated in the next two chapters. The hormonal control of reproduction, growth, energy metabolism and osmoregulation are examined in the first chapter. Most attention is paid to the endocrinology of pulmonates but other gastropods and cephalopods are considered. The second chapter is devoted to the egg-laying hormones of *Aplysia* and *Lymnea* . These endocrine systems include the most extensively studied invertebrate peptide hormones and represent a model for virtually all other anlayses.

The largest section of the book is concerned with crustacean hormones and it is there that the text might have benefitted from some judicious amalgamations and perhaps even some further direction given to contributors. Thus, there are no satisfactory (to me) diagrams of the endocrine organs of Crustacea. While I realize there is a diversity of form, there are certain generalities. The neuroendocrine organs of the eyestalk are shown only in passing and with specific reference to hyperglycemic hormone. The separation of moulting and regeneration must surely be suspect, given the interdependence of the two functions. These are criticisms of form rather than substance and are not intended as criticisms of individual chapters which together cover most, if not all, functions of Crustacea known to be under endocrine control.

The final three chapters on arthropods describe the endocrinology of merostomates, arachnids and myriapods. Of these three groups, by far the most is known about the myriapods due largely to the research by Joly and coworkers. The last chapter in the book considers endocrine control of reproduction in echinoderms. This paper presents for the first time an organized perspective of the current understanding of the chemical control of echinoderm reproduction.

The book makes a valuable contribution to the literature on invertebrate enodcrinology. It is perhaps most valuable in its exploration of the endocrinology of those groups about which least is known. There have been recent reviews of crustacean and molluscan endocrinology which render these sections less important and perhaps, as a result, stimulated the criticisms of this reader. Despite

the criticisms and the disappointing absence of a section on annelids, the book offers and up-to-date perspective of the endocrinology of most invertebrates other than insects. The price of the paperback makes it a reasonable bargain for the individual invertebrate endocrinologist.

B.G. Loughton
Department of Biology
York University
North York, Ont.

Books Available

Judd, W.W. 1988. *Annotated catalogue of the meetings, 1890 to 1987 of the McIlwraith Field Naturalists of London, Ontario.* Phelps Publishing Co., 87 Bruce St., London, Ont. N6C 1G7. $8.00. (Note: From 1890 to 1903, this club was the Ornithological Section of the Entomological Society of Ontario.)

Young Entomologists' Society Resource Guide (Second Edition); 450 businesses and organizations offering entomology equipment, supplies, services, preserved specimens, live arthropods, books and publications, audiovisuals, educational materials, gift and novelty items, insect zoos and butterfly houses and entomological organizations.
Send $(US)7.50 to the Young Entomologists' Society, Department of Entomology, Michigan State University, East Lansing, Michigan, U.S.A. 48824 - 1115

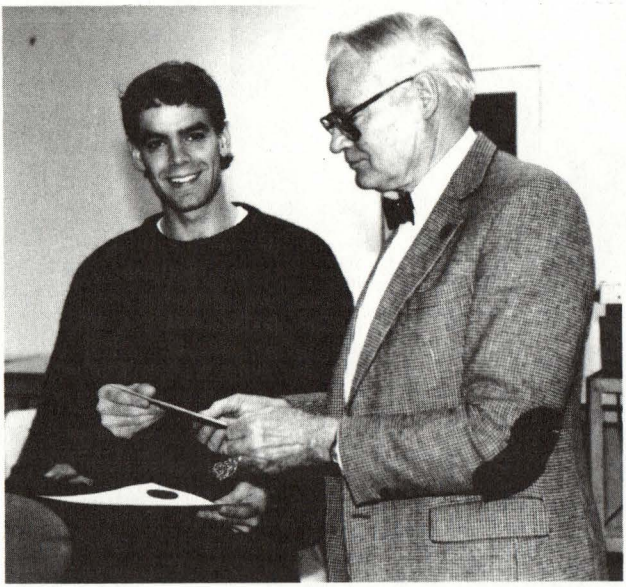
Alternatives. Perspectives on Society, Technology and Environment. Available: c/o Faculty of Environmental Studies, University of Waterloo, Waterloo, Ont. N2L 3G1. In Canada, $15.00/Individual, 30.00/Institution. Outside Canada, $20.00/Individual, 40.00/Institution.

Balogh, J and P. Balogh. 1988. *The Soil Mites of the World. Vol. 2. Oribatid Mites of the Neotropical Region.* Elsevier. $(US)136.75, Dfl. 260.00. Elsevier Science Publishers, P.O. Box 1663, Grand Central Station, N.Y, N.Y., U.S.A. 10164-0028.

Diseases & Insects of Vegetables in Canada - Contributors

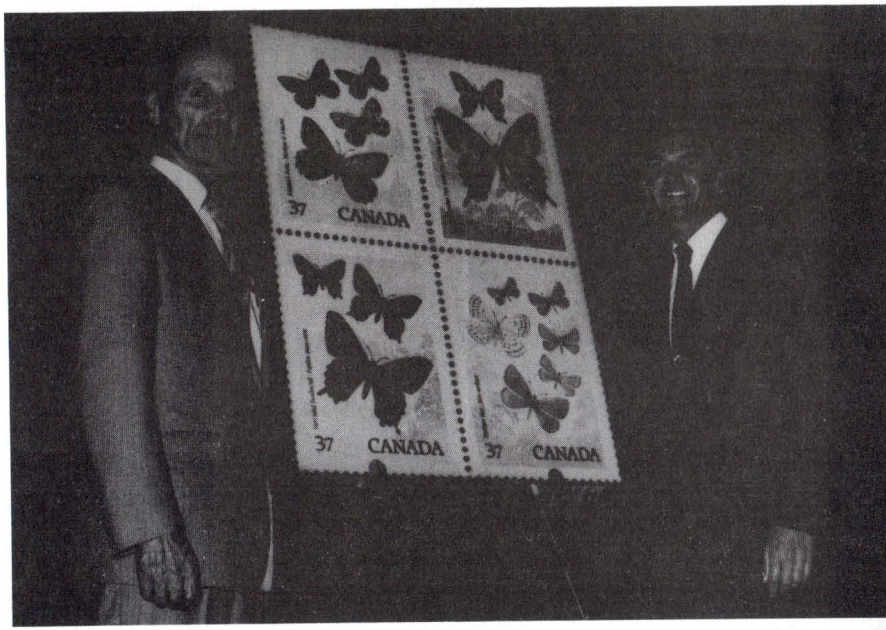
Crop	Pest	Contributor
general	aphids	A.R. Forbes, C.-K. Chan, C. Cloutier
alfalfa sprouts	leafminer	J. N. McNeil
asparagus	asparagus aphid	R.S. Vernon
beans	Mexican bean beetle,	J.N. McNeil
	European corn borer, seedcorn maggot	C. Richtot
carrot	carrot weevil, carrot rust fly	G. Boivin
celery	tarnished plant bug	G. Boivin
cole crops		R.P. Jaques
	cabbage looper, cabbage root maggot, diamondback moth, imported cabbageworm	J.G. Stewart
	flea beetles	G.K. Bracken
- brocccoli	cabbage maggot	C. Richtot
- cabbage	cabbage maggott, imported cabbageworm, seedcorn maggot	C. Richtot
- radish, rutabaga	cabbage maggot	C. Richtot
corn(sweet)	aphids	D. Coderre
	European corn borer	C. Richtot, M. Hudon
	northern corn rootworm	W.N. Yule, C. Richtot, P. Martel
	fall armyworm	C. Richtot
cucumber	striped cucumber beetle	C. Richtot
lettuce	lettuce aphid	R.S. Vernon
onion	onion maggot, onion thrips	G. Boivin
peas	seedcorn maggot	C. Richtot
peppers	European corn borer	C. Richtot
potato	aphids	G. Boiteau, C. Cloutier, J. McNeil
	Colorado potato beetle	G. Boiteau, D. de Oliviera, P. Martel, R.-M. Duchesne, J. McNeil, W.N. Yule
	potato flea beetle	J.G. Stewart
	tuber flea beetle	R.S. Vernon

PHOTOS



Ed Becker presenting Scholarship Award to Mark Lewis

Dr. L.N. Chiykowski (l), President, Canadian Phytopathological Society and Dr. D. Eidt, President signing the Memorandum of Agreement for the publication of *The Diseases and Insects of Vegetables in Canada.* Ottawa, Oct. 16, 1988



Ray F. Morris (l) and Mike Gormick, General Manager, Canada Post Pacific Division unveil the butterfly stamps at the Opening Ceremonies of the XVIII International Congress of Entomology, July 1988

UPCOMING MEETINGS

International Congress on the Conservation of Butterflies in Europe, 12 - 15 April 1989, Wageningen, The Netherlands.

CONTACT: Congress Building, International Agricultural Centre, P.O. Box 88, 6700AB, Wageningen, The Netherlands.

Canadian Society of Zoologists Annual Meeting, 16-20 May, 1989, York University, Toronto, Ontario.

CONTACT: Dr. M. B. Fenton, Department of Biology, York University, North York, Ontario, M3J 1P3

North American Benthological Society Annual Meeting, 16-19 May 1989, University of Guelph, Guelph, Ontario

CONTACT: Dr. G.L. Mackie, Department of Zoology, University of Guelph, Guelph, Ontario Canada NIG 2W1

International Federation of Classification Societies (IFCS), 27 - 30 June 1989, Charlottesville, VA.

CONTACT: IFCS-89, Department of Mathematics, University of Virginia, Charlottesville, VA, U.S.A. 22903

Third International Meeting on Rhynchota Fauna of Balkan and Adjacent Regions, 29 Aug. - 1 Sept. 1989. Marine Biological Station, University of Ljubljana.

CONTACT: Dr. M. Gogala, Prirodoslovni muzej Slovenjie, Presernova 20, P.O.B. 290, YU-61001 Ljubljana, Yugoslavia.

Joint Annual Meeting of the Entomological Society of Canada and the Acadian Entomological Society, 1 - 3 October 1989. Radisson Plaza Hotel, St. John's, Newfoundland.

CONTACT: Dr. D. Larson, Department of Biology, Memorial University, St. John's, Newfoundland A1B 3X9

Western Forum (Western Committees on Crop Pests, Plant Disease Control, Livestock Pests and Vertebrate Pests, 16 - 18 October 1989.

CONTACT: I.L. Wise, Agriculture Canada, Research Station, 195 Dafoe Road, Winnipeg, Manitoba R3T 2M9

Troisiéme Conference Internationale des Entomologistes d'Expression Française, 9 - 14 juillet 1990, Gembloux, Belgium.

CONTACT: M. C. Verstraeten, Zoologie générale et appliqué, Faculté des Sciences agronomique de l'Etat, B-5800 Gembloux, Belgique

MISCELLANEA

Editor's Notes

By now most of the readers of the Bulletin should be over their initial surprise at the obviously new format. I've made changes in the style of the Bulletin for several reasons - some aesthetic and some practical but most a mixture of the two.

First of all, production of the Bulletin has entered the computer age. This issue was put together entirely on a Macintosh Plus computer that sits proudly amid the pile of rubble I euphemistically call a desk. This change has enabled me to make several changes in typeface and style as the Bulletin was put together. The advantages to this are manyfold but will both speed up production time and reduce costs. Instead of being typeset, the Bulletin is now produced from camera-ready copy.

The cover design will feature a different insect for each issue. I have tried to choose insects for the cover which are, as one of my entomology students remarked, "just plain neat". The cover design and line drawings were done by Ms. Raannana Thiébeaux - a biology student at Mount Allison who is interested in biological illustration.

The table of contents (back page) will be in the same format for each issue. If a particular heading has nothing in it (e.g. no Letters to the Editor) in a particular issue, then that heading will simply have no page number next to it.

I would also like to take this opportunity to publicly thank Donna Giberson for her dependable and invaluable service as an Editorial Assistant. Donna has the unenviable task of reading the initial galley proofs of the Bulletin and reconciling the proofs with my unique editorial marking on less than clean manuscripts.

Finally, the content of the Bulletin is the domain of all members. If you have any news, comments, editorials, letters, photos, articles etc., please send them along. If you care to send material on floppy disk, feel free. I use MacWrite or Microsoft Word as a word processing package (but no MS-DOS programs) and I'll be sure to return your disk.

Ron Aiken
Bulletin Editor

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