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Entomological Society of Canada

Société d'Entomologie du Canada

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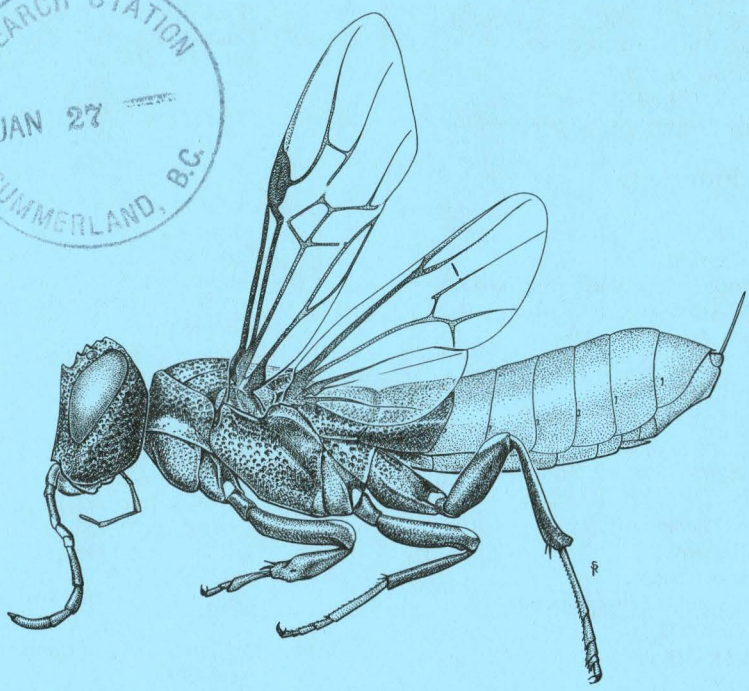

Entomological Society of Canada
Société d'Entomologie du Canada

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The **Bulletin of the Entomological Society of Canada**, published since 1969, presents quarterly entomological news, opportunities and information, details of Society business, matters of wider scientific importance and book reviews.

Le **Bulletin de la Société d'Entomologie de Canada**, publié depuis 1969, présente trimestriellment des informations entomologiques, des occasions, des reseignements sur les opérations de la Société, des dossiers scientifiques d'importance, et des analyses d'ouvrages.

Illustrated on the front cover is a Orussus occidentalis (Cresson) (Hymenoptera: Orussidae). These rare and unusually sculptured Hymenoptera are a link between phytophagous sawflies and the thin-waisted Apocrita. They are the only parasitic Symphyta known. The family is ancient and well represented as fossils. [Habitus illustration by Susan Rigby, Ottawa, Ontario, courtesy of H. Goulet and J. Huber.]

La page couverture illustre l'adulte de Orussus occidentalis (Cresson) (Hymenoptera: Orussidae). Ces hyménoptères rares aux ornementations inusitées constituent un lien entre les mouches à scie polyphages et les Apocrites à taille fine. Ce sont les seuls Symphites parasitiques connus. Cette famille est ancienne et est bien représentée dans les fossiles. [L'illustration par Susan Rigby, Ottawa, Ontario, une courtoisie de H. Goulet and J. Huber..]

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The Entomological Society of Canada was founded in 1863 primarily to study, advance and promote entomology. It supports entomology through publications, meetings, advocacy and other activities.

La Société d'Entomologie du Canada a été établie en 1863 principalement pour promouvoir l'étude et l'avancement de l'entomologie. Elle soutient l'entomologie par l'entremise de publications, de réunions et d'autres activités.

SOCIETY BUSINESS / AFFAIRES DE LA SOCIÉTÉ

The mid-term meeting of the Executive Council will be held at the Entomological Society of Canada office in Ottawa on **April 18, 2000**. Matters for consideration at this meeting should be sent to the secretary at the address below.

La réunion de mi-session du Conseil Exécutif aura lieu au Siège social de la Société d'entomologie du Canada le **18 avril, 2000**. Veuillez faire part au secrétaire de tout sujet pouvant faire l'objet de discussion à l'une ou l'autre de ses réunions en communiquant à l'address suivante.

Dr. Rick West
Box 515, Portugal Cove
Newfoundland A0A 3K0
phone and fax: 709-895-2734
email: reely.west@roadrunner.nf.net

Call for Nominations - Second Vice President & Director-at-Large

Nominations for Second Vice President and Director-at-Large must be signed by three members in good standing and received by **30 April 2000** by the Secretary, Dr. Rick West.

Nominations pour Deuxième Vice-Président et Directeur doivent être signée par trois membres de la Société et envoyée avant le **30 avril 2000** au secrétaire, Dr. Rick West.

The *Canadian Entomologist* and the *Memoirs* are available from the Ottawa office and may be purchased by Mastercard or VISA as well as by cheque or money order.

All regular and student members will have received their 2000 renewal forms by now and are urged to pay promptly, especially if ordering either of the Annual Reviews offered at discount prices. All in Canada are reminded to add the GST or HST applicable to all amounts.

Please send all correspondence concerning the *Bulletin* to:	Please send all correspondence concerning Book Reviews for the *Bulletin* to:
Dr. Hugh J. Barclay *Bulletin* Editor Pacific Forestry Centre 506 West Burnside Road Victoria, B.C. V8Z 1M5 Tel: (250) 363-0736 Fax: (250) 363-0775 E-mail: hbarclay@pfc.forestry.ca	Dr. Vince Nealis Chair, Publications Committee Pacific Forestry Centre 506 West Burnside Road Victoria, B.C. V8Z 1M5 Tel: (250) 363-0663 Fax: (250) 363-0775 E-mail: vnealis@pfc.forestry.ca

The deadline for submissions to be included in the next issue (Vol. **32(1)**) is **February 1, 2000**
La date limite pour recevoir vos contributions pour le prochain numéro (Vol. **32(1)**) est le **1 fevrier 2000**

ESC President's Report

In recent years the President's reports have described eventful, even hectic, terms as they presided over major changes in publications and publishing, headquarters staffing, committee structure and Governing Board composition. This year I have had the privilege of presiding over a society that has begun to reap some of the benefits from these changes.

First, the Society's finances are in good shape: efforts to reduce publishing and other costs have paid off and this year for the first time in several years we were able to contribute to our general investment account. As you will see in the Treasurer's report, there is a small surplus in the 2000 budget. Having regained a measure of financial stability, however, it is essential to continue to apply a cautious approach in the future for any projects that may have financial impacts.

After a satisfactory trial year of publishing The Canadian Entomologist with NRC Research Press, a three-year contract was signed in December with the NRC. I especially thank Hugh Danks for all the hard work he put into negotiating the contract and seeing this project to fruition over several years. Under Editor Jean Turgeon, the journal continues to evolve and improve with format changes and increasing use of electronic submission and review processes. This year the Governing Board approved the Editor's request for a special issue to be published in 2000. The question of electronic publication of the journal is now before us—and I believe it is not we will do it, but when and how best to proceed. The Editor has requested assistance and advice from NRC Research Press, which has had experience with electronic publishing in order to develop a detailed proposal to submit to the Governing Board.

Along with the rest of the planet, ESC continues to expand it's electronic communications and web presence. The ESC web site gets better and better, thanks to the Web Committee. The web site now provides the table of contents of current and past issues of the journal and students are able to access the application forms for awards. This is becoming an increasingly important channel for Society business and I invite wider participation and contribution from all members to make the site as useful to you as possible.

Planning for the 2000 joint meeting with the SEQ and Entomological Society of America is proceeding with a Local Organizing Committee ably headed by Charles Vincent. This will be a very large meeting, with an anticipated attendance of over 3000 participants and many special events. As initially conceived it will be an opportunity to strengthen ties with the ESA and celebrate entomology in the whole of North America. To that end an invitation on behalf of all three societies was sent to colleagues of the Entomological Society of Mexico to welcome their attendance. An overall organizing meeting was held in Montreal in April attended by the local organizing committee, representatives and executive members from the three Societies, as well as chairs of key ESA committees. We discussed financial agreements, ideas for events, participation of student volunteers, ideas for the theme, scheduling and many other issues. A financial agreement has not yet been finalized, however, should be completed in the next month. The main conference arrangements are being handled by a professional conference organizer employed by ESA.

Two new ad hoc committees were struck this year. A *Bulletin*/Web Content Committee was charged with clarifying and make recommendations on content and function of the printed Bulletin versus the electronic Web site. A Commemorative Insect Committee was established to investigate the possibility of a national insect project for Canada. Reports of these two committees are included with the other reports in the Bulletin.

As can be seen from this review, the Society has absorbed large changes and is running smoothly. I hope that this year is an indication of the future course of the Society for some time to come. This does not mean we have no concerns—rather, it means that we are well placed to face future challenges. An important one is the continuing drop in memberships and subscriptions, which is a major source of income. This is a concern that should come to the forefront of

consideration for future executives. To boost our publication sales, the Marketing Committee developed a brochure and arranged for an exchanged mailing labels with the Entomological Society of America. Earlier this month Sandy Devine started mailing these out, along with information on membership. This is a good effort and we will need more like it.

I would particularly like to thank Secretary Rick West and Acting Treasurer Bob Foottit who has been wearing two hats this year, as Second Vice President while also filling in for Gary Gibson. I would also like thank our Trustees, Scientific Editor of The Canadian Entomologist, Jean Turgeon, as well as our Bulletin Editor, Hugh Barclay, for their hard work. As previous incumbents have observed, it isn't until you are actually in this post that you really realize just how much work members do each year on committees and special projects. This willingness to work on behalf of the Society is encouraging for the strength and future of the Society.

It was a great pleasure to hear from members from all parts of the country over the course of the year and I was glad to meet (electronically at least) new committee volunteers. I thank you all for the honour of serving the Society as President—it has been busy, interesting, challenging and even, dare I say it, fun!

Linda A. Gilkeson
ESC President
Victoria, B.C.

Rapport du Présidente

Depuis quelques années, les rapports du Président décrivent des mandats mouvementés, parfois trépidants, car ce furent des périodes de changements majeurs pour plusieurs secteurs tels que ceux des services de publications et d'impression, de la sélection du personnel du bureau chef, de la structure des comités et de la composition du conseil d'administration. Cette année, j'ai eu le privilège de présider une société qui commençait à profiter de ces changements.

En premier lieu, l'état financier de la société est sain : les efforts pour réduire les coûts de publication, entre autres, ont porté fruit et cette année, pour la première fois en plusieurs années, nous pouvons contribuer à notre compte général d'investissement. Tel que vous le verrez dans le rapport du trésorier, nous affichons un modeste surplus pour le budget de l'an 2000. Malgré l'atteinte d'un certain degré de stabilité financière, il est néanmoins nécessaire de continuer à adopter une approche conservatrice envers tout futur projet ayant des conséquences financières.

Suite à l'essai satisfaisant de la publication du 'Canadian Entomologist' par la Presse du Conseil National de Recherches du Canada lors de la dernière année, un contrat de trois ans fut signé en décembre avec ce dernier. Je dois remercier particulièrement Hugh Danks pour l'effort considérable qu'il a fourni lors des négociations du contrat et pour la poursuite de ce projet au cours des dernières années. Sous la direction de l'éditeur Jean Turgeon, la revue continue d'évoluer et de s'améliorer avec des changements de mise en page et de l'utilisation croissante du processus de soumission et de révision par voie électronique. Cette année, le conseil d'administration approuva la requête de l'éditeur pour la parution d'un numéro spécial en l'an 2000. Nous avons étudié la question de la publication électronique de la revue et la question n'est plus de se demander si nous devons le faire mais plutôt à quel moment et de quelle façon nous allons procéder. L'éditeur a demandé l'aide et l'avis de la Presse du CNRC, qui a de l'expérience en matière de publication électronique, pour la préparation d'une proposition détaillée qui sera remise au conseil d'administration.

Tout comme le reste de la planète, la SEC continue d'accroître ses communications par voie électronique et sa présence sur le Web. Le site Web de la SEC s'améliore toujours grâce au comité 'Web' et le site offre présentement une table des matières des numéros courants et antérieurs de la revue. De plus, les formulaires d'inscription aux bourses sont maintenant accessibles pour les étudiants par l'intermédiaire de notre site. Il devient de plus en plus un moyen de

communication de choix pour les affaires de la société et j'invite les membres à participer et à contribuer davantage au site afin de le rendre le plus utile possible.

La planification de la réunion conjointe de la SEQ et la Entomological Society of America (ESA) en l'an 2000 est en cours sous un comité d'organisation local présidé adroitement par Charles Vincent. Cette réunion sera très importante avec une participation anticipée de 3000 inscriptions et une liste de nombreux événements spéciaux. Tel que conçu initialement, ce sera une occasion de renforcer les liens avec la ESA et de célébrer l'entomologie au niveau de toute l'Amérique du Nord. À cet effet, une invitation fut transmise au nom des trois sociétés à nos collègues de la Société d'entomologie du Mexique afin d'inciter les membres de cette société à assister à cette réunion. Une réunion de coordination générale eut lieu en avril à Montréal auquel assistèrent les membres du comité d'organisation local, des représentants et des membres exécutifs des trois sociétés ainsi que les responsables des comités clés de la ESA. Nous avons discuté des ententes financières, des idées pour les événements, de la participation des étudiants volontaires, des idées pour le thème et la programmation et de beaucoup d'autres points. Une entente financière n'est pas encore établie, mais elle devrait être finalisée au cours des prochains mois. Notons que les principaux événements sont organisés par un coordonnateur professionnel employé par la ESA.

Deux nouveaux comités ad hoc furent nommés cette année. Un comité de Contenu du bulletin/web fut chargé de clarifier et d'émettre des recommandations pour le contenu et l'utilité d'un bulletin imprimé versus une parution sur le site Web. Un comité d'insecte emblème fut établi afin d'explorer la possibilité de développer un projet d'insecte national pour le Canada. Les rapports de ces deux comités sont ajoutés aux autres rapports du bulletin.

Comme vous pouvez le constater, la société a procédé à des changements importants et continue de bien se porter. J'espère que cette année sera de bonne augure pour le déroulement des activités futures de la société. Ceci ne veut pas dire que nos soucis sont terminés mais démontre que nous sommes bien positionnés pour faire face aux défis futurs. Un de ces défis est la baisse continuelle des inscriptions, notre principale source de financement. Cette préoccupation doit être de première importance pour les futurs membres de l'exécutif. Afin d'augmenter nos ventes de publications, le comité de marketing a développé un dépliant et organisé un échange d'étiquettes postales avec la ESA. Plus tôt ce mois-ci, Sandy Devine a fait un envoi du dépliant avec des informations pour les inscriptions. Ceci est un effort important et nous devons en faire davantage.

Je voudrais remercier particulièrement le secrétaire Rick West et le trésorier remplaçant Bob Foottit qui a assumé deux rôles cette année, celui de deuxième vice-président tout en remplaçant Gary Gibson. Je voudrais aussi remercier nos fiduciaires, l'éditeur scientifique du Canadian Entomologist, Jean Turgeon, ainsi que l'éditeur du bulletin, Hugh Barclay, pour leur travail assidu. Tel que noté par les présidents antérieurs, ce n'est que lorsque l'on est en poste que l'on s'aperçoit du travail énorme réalisé par les membres des comités et des projets spéciaux. Leur volonté de travailler au nom de la société est encourageante pour la force et le futur de la société.

Ce fut un grand plaisir de communiquer avec les membres du pays entier au cours de cette année et je fus contente de rencontrer (du moins par voie électronique) les nouveaux volontaires de comité. Je vous remercie pour l'honneur que vous m'avez donné de servir la société en tant que présidente. Ce fut une année active, mouvementée, intéressante, avec beaucoup de défis et même un certain plaisir.

Linda A. Gilkeson, Présidente
Société d'entomologie du Canada
Victoria, B.C.

Call for Nominations - Fellows and Honorary Members

The Achievement Awards Committee invites the membership of the Entomological Society of Canada to nominate worthy candidates as Fellows or Honorary Members in the ESC.

Fellows: Fellows may be active or special members or entomologists who have made outstanding contribution to the advancement of entomology. This can be in any area, such as research, teaching, application, or administration, and may be judged on the basis of contribution to and stimulation of the work of others, as well as by direct personal effort. Nominations must be signed by four active members of the Society.

Honorary Members: An Honorary Member may be an active or a former active member of the Society who has made an outstanding contribution to the advancement of entomology. Nominations must be signed by five active members of the Society and are then reviewed by the Achievement Awards Committee. Names are submitted to the Executive Council for approval.

A brief biography of the candidate and a statement of her/his contribution to entomology should be included with all nominations. Nominations for both awards are reviewed by the Achievement Awards Committee and names are submitted to the Executive Council for approval. Nominations should be received by the Committee by **January 31, 2000**. They should be sent in an envelope marked "Confidential" to:

Linda A. Gilkeson
Victoria, BC

Committee Reports

Report of the Elections Committee

The successful candidates were:

Second Vice-President	Dr. Bernie Roitberg
Directors-at-Large	Dr. Peter de Groot

Report of the Treasurer

The Society continues to enjoy financial stability. A small operating surplus is budgeted for the year 2000. This year we were able to re-invest ($12,000) into the Society's general investment account for the first time in a number of years. Other segments of the Society's finances, including the Endowment and Scholarship Funds and the Headquarters operations, continue to be stable.

One area of concern is the slow but steady decline in membership and subscriptions, the main sources of annual revenue for the Society. It will not take a large drop in revenue to upset the financial balance as the Society does not have the financial cushion, of a large amount of annual interest income, that it once had.

My sincerest thanks to Sandy Devine for her great efforts in managing the Headquarters and making sure that everything runs smoothly.

R. Foottit
Acting Treasurer

ESC Finance Committee Report

A meeting of the Finance Committee was held on 15 September 1999 to discuss the Treasurer's Report, the Treasurer's 1999 budget, and other matters relating to the mandate of the Committee. Present: J.E. O'Hara (Chair), P.G. Mason and R.G. Foottit (Acting Treasurer 98/99). Absent: D.J. Parker and M.J. Sarazin.

The Treasurer's Report and 1999 budget were reviewed. The budget appears to be in good order and a surplus is expected in the coming year. The Finance Committee is supportive of investing $12,000 of the surplus into the Investment Fund, since income from investments has the potential to keep the Society financially stable in the event of decreased revenues in the future. Investments are particularly important at this time because memberships and subscriptions continued to decline during 1999, though at a slower rate than in 1998.

The Committee presented a recommendation to the Governing Board earlier this year on the issue of revenue-sharing between the ESC and Affiliated Societies with respect to profits realized at joint annual meetings. The Committee proposed that the following non-binding position be adopted by the ESC:

"With respect to the balance-sheet of joint annual meetings, the ESC makes the following recommendations to Affiliated Societies:

i. ESC functions (Student reception, President's reception and two Governing Board meetings) should be costed as part of the meeting package and included in the registration fee, and not billed separately to the ESC.

ii. If a meeting is profitable then the monetary advances (up to $2500 to assist with arrangement of scientific program and up to $1500 for special speakers) from the ESC should be returned in full (or to the extent of the profit if it is less than the amount of the advances), but any additional profit should accrue to the host Affiliated Society.

iii. If a meeting loses money, the ESC will cover 50% of the loss."

Jim O'Hara, Chair
Finance Committee

Report of the *Bulletin* Editor

My fourth year as Bulletin Editor is drawing to a close and I have enjoyed the activity and made valuable contacts as a result of it. However, I feel that it is fitting that I resign my position in the year of the New Millenium (end of 2000) and let new blood take over. It is also fitting that some scruitiny of the role of the Bulletin take place, given the recent explosion of activity and information transfer on the Web. I feel that there is still a place for the Bulletin, but perhaps some of its present functions could usefully be taken over by the ESC Webmaster, and perhaps the Bulletin could also be extended in other directions. I continue to get good support from the various people that send me material, and as e-mail becomes more ubiquitous the job becomes easier. I don't envy the old days where everything had to be typed and retyped.

Hugh Barclay
Bulletin Editor

Report of the Scientific Editor - *The Canadian Entomologist*

Publication of The Canadian Entomologist. There has been no change in my way of handling manuscripts or in my policy on dating and assessing manuscripts (a description of these procedures can be found in my 1998 report) as they seem to work well.

Table 1. Origin of the submissions received for consideration of publication in *The Canadian Entomologist*

	1998		**1999**			n	(%)	n	(%)
	n	(%)	n	(%)					
					Japan	1	(0.9)	2	
Canada	79	(67.5)	47	( )	New Zealand	1	(0.9)	1	
United States	17	(14.5)	10	( )	Australia	-		1	
Mexico	4	(3.4)	2						
					Brazil	1	(0.9)	-	
Spain	5	(4.3)	3		Guadeloupe	1	(0.9)	-	
Yugoslavia	2	(1.7)	-		Uruguay	1	(0.9)	-	
Sweden	2	(1.7)	-		Argentina	-		1	
France	1	(0.9)	1		Morocco	2	(1.7)	-	
Italy	-		2		Egypt	-		1	
Ireland	-		1		India	-		1	
	1998		**1999**		TOTAL	117		73	

Table 2. Distribution of the assessments of manuscripts submitted to *The Canadian Entomologist*

	1998	**1999**
Minor revisions needed	28.2%	16.0%
Major revisions needed	29.1%	36.0%
Unsuitable, needs re-review	20.5%	8.0%
Unsuitable	22.2%	40.0%
n	117	50

In 1998, 117 manuscripts were submitted (1 review article, 22 notes and 94 standard papers). The number of submissions fluctuated between 5-14 per month. Most were from Canada (Table 1). The handling time (number of weeks between the date a submission is received by me and the date an evaluation is returned to the author(s)) for 54% of these submissions was 12 weeks or less: this is what I would like to see as the norm. An additional 25% took 13-16 weeks to handle (a bit high); the remainder, 21%, took over 4 months (anywhere from 18 weeks to 30 weeks) to handle. Our (the Associate Editors and I) objective for 1999 is to reduce this latest proportion by at least half. The 1998 rejection rate (22%) was in line with that of previous years (14%, 1994; 25%, 1995; 20%, 1996; 15%, 1997). All submissions received in 1998 have already been published or will be shortly. My records indicate that most manuscripts have been published within 7 and 11 months of receipt (mean = 8.9; range = 4-14). I believe there is a need to do much better if we are to remain competitive.

Up to 31 Aug 1999, I have received 73 submissions (2 reviews, 11 notes, and 60 standard

articles), which is slightly behind the number received in 1998 (79) at the same date. This suggest, we should receive about the same (or a slightly lower) number of submissions as in 1998. Thus far, handling time has improved notably over last year: 75% were handled in <12 weeks; 19% in 13-16 weeks; and, 6% in 17 weeks or more. Another notable difference with last year is our rejection rate, which has doubled (Table 2). The main reason for this increase is the poor quality of submissions from outside of North America. Another reason is that most of the submissions considered in 1998 as "Unsuitable, needs re-review" were re-submitted but without addressing satisfactorily the concerns expressed by referees and the Associate Editor.

The appearance of *The Canadian Entomologist* changed slightly in 1999 with the approval, by the Publication Committee, of a newly-formatted Table of Content and of a simplified format for reporting the surname and initials of authors in the reference list. On the recommendation of the Editor and with the support of Associate Editors, the format of the Table of Content of each issue has been modified to better advertise that manuscripts from all disciplines of entomology are published in *The Canadian Entomologist* and at the same time provide readers with a quick way to locate titles that could be of interest. Instructions to contributing authors were modified in the January issue to emphasize the types of papers (reviews, standard, notes, forum) published in *The Canadian Entomologist* and to provide examples on the new format for citing references. An up-to-date version of the "Instructions to Authors" is always available at **http://www.biology.ualberta.ca/esc.hp/authors.htm.** There has been another small change, which had been suggested by an Associate Editor. Authors now have the option of including their e-mail address after their postal address on the title page of published manuscripts.

A new three year contract with NRC has been signed. The contract stipulates that the distribution date for all issues, except the January/February, of TCE shall be the first day of the first month in each bi-monthly publication period. The January/February issue will be distributed within the first two weeks of February (this is to give the Society time to produce an up-to-date membership list). For NRC to respect these distribution dates, I must ensure that all manuscripts from an issue are at NRC by a specified deadline. These deadlines, between the Editor and NRC, were established to eliminate delays by NRC in the publication process (as experienced in the first year of our contract with them) and ensure regular and timely delivery of our journal to members and subscribers. A spin off of these deadlines is increased visibility of our journal because it is one of the first entomology journals on library shelves. I am pleased to report, that the last 3 issues of *The Canadian Entomologist* have been distributed on time.

Because the number of submissions was low in 1997 (less than 120), remained the same in 1998, and might be lower in 1999, the number of printed pages in regular issues dropped from 1188 in 1997 to 912 in 1998 and will be about 840 in 1999 and in 2000. Publishing less than 840 pages would cost the same as publishing 840 pages because our contract with NRC is based on that minimum number (thus we pay for 840 whether we publish it or not). The gradual reduction in the number of printed pages since 1997 has resulted in lower expenditures for the Society; however, there is no "reserve" of manuscripts to be published and thus it is becoming increasingly difficult to fill up the bi-monthly issues by the specified deadlines given the low number of submissions. If the number of submissions does not increase soon, there could be serious delays of publication and significant increases in turn-around time (i.e., time from submission to publication). This situation would eliminate all benefits resulting from our hard work in reducing that time. Thus, there is an urgent need to develop a sound, comprehensive and concerted marketing strategy to promote our Journal.

CP Alexander Reviews. The Treasurer informed me in late 1998, that interest earned by the CP Alexander fund generated enough money to publish about 35 printed pages per year. For those not familiar with this fund, the Entomological Society of Canada received in 1986 a bequest from

the Estate of the late Dr Charles P Alexander, a noted taxonomist of crane flies. It was his wish that the interest earned by the money be used to support annually the publication of invited articles or reviews that broaden the scope of *The Canadian Entomologist* and that are of current significance to Canadian entomology. Thus far, I have recommended and the Publication Committee has approved two invitations to prepare such review articles. Both should appear in 2000. In an effort to boost the profile of our journal, I plan to continue seeking review articles to be published under this heading and will try to make it a permanent fixture in our journal. I am also working with Dr. Sharkey, one of my Associate Editor, on the development of a series of articles on insect phylogeny that could appear in TCE and that would be of interest to all entomologists and that could serve as a magnet for other papers in this field.

Special issues of The Canadian Entomologist. The Executive of the Board approved in August the publication of a 7th, special issue of *The Canadian Entomologist* in 2000, dedicated solely as a tribute to Dr Borden Tribute, providing that: i) the total annual number of printed pages for all 7 issues (vol 132) is capped at 1150 (meaning that the special issue should not exceed 300 pages because 840-850 pages of that 1150 are allocated to the regular issues (1-6); and, ii) there will be a surcharge of $15 per page to assist the Society recover some of the extra costs inherent to the publication of this special issue (i.e., partial postage, new cover, etc). Should the issue be larger than 300 pages, authors or proponents of the Special Issue will be charged the full cost of those extra pages (about $110 per printed page). Drs P de Groot and L MacLauchlan, the proponents of this special issue, have agreed to these terms. The issue is scheduled to appear as a supplement to the November/December 2000 issue.

I had received last May another request for a special issue to honour Dr Scudder. I have just been informed by the proponents of that request that there will not be enough contributions to fill up an entire issue. They asked if their contributions could be part of a regular issue but identified in some way as a tribute to his career and contribution to Canadian entomology. This request can easily be accommodated.

Associate Editors. Since last year's Annual meeting in Quebec City, I have appointed Dr G Boiteau (Fredericton) and Dr M Cusson (Quebec) to assist me with the evaluation of submissions on crop entomology and physiology, respectively.

Handling costs. The real cost of handling the 117 manuscripts received in 1998 is unknown, but is, for all intended purposes, currently limited to office supplies ($20.88) and 1st class postage ($1175.99) from my desk to authors and referees, and to the ESC head office. All others costs (i.e., phone & Fax lines, E-mail services, technical support for the computer and Priority Post service between my office and NRC Research Press) are amalgamated with my work office because it would be too cumbersome to separate these costs.

The Executive of the Society approved the purchase of a new computer and a laser printer for my office. Both belong to the Society but are located in my Editor's Office (C 245) at the Great Lakes Forestry Centre. I have provided the serial numbers of all items to Alexandra Devine to ensure they remain the property of the Society. Several members of the CFS informatics unit are also aware that this equipment belongs to the Society.

Electronic publishing. Unfortunately, I haven't made as much progress as I would have liked on this front. Thus far, I have familiarized myself with the topic and to ensure we are all on the same playing field, I have enlisted the volunteer help of Ms Aldyth Holmes of NRC Research Press to prepare a discussion paper on the issues the Society, as a publisher, would have to consider and address should it decide to publish an electronic copy of *The Canadian Entomologist* in parallel to its current paper copy. A copy of that discussion paper is appended to my report. All infor

mation presented in that paper has been requested by me.

The only issue not dealt with in that document is the impact of changes to the International Code on Zoological Nomenclature (ICZN) that will come into effect on 01 January 2000 (4th Edition) and affect publication. I have, in collaboration with Kevin Barber, incoming President of the Entomological Society of Ontario, contacted Philip Tubbs of the ICZN Secretariat to obtain clarification on those incoming changes to the code and discuss the ramification of moving toward parallel electronic publishing. The bottom line is, as long as we maintain a paper copy, none of the incoming changes will affect publication of new taxa and synonymy in our journal. In the eyes of the ICZN code, web-type material does not exist, but there is an acceptable alternative to paper publication: CD. The technology to read CDs is changing rapidly and could become superseded and difficult to access in the future, thus it appears preferable, for the time being, to retain the paper copy, at least as long as we publish taxonomic and systematic papers.

As pointed out in the discussion paper, there seem to be an increasing demand for original information to be accessed rapidly and effectively. As soon as the quantity of available information retrieved electronically will be satisfactory to the reader there will be less need to search paper copies. Can we afford to wait until then to publish electronically? Ms Sandy Devine, of the ESC Head Office, indicated that she has been receiving for about two years numerous requests from Subscription Agents, acting on behalf of various institutions, for electronic access to the content of our journal. Also, we have been informed by several abstract agencies (BIOSYS, Entomology Abstract, etc,), which have indexed our abstracts in paper form in the past, that they are now moving electronically and would be please to either reproduce or index our entire journal or our abstracts (also see Publication Committee report). In short, there is a demand for an electronic copy of our journal.

I also investigated another avenue to reduce turn around time. I discussed with NRC personnel the status and performance of software designed to handle electronic submission and revision of manuscripts. NRC is currently testing a web-version of this software for its journals and appears very satisfied with it. I have yet to obtain more details on its costs and find out if it truly reduces turn-around time. More on this next year.

In conclusion, the Board must decide whether to proceed with electronic publishing. Personally, I would like to see an electronic copy (along the paper copy) of *The Canadian Entomologist* on our web site in January 2001. This may be a bit optimistic, but I am willing to assist the Publication Committee in preparing a proposal on how to make this a reality.

Lately, I have received a lot of unsolicited compliments about *The Canadian Entomologist*. It must mean the entire Editorial team is doing something right. So, to my Associate Editors, I offer my most sincere thanks for putting up with my nagging reminders, and my congratulations for a job very well done. Without your hard work, there would not have been any compliments.

ACTIONS:

Should the ESC publish an electronic version of *The Canadian Entomologist*? If so, the Publication Committee in collaboration with the Treasurer should prepare a proposal detailing how each issue listed in the Discussion paper would be addressed and at what cost. The proposal would be submitted to the Board for approval and implementation.

The Board should establish an Ad Hoc Committee whose task would be to develop a sound and comprehensive marketing strategy for the promotion of *The Canadian Entomologist* as an excellent outlet for research results, especially overseas.

Jean Turgeon, Editor
The Canadian Entomologist

Report of the ESC Publications Committee

1.) Page charge waivers. The Committee has received two requests for page charge waivers since October, 1998. These have been approved by the Committee in accordance with Committee Guidelines for Judging Applications for Page-Charge Waiver.

2.) Book reviews. Since the October, 1998, I have sent out 24 books and one CD-ROM for review. Two books were returned to the publisher because no reviewer could be found. Reviewers are still needed for six additional books and one video.

3.) Requests to reproduce material published in *The Canadian Entomologist.* I have received and signed requests from the following sources to reproduce information and graphics published in *The Canadian Entomologist*: Institut québécois du développement de l'horticulture ornamentale (requesting reproduction of graphics from Diseases and Pests of Vegetable Crops in Canada) for the book, La culture en multicellules (Plug Culture); U.S. Department of Fish and Wildlife, for an annotated bibliography of literature on management of freshwater wetlands; Institute for Wetland and Waterfowl Research, for the book Prairie Wetland Ecology: the contribution of the March Ecology Research Program (Iowa State University Press); Martin Speight, M.D. Hunter and A. D. Watt, for their contribution to the book Ecology of Insects: Concepts and Applications (Blackwell Science Ltd.); L. Buse, Ontario Forest Research Institute, for a contribution to a chapter of the book Ecology of a managed terrestrial landscape: Patterns and processes in northern Ontario (UBC Press); Eric Pianka, for his book Evolutionary Ecology, 6th edition (Addison Wesley Longman Inc.); Timothy D. Schwalter, for his book Ecology of Insects: an Ecosystem Approach (Academic Press); Toronto Entomologist's Association, for reproducing the corrigenda (printed in the 1979 issue of *The Canadian Entomologist*) for Walker's 1975 version of Volume 3 of The Odonata of Canada & Alaska; Claude Labreque, Agriculture and Agri-Food Canada, (requesting reproduction of a photographic from Diseases and Pests of Vegetable Crops in Canada), for an information bulletin for Provigo, Inc.; Sinzo Mazaki, for his article Seasonal Adapations of Insects as Revealed by Latitudinal Diapause Clines submitted to Entomological Science; John Lawrence, for his CD-ROM containing a key to beetles; and Hilda Gomez for her manuscript to be submitted to Revista Peruana de Entomologia.

I have also received requests from H. W. Wilson Company, re: a complimentary subscription to *The Canadian Entomologist* in exchange for indexing the full text of articles and a royalty. H. W. Wilson has indexed abstracts of TCE in Biological & Agricultural Index. No agreements have been entered into.

4). The two members of this Committee who will be stepping down at the fall meeting of the ESC are Al Ewen and Sheila Fitzpatrick.

Sheila Fitzpatrick, Chair
Publications Committee

Report of the World Wide Web (WWW) Committee

The main page of the ESC web site has recently undergone a dramatic facelift. Unfortunately, only the English language version of the main page has been revised to date. The main page now consists of a two-column newsletter-like format with a vertical set of buttons along the left margin of the page that access the modules. The newsletter-like portion of the page contains some static information (i.e., History of the Entomological Society of Canada, Roles of the Entomological Society of Canada and Information about Entomology in Canada) that will remain constant over time, as well as dynamic information (i.e., Annual Meeting Information, Books for Sale and Common Names Updates) that will change periodically. The bottom of the

page still contains contact information for the Society and the Webmaster. Buttons provide links to the French language version of the homepage, as well as the Society-specific modules (Membership, Executive, Committees, Affiliated Societies, Student Affairs, Periodical Publications, Bulletin Articles, and Annual Meetings), the general entomological modules (Common Names, Entomology Links and Entomology Events) and the homepage of the Biological Survey of Canada.

Executive and Committees modules were revised following the last annual meeting of the Society and the latter was updated again more recently. These will be revised again following the current meeting. Several of the Affiliated Societies have their own web sites. Links to these sites have been added in this module. Revisions to information about the Affiliated Societies changes more slowly due in part to lack of input from these Societies.

No new information has been forthcoming from the Student Affairs Committee and consequently this segment of the module has not undergone updates or additions (e.g. Directory of Entomological Education in Canada). Conversely, there has been a very positive interaction with the Chair of the Student Awards Committee which has resulted in annual revisions to this segment of the module.

For the first time, the "Table of Contents" of a forthcoming issue of *The Canadian Entomologist* appeared on the web site, in the Periodical Publications module, prior to publication of the issue. Hopefully this trend will continue. In addition, an updated "Instructions to Authors" appeared on the web page at about the same time that it appeared in *The Canadian Entomologist*. These timely additions to the site have resulted, in part, from the realization by the Editor of the value of the web site in disseminating information, and in part from the fact that his office is next to mine. This module has also, for some time, contained a complete list of the Memoirs of the Entomological Society of Canada. It was brought to my attention that the availability of these features was not apparent. Thus, the periodical publications page was changed to highlight these features. No new Bulletin Articles have been added to the site.

The initial announcement for this year's Annual Meeting was posted on the web site shortly after the organizing committee provided it. Following the inception of a web site by the Entomological Society of Saskatchewan, a link to Annual Meeting information on that web site was provided. Thanks to the Common Names Committee, a downloadable copy (.zip file) of the most recent version (1999) of the Common Names of Insects in Canada, in MS-DOS format, is available on the site. It is anticipated that a web-based version of the list will soon be provided on the site. Unfortunately, the corrections list in the module has not been revised since 1997.

The Entomology Links module has been extensively expanded and contains many additional links to societies and associations, entomology journals and university entomology departments. The Entomology Events module is constantly revised and updated but suffers from a lack of input. The ESC web site continues to host the web site for the Biological Survey of Canada (Terrestrial Arthropods).

The web site continues to suffer from lack of input and feedback from the Board, Web Committee Members, and general membership. An appeal to the Committee members for input resulted in one response detailing a need for some minor revisions. Revision of the French language version of the site has been delayed because of my inability to translate English to French. Can assistance be obtained from the Bilingualism Committee?

D. Barry Lyons
Chair

Ad-Hoc Committee on Web Site and Bulletin Content.

The Committee reviewed the contents of the ESC Web Site and *Bulletin* for the past year, as of August 1999. Comments on a draft report were received from Linda Gilkeson and Barry Lyons and their suggestions were incorporated in the final report.

The Web Site currently does a good job of describing the Society to Web users and provides the information that non-members might need to contact or join the Society. It also provides this information to members who might prefer to access it through the Web rather than in the Bulletin. Some information changes once per year when the officers of the Society change, and information such as notices of meetings, Tables of Contents for *The Canadian Entomologist*, etc, are updated throughout the year. Background information on the Society is relatively static. The Web Master is essentially an editor, offering for view material submitted by contributors within the Society or items deemed of interest to members of the Society, or prospective members.

The *Bulletin* contains some of the same information - in particular the officers of the Society and their addresses, notices of meetings, and occasional articles. It also contains information on the business of the Society, book reviews, and the Gold Medal Address. Itís primary functions are to inform members of the activities of the Society and archive this information, and to provide a means of communication among members.

Clearly there is some overlap between the two Society publications. From time to time, both publications might benefit from considering their contents from the perspective of what best suits the particular attributes of the respective media. The Ad Hoc committee believes that the following factors should be considered:

The Web Site is widely accessible to non-members with diverse and non-specialist interests.
The Web Site is inexpensive to reproduce, but may be time consuming for the volunteer Web Master to maintain and update.
The Web Site contents are kept current, but are impermanent.
The *Bulletin* is primarily accessible to members; although available internationally in libraries, it is probably rarely consulted by non-members.
The *Bulletin* is more expensive to produce.
The *Bulletin* has archival value, because it is catalogued and stored by libraries.

Given these factors, the two publications need to be treated differently. The *Bulletin* must be retained because of its archival value, and the need to provide some information to all members of the Society regardless of their ability to access the Web. The Web Site should be encouraged as a means of more transient communication among members, and particularly for communication with non-members. However, the scope of both publications should be limited so as to not excessively burden the volunteer editors of either. Both must depend to a large extent on the items offered for publication by members, and the amount of material offered waxes and wanes with the enthusiasm of members.

Based on discussions of the Governing Board and suggestions of members, the following items have been proposed as additions to the Web Site and/or *Bulletin*:

1) mailing lists, bylaws, committee guidelines - through a password.
2) summaries of recent papers from *The Canadian Entomologist*, either in the *Bulletin* or on the Web Site.
3) all non-business items from the *Bulletin*.

The Committee concludes:

1) Mailing lists, bylaws, committee guidelines might be usefully added to the Web Site for easy access by members. They are relatively static and therefore not burdensome to maintain as long as they are made available to the Web Master in an appropriate electronic form. However, mailing lists in particular must be protected from purveyors of unwanted advertisements. This means a password system which requires an additional, ongoing responsibility for the Web Master and/or Secretary. The Committee questions the value of maintaining a mailing list on the web given the extra work involved. We see no reason not to publish ESC bylaws and committee guidelines, however. The Committee concludes that ESC members might find it useful to have ESC bylaws and committee guidelines available on the Web Site.

2) Summaries of recent papers from *The Canadian Entomologist* might be offered either in the Bulletin or on the Web Site, to generate interest among non-members. Producing the summaries would be time consuming and require an additional editorial structure to coordinate their timely completion. Summaries would compete with those well-known referencing services which already publish abstracts from *The Canadian Entomologist.* We conclude that generating and publishing the summaries cannot be justified given the small benefit likely to occur for our members.

3) All non-business items from the *Bulletin.* Because of differences in the audience targeted by the Web Site and the Bulletin, and differences in the archival value of the two publications, the Committee does not view the Web Site and Bulletin as competing publications. We see no reason why many items that appear in the Bulletin should not also be published on the Web Site. The only exceptions might be financial statements and some reports of the Society, which would be of little interest to non-members and might clutter the site. We recommend that Bulletin items deemed appropriate by the Bulletin Editor and Web Master be sent electronically to the Web Master for posting. Note that the Web Site already presents items from the Bulletin, and so this recommendation only confirms that such duplication is desirable.

A question remains: could the Web Site be a current, interactive medium for exchange among Society members? For example, are there topics of interest to many members that would attract discussants, and encourage dialogue in a way that our members would find useful? The Committee does not see an easy way to generate such activity through the Web Site. This sort of activity occurs at our meetings and among groups of individuals with similar interest. In our view, it is up to individual enthusiastic members to raise issues that might stimulate a debate which could take place on the Web Site. The experience of *The Canadian Entomologist* with Forum articles implies that a back and forth, substantive discussion is not easily generated.. Such an effort on the Web Site is probably not warranted at this time, but might be considered again particularly if an enthusiastic supporter of this form of communication can be found to guide such an activity.

Bob Lamb
Chair

Report of the Science Policy and Public Education Committee

Two requests for the annual "Public Encouragement" grants were received, from the Entomological Societies of Manitoba and Ontario. Both requests were recommended for approval.

The ESM requested a pooled two-year grant (i.e., $400) to help them provide "seminars, slide shows, and hands-on experiences for school children". They take prepared and living insects

around to schools in and around Winnipeg and "enthusiastic entomologists make insects fun, not gross or scarey". See Bob Lamb's report from the ESM.

The ESO proposed to used a two-year pooled public education grant to help them distribute a fine looking poster to Ontario schools. The poster, entitled Ontario Insects, was donated to them (value c. $5K) but they needed help to send it around at $4.47 + the price of the tube.

No science policy issues have come before the committee during 1999.

J. R. Spence
Chair

Report of the Marketing Committee

The members of the ESC Marketing Committee are:
Lloyd Dosdall, Edmonton, AB, Chair; Troy Danyk, Lethbridge, AB
Kevin Floate, Lethbridge, AB; Dave Gillespie, Agassiz, BC
Linda Gilkeson, Victoria, BC, *ex officio*

The Marketing Committee was asked to prepare an agreement with M. Jean P. Brisson of Horti-centre du Qu(bec authorizing him to distribute and sell publications of the Entomological Society of Canada. Between November 1998 and June 1999, several attempts were made by the Marketing Committee Chair to reach Mr. Brisson by telephone and by surface mail. Because no replies to these communications were ever received, the Marketing Committee concluded that Mr. Brisson was no longer interested in developing a distribution and sales agreement with the ESC. Mr. Brisson had initially requested this agreement.

The Marketing Committee was requested to solicit corporate funding for new student scholarships. Although letters of requests for funding and telephone solicitations were made to representatives of several agribusiness and forestry companies, no commitments of scholarship funding were made. Funding requests directed to provincial and federal government agencies also proved fruitless. In some cases, no replies or reasons were given for declining the opportunity to contribute in this way. Some reasons given were: 1) that this did not fit within the mandate of the company, agency or department, 2) that profits were not sufficient to warrant a contribution, 3) that all funds for the current fiscal year were already allocated, and 4) that adequate student funding already exists for education through loans and scholarships.

In 1998, the ESC Marketing Committee arranged for a one-time swap of mailing lists with the Entomological Society of America. The idea was that the ESA marketing group would send out a brochure to ESC members to advertise the availability of the ESA calendars, and in return, the ESC would promote its publications to members of the ESA in a separate mailing. A brochure was prepared for mailing to ESA members, and it will be combined with a brochure prepared by the Membership Committee and sent out from the ESC office.

Many brochures advertising the availability of the Societyís publications, primarily Diseases and Pests of Vegetable Crops in Canada and Microbial Control of Grasshoppers and Locusts, were mailed out to scientists, producers, and other individuals.

Lloyd Dosdall
Vegreville, AB

Report of the Membership Committee

Membership/Subscription Levels. Sandy Devine has forwarded the following 1999 membership/subscription figures (current as of September 1) to Bennett.
-Total members: 526 (Regular: 378, Student: 72, Emeritus: 76)
-Total subscribers: 531 (Canada: 60, US: 274, International: 197)

In addition:
-circa 20 subscription addresses receive TCE at no cost.
-15 addresses receive TCE donated by regular members.
-subscription agency error (indicating TCE 'ceased publication' along with *Memoirs*) has been responsible for some proportion of recent subscription cancellations. Devine's 'direct marketing' efforts have resulted in reactivation of some canceled subscriptions (e.g. 10 Canebsco cancellations). Devine expects subscriptions to total circa 560 by year-end.

CHAIR'S COMMENTS: Paid membership levels for 1997 to 1999 inclusive are Regular members: 400, 396, 378; Student members: 76, 66, 72. Sandy Devine deserves some sort of recognition for her efforts to bolster subscription levels.

Review of Membership Drive Questionnaire. Dave Langor, previous Chair of this Committee, circulated a questionnaire in 1998 to 324 selected non-members. Questionnaire asked for level of involvement in entomology and current employment status, reasons for declining an invitation for membership in ESC, and relevant comments. A total of 30 questionnaires were completed and returned to DL. Bennett reviewed responses, summarized below.

-Involvement: 10 'professionals', 10 'others' (mostly retired), 3 technicians, 4 students, 3 amateurs.
-Employment: 20 gainfully employed (including 4 self-employed), 7 retired, 1 unemployed.
-Reasons for disinterest: 20 parties indicated that they 'cannot afford it' and/or they 'prefer to support another national or international society' or 'an affiliated society', 6 indicated that benefits to membership are insufficient, and 16 indicated that they are not entomologists or that TCE is irrelevant to their interests. (Some parties checked two or more responses.)
-Relevant comments: At least 5 parties indicated they read institutional copies of TCE at work. Several reiterated dollar factors, especially the fact that they couldn't justify the expense. One party lost interest when Memoirs series was discontinued. Another, Murray Fallis, indicated a sincere interest in making a charitable donation to ESC in lieu of membership.

CHAIR'S COMMENTS: The relevance to the functioning of ESC of 30 responses is debatable but the underlying theme of the responses cannot be ignored. Membership in ESC is too expensive for many potential (and at least some past) supporters and is a prime factor in membership decline. Bennett understands that positive advances have been made in terms of ESC functioning and acknowledges that his active involvement with ESC is limited to the period of only the last few years (and therefore his knowledge of the history of this issue is limited), but he respectfully notes that ESC still appears to be functioning as if it is a much larger Society (as noted by Danks in 1994).

Fallis should be approached regarding his offer of a charitable donation.

An electronic version of the ESC membership application form was produced and forwarded to Lloyd Dosdall for editorial comparison with his electronic marketing form. Subsequently, both were forwarded to Sandy Devine for inclusion with a mailout to the membership of the Entomological Society of America.

Jacques Brodeur (SEQ representative) has resigned from the Membership Committee because of sabbatical leave. Francois Lorenzetti (current SEQ president) is looking for a replacement for JB. Current Membership Committee membership is Robb Bennett (Chair), Lloyd Hollett (AES), Terry Shore (ESBC), Bob Lamb (ESM), Barry Lyons (ESO), Owen Olfert (ESS), TBA (SEQ), Troy Danyk (Student Rep.), and Linda Gilkeson (ex-officio).

Robb Bennett
Chair

Report of the Bilingualism committee

This brief update considers developments since my last report in March 1999. The Bilingualism Committee was asked to translate the biographies of both the Gold medal and the Hewitt Award recipients. Members of the committee continue the long task of updating the French versions of the Committee guidelines and the Standing Rules.

Lucie Royer
Chair

Report for the Insect Common Names Committee

Last year 'birch and alder flea weevil', *Rhynchaenus testaceus* (Muller), was added to the list. The french name 'Orcheste du bouleau' has now been approved by the SEQ. The proposed name changes of 'goldeneye' to 'goldeneyed' lacewing and of 'western plant bug' to 'western tarnished plant' bug have now been ratified.

The ICNC proposes two further changes to conform with the ESA names lettuce aphid to lettuce root aphid for *Pemphigus bursarius* and rough strawberry weevil to rough strawberry root weevil for *Otiorhynchus rugosostriatus*. Please send any comments to Dr.J.A.Garland.

Two of the beetle names, arborvitae weevil and cranberry rootworm, that were marked with an asterisk last year, have been reported from Canada and can be unmarked. These and other changes are on the 1999 List of Corrections.

At the request of Dr. D.Morewood the ICNC plans to replace the abbreviated authors' names on the ESC list with acceptable 'full' names suitable for publications requiring them. A list of unabbreviated names is being checked by Dr.G.Ball and could be sent to any other ESC members willing to do so or posted on the Webpage.

As the approved list of names is now available on the Webpage it is probably no longer necessary to sell disks. However the ICNC should liase closely with the Webmaster, sending regular updates and checking that the current list is posted.

I would like to acknowledge the help I received from the following people with the list of corrections and authors' names - Paul Beuk, Yves Bousquet, Rob Cannings, Helene Chiasson, Bruce Cooper, Bob Duncan, Bob Foottit, John Garland, Henri Goulet, Don Lafontaine, Jean-Francois Landry, Laurent LeSage, Eric Maw, Dean Morewood, Geoff Scudder, Joe Shorthouse and Tony Thomas.

I joined the ICNC in 1978 and have remained on the Committee as member or Chair for the past 21 years so it is with mixed feelings that I am retiring. My best wishes go to Dr J.A.Garland who takes over as Chair and to Helene Chiasson and also to Kathryn Nystrom who is joining them on the ICNC.

E.M.Belton, Chair

1999 Corrections for the ESC Common Names Disk

The ESC has ratified the proposed name changes of 'goldeneye' to goldeneyed lacewing and of western plant bug to western tarnished plant bug and the SEQ has ratified Orcheste du bouleau for *Rhynchaenus testaceus* (Muller), the birch and alderflea weevil.

Of the 12 beetle names which were marked with a * last year two have now been reported as 'found in Canada' and can be unmarked - arborvitae weevil and cranberry rootworm.

***Names to be corrected on the ESC list*:**

ENGLISH NAME	*UPDATED SCIENTIFIC NAME*	*OLD NAME/VERSION*
arborvitae weevil	*Phyllobius intrusus*	delete *
birch and alder flea weevil	*Rhynchaenus testaceus*	add french name (above)
cranberry rootworm	*Rhabdopterus picipes*	delete *
deathwatch beetle	*Xestobium rufovillosum*	death watch beetle
fourhumped stink bug	*Brochymena quadripustulata* (F.)	*B.quadripustulata* F.
goldeneyed lacewing	*Chrysopa oculata*	goldeneye lacewing
poplar edgefolding sawfly	*Phyllocolpa popuella* (Ross)	*P. popuella* (Ross.)
walnut scale	*Quadraspidiotus juglandsregiae*	*Quadrispidiotus*
western boxelder bug	*Boisea rubrolineata* (Barber)	*B. rubrolineata* Barber
western tarnished plant bug	*Lygus hesperus*	western plant bug

Footnotes to be changed or added -
Change fn 89 to : western tarnished plant bug - also called western plant bug
Add the following footnotes :
4a : birch and alder flea weevil - formerly 2 species
63a : plum rust mite - also called peach silver mite
89a : white pine weevil - also called Sitka spruce weevil and Engelmann spruce weevil on ESA list.

E.M.Belton
Chair

Report of the Scholarship and Travel Grants Committee

Committee members: Chair Staffan Lindgren
ESC Research Travel Grant and Post-Secondary Awards
Dan Quiring, Lloyd Hollett/Johanne Delisle, Bev Mitchell
Keith Kevan Scholarship
Terry Wheeler, Dave Larson, Doug Currie

Research Travel Grant: Eight strong applications were evaluated by the committee. Awards of $2,000 each were given to Brian Aukema, University of Wisconsin (Madison), for travel to the University of Montana, where Mr. Aukema will do collaborative work with Dr. Diana Six, and to Simon Lachance, for travel to the CABI Bioscience Centre in Switzerland.

Post-Secondary Awards: There were originally eight applicants, but one applicant withdrew, leaving seven to be evaluated by the committee. Awards of $2,000 each were given to Jade Savage, McGill University, who is studying the systematics and zoogeography of the genus *Thricops* (Diptera: Muscidae), and to Jennifer MacIntyre, University of Guelph, who is studying insecticide resistance and management of the striped cucumber beetle.

The Keith Kevan Scholarship: There were originally six applicants, but one withdrew, leaving five to be evaluated by the committee. The 1999 Keith Kevan Scholarship was awarded to Andrew Smith, University of Nebraska - Lincoln, who is studying the systematics of scarab beetles.

Web Page Development: All awards competitions were announced via the world wide web, as well as through regular channels. Application forms were available on the web, but presented some problems for some students, indicating that there are some "bugs" that need to be ironed out.

Procedural changes: Announcement texts were modified, but further (minor) modifications may be necessary. For example, students were required to submit 3 copies and an original, which substantially reduced the workload for the committee chair. However, students applying for both the ESC Postgraduate Award and the Kevan Scholarship need to be informed that they must submit 6 copies, since the committees for these awards are separate. Constructive feedback to applicants for the Research-Travel Grants, is not feasible, although desirable. Committee members have generally not had time to provide such feedback, so this aspect has been de-emphasized.

Committee membership: Due to his heavy workload Lloyd Hollett resigned from the Scholarships committee after the Research Travel Grqants competition. Lloyd has served for many years, including as Chair of the old Research Travel Grants committee. I thank Lloyd for his contributions. In Lloyd's place I welcome Johanne Delisle, who agreed to step in with relatively short notice. Johanne stated that she enjoyed assessing the ESC Postgraduate Awards competition.

I thank the committee members for their excellent work, Barry Lyons for setting up and maintaining the web pages, and to Rick West and Bob Foottit for their respective roles.

B. Staffan Lindgren
Chair

Report of the By-Laws, Rules & Regulations Committee

The Bylaws, Rules & Regulations are presently being translated by the Bilingualism Committee. Dr Gilles Boiteau, Fredericton was appointed to the Committee. The other Committee member is Dr. Neil Holliday, Winnipeg.

Mark Goettel
Chair

Report of the Headquarters Committee

The furnace and fuel tank were checked in early summer. The technician reported that the tank is in 'like-new' condition but the furnace should be replaced in early fall to prevent any problems arising during the coming winter. The chair will be resigning from the Headquarters Committee effective the end of September, 1999 as he has purchased his own house (in a swamp) west of Ottawa which is going to need a lot more work than first expected!

Bruce Gill
Chair

Heritage Committee

A new committee was appointed by President Gilkeson following the 1998 Annual Meeting. The files of the committee and its antecedent "Archives Committee" from 1965 to 1995 were forwarded to Fredericton where some correspondence from 1996-98 was added, so the record is quite complete.

Paul Riegert forwarded a disc file of his index to biography to be integrated with that being compiled by Eidt. Indexed are all Canadian entomological journals and also Tableau, the now defunct news bulletin of Agriculture Canada. It is planned to also index items on entomologists in such journals as Naturaliste Canadien and Ottawa Field Naturalist. We are open for suggestions and help of others. The possibility of publication was discussed and it was tentatively decided to aim for early in 2001 to include the entire 20th century.

An article was prepared for the March 1999 Bull. ESC on the subject of obituaries, and a notice was submitted asking for missing annual meeting programs for the National Archives. The committee took note of the excellent heritage lecture by Dr. Jean-Marie Perron, which was published in the Dec. 1998 Bull. ESC. Such publications will be invaluable to future historians.

Ed Becker continued to publish his popular Newsletter for Senior Entomologists and Associates since August 1990 under the aegis of Canacoll. Although not the work of this Committee, it fits our objectives admirably. Becker's volunteer work with AAFC including the Newsletter, were noted in a nationally distributed newspaper article in August.

Ed also maintains two files of importance to ESC heritage: 1. Honours; 2. Deaths and obituaries. He can only record what he hears about and therefore welcomes information from any source. Members please note.

Doug Eidt has prepared articles on CE Atwood, AB Baird, RE Balch, LS McLaine, R Frank Morris, ML Prebble, WA Reeks, JD Tothill, and the Green River Project for Out on a Limb, the internal newsletter of the Atlantic Forestry Centre, in connection with the centenary of the Canadian Forestry Service. Articles on the Forest Insect and Disease Survey by LS Magasi and FIDS technician Walter Harrington by Doug Embree were prepared for the same newsletter on Eidt's suggestion. Most of these, slightly modified, have been submitted to the Bull. ESC; two were published in v.31.

The committee encourages members to submit heritage information to Canadian publications directly or through the Committee. It is particularly important that awards, retirements, and obituaries be recorded. Artifacts are also welcome.

Paul W Riegert, Edward C Becker
Linda A Gilkeson, ex officio
Douglas C Eidt, chairman

Report of the Ad Hoc Commemorative Insect Committee

This committee is comprised of Hugh Philip (Chair), Peter Kevan, Jim Sutcliffe and Linda Gilkeson (ex officio). The mandate of the group is to investigate and make recommendations to the Governing Board on the feasibility of designating a national insect or alternative commemorative project for the Year 2000.

As reported last April, Mr. Jean-Paul Roy, Manager, Ceremonial and Canadian Symbols Promotion, indicated that should the Federal Government proceed with the adoption of new national emblems, such as a national insect, the Entomological Society of Canada will certainly be consulted and asked to provide active participation in a public consultation that could be undertaken. Since that time, the Government had a poll conducted by Environics to gauge public opinion on the idea of designating a national bird, flower and insect. The results as reported in the August 11/99 edition of the National Post revealed an 84% rejection of designating a national insect; only 10% favoured the idea. Support for a national bird and flower was also rejected by the public (55% and 57%, respectively).

This ad hoc committee therefore recommends that the ESC take no further action towards designating a national insect in cooperation with Heritage Canada based on the apparent lack of

public support for such an initiative. However, if the Governing Board wants the project to proceed independently, or to initiate an alternative commemorative project for the Year 2000, we await your feedback.

Hugh Philip
Chair

Report of the Entomological Society of British Columbia

The ESBC has had a relatively quiet year this past year. This is mainly because our main period of activity, the annual meeting, will follow the ESC meeting this year. It will be held at the University of British Columbia on Friday, October 22, 1999.

The Journal of the ESBC was published for 1998 with 14 peer-reviewed scientific articles including 3 from the United States and one from Ontario with the remainder from BC. Our newsletter Boreus now has a new editor, Dr. Phil Jones, a retired entomologist from the Okanagan. Dr. Ward Strong has taken over management of our web page and is adding some new and interesting stuff. It can be accessed from the ESC Homepage or at **http://www.harbour.com/commorgs/ESBC/**

Terry Shore
Regional Director

Report of the Entomological Society of Alberta

The annual meeting of the Entomological Society of Alberta will be held 14-16 October at the Lodge at Waterton Lakes. The keynote speaker will be Frank Peairs from Colorado State University speaking on Pest Introductions. Proceedings from the 1998 ESA meeting at Kananaskis will be available at this years meeting. The society has established a new web page at **http://www.biology.ualberta.ca/courses.hp/esa/esa.htm** with Troy Danyk as webmaster. The proceedings from annual meetings and other useful society information will soon be available at this site. Incoming president of the society is Darryl Williams, Past-President is Ken Fry. Secretary is Gerry Hilchie and treasurer is Greg Pohl. Directors in 1999 are Lloyd Dosdall, Rob Longair and Troy Danyk.

Rob Bourchier
Regional Director, E S A

Report of the Entomological Society of Saskatchewan

The 47th Annual Meeting of the Entomological Society of Saskatchewan will be held jointly with the national society this year in Saskatoon. The theme of the joint meeting is "Managing the Millennium Bug". The image of a flea beetle was selected to represent the "Millennium Bug" for the 1999 meeting. Alticinae (Coleoptera: Chrysomelidae) are small, leaf-feeding beetles that tend to jump much like fleas when disturbed. The species complex that feed on cruciferous crops in Saskatchewan are a major factor limiting the production of canola, the predominant oilseed crop in Western Canada.

Planning for the 1999 ESC-ESS joint meeting been the focus of our attention for the past year. We have had a good response in registrations and abstracts submitted to the Program Committee. There are two symposia on the program, one on the topic of 'Insect Monitoring and Forecasting' and a second one on the topic of 'Biorational/Biotechnological Pest Control' . In addition there are four workshops planned, two are featuring insects, namely lygus bugs and

leafhoppers, a third on preparing grant applications and a fourth on Internet resources for entomologists.

The society was very active in Saskatchewan this past year. The society developed and implemented an ESS web site this year. It can be found at: **http://www.usask.ca/biology/ess/** Activities related to public education and youth encouragement were numerous again in 1999. In both, Saskatoon and Regina, members visited schools to bring entomology to school-aged children, including several french-immersion schools this year. Public education is still being supported by our retired members: Paul Riegert (Regina) and Cedric Gillott (Saskatoon) continue to be frequent guests on CBC Radio; and Alf Arthur taught a series of general entomology classes at a summer camp for adults.

The outgoing Executive are: President - Lorraine Braun; Past President - Scott Hartley; Vice President - Brian Galka; and Regional Director - Owen Olfert. The Executive staff are: Secretary - Larry Grenkow; Treasurer - Dwayne Hegedus; Proceedings Editor - Keith Roney; and Newsletter Editor - Wayne Goerzen. The new Executive will be inducted at the business meeting following the scientific conference in September.

Owen Olfert
Regional Director, E S S

Report of the Entomological Society of Manitoba

The Entomological Society of Manitoba had an active year, interacting with the Entomological Society of Canada in a number of ways. The Youth Encouragement Committee of ESM, chaired by Robyn Underwood, requested and received grants for the 1998 and 1999 year from ESC, to assist its activities. The committee arranged about 20 presentations to youth groups ranging in age from pre-school to grade 6. The attendance at these presentations was usually about 20, but reached as high as 60. The presentations included exhibitions of pinned and preserved specimens, live insects and a slide show. I represented the President, ESC, at the Annual Meeting of the ESM., Oct. 16-17, 1998, emphasizing links between the societies and encouraging membership in both. The Meeting was considered a scientific and financial success with approximately 50 in attendance at all the sessions. Attendance benefitted from some early arriving participants from the Western Committee on Crop Protection which began on October 18. Over the past year the ESM has gained 20 new members but dropped delinquent members from the books and so membership is stable at 114. Many of the new members are graduate students at the Department of Entomology, University of Manitoba, and have been advised of the benefits of joining the ESC. This year the Department has organized a van to transport students to the ESC/ESS Annual Meeting, to encourage attendance. The current Executive of the ESM is unchanged from the time of the last report and will turn over at the next Annual General Meeting on November 5-6, 1999. The theme of the ESM meeting is 'Recent Human Activity in Agriculture and the Environment Affecting Insects', and includes a Keynote Address by Dr. Wilf Powell, Rothamsted, UK, 5 invited papers in the Symposium, and about 12 submitted papers. The Scientific Proramme Committee is chaired by Noel White. In the current year, I have not expended any funds on behalf of ESC. I recommend the budget for travel be left intact for the next budget year, but I anticipate finding alternate sources of funding to attend the AGM.

Bob Lamb
Regional Director

Report of the Entomological Society of Ontario

The 136th Annual General Meeting of the Entomological Society of Ontario will be held on 15-17 October 1999 at the Metro Toronto Zoo, Scarborough, Ontario. The Meeting will feature a Special Symposium titled "Exotic Insect Species: Where Do We Draw the Line". The Meeting will feature a Wine and Cheese Mixer, the Special Symposium, submitted papers and posters, the annual President Prize Competition for students' submitted papers and posters, a Banquet and a tour of the Zoo.

The current executive for the ESO, which will hold office until the upcoming Annual General Meeting, is as follows: President: Cynthia Scott-Dupree, President-Elect: Kevin Barber Past President: Scott MacDonald, Secretary/ESC Rep.: Barry Lyons, Treasurer: Blair Helson, Editor: Dolf Harmsen, Librarian: Dave Hull

Directors
(1997-1999) Jim Corrigan, Peter de Groot, (1998-2000) Dave Hunt,Tom Mason, (1999-2001) Neil Carter, Ron Harris

Volume 129 of the Proceedings of the Entomological Society of Ontario was published in December of 1998. The issue contained 12 submitted scientific papers, two submitted scientific notes and three book reviews. Like the ESC, the ESO is also struggling with the issue of electronic publishing of the Society's Proceedings.

The insect museum in the Department of Environmental Biology, University of Guelph is the home of the original insect collections of the Entomological Society of Ontario. To promote the museum, the Department recently produced a beautiful, full-colour poster entitled "Ontario Insects". The poster displays specimens from approximately forty families of insects taken from diverse habitats across Ontario.

The Department of Environmental Biology has offered to donate 1,000 of the posters ($5,000 value!) to the Society to promote entomology in Ontario. The ESO Board of Directors has decided to make the posters available for display in science classrooms across the province. The Entomological Society of Canada has given $400.00 to our Society to aid in the shipping and distribution of the posters. We are currently initiating contact with several groups (e.g. the Association of Science Teachers of Ontario) to develop a cost-effective method of delivering the posters to schools around Ontario.

The Entomological Society of Ontario would like to thank the Entomological Society of Canada, Dr. Steve Marshall and Mr. Don Hamilton of the Department of Environmental Biology for allowing us to undertake this public outreach program. Based on the size of the client group (1,000 classrooms, each with multiple science classes per day), we believe that the program should be very effective in promoting entomological awareness in Ontario.

B. Lyons
Chair

Rapport du Societé d'Entomologie de Québec

This year the SEQ has continued to implement minor changes to its functioning and committees in order to improve efficiency. Luc Pelletier, PhD student at Laval University, has replaced Christine Jean as Secretary, Christine now being Rédactrice of Antennae which is the SEQ bulletin.

An important current preoccupation of the SEQ is the ongoing process of organizing the ESQ/ESC/ESA joint meeting to be held in Montréal in 2000. Vice-president François Lorenzetti has been busy assembling information, convincing people, going to meetings, and collaborating with ESC President Lynda Gilkeson and Vice-president Dan Jonhson, as well as ESA officials to insure the level of collaboration between our societies that is necessary for a most interesting and successful event. The local organizing committee for the 2000 meeting will be chaired by Dr Charles Vincent from Agriculture Canada Saint-Jean. Charles has convinced several members of the ESQ from the Montréal region to take responsibility with various tasks that are essential to this complex organisation. Héléne Chiasson (Urgel Delisle & Co. Consultants) and Noubar Bostanian (Agric. Canada, Saint-Jean) will be responsible for locally organised parts of the scientific programme. François Fournier (Biocontrole Inc.) has the responsibility for public relations and he has already come up with a number of interesting ideas.

The 1999 Annual Meeting of the SEQ will be held in the Maison du Citoyen in Hull, on October 25 and 26. The main feature of the scientific programme will a symposium on Biodiversity orgtanized and presided by ESC past President Hugh Danks.

Conrad Cloutier
SEQ representative

Report of the Acadian Entomological Society

The Acadian Entomological Society has had another very successful year. Our membership levels have remained stable and there is a good interest in the affairs of the society from the membership. It is anticipated that this will continue in the future.

During the year we had to make some changes to our new web site. Due to some problems on the FSN (Free Sites Network) server it was decided to move the web site to the Newfoundland Insectarium site. This will ensure a permanent address for the site with no unwanted advertisements, as was the case at the FSN server. The new address for the AES site is **www.newfoundlandinsectarium.nf.net/aes**

The 59th annual meeting of the Acadian Entomological Society was held at the Glynmill Inn in Corner Brook, Newfoundland from August 4 - 6, 1999. The theme for this years meeting was 'Acadian Entomology - Where Ecology Meets Society'. A full day of technical and student presentations took place on Thursday. On Friday there were pest updates followed by our annual meeting. The meetings were well attended with nearly 40 delegates registered. On behalf of the executive I would like to thank Dr. Wade Bowers and his staff at the Canadian Forest Service for putting together an excellent program.

On Wednesday night a reception was held at the Newfoundland Insectarium to welcome the delegates to the area. A tour of the Insectarium was followed by a refreshments and traditional entertainment by The Sharecroppers. A great time was had by all!

The annual meeting was held at the Glynmill Inn on August 6, 1999. The new executive, elected to serve the next two years, include Rachael Cheverie, President; Jeff Stewart, Vice-President; and Debby LeBlanc, Secretary/Treasurer. The 60th annual meeting of the Acadian Entomological Society will take place in Prince Edward Island. Specific dates are to be determined later.

Lloyd H. Hollett
AES Representative to ESC

MINUTES

Governing Board Meeting, September 25, 1999
Radisson Hotel, Saskatoon

The meeting was called to order at 0830 by President L.A. Gilkeson. Those present were President, L.A. Gilkeson; Past-President, H.V. Danks; First Vice-President, D. Johnson; Second Vice-President and Acting-Treasurer, R. Foottit; Scientific Editor, J. Turgeon; J. Spence, and M. Goettel, Directors-At-Large; R. Bourchier (ESA), O. Olfert (ESS), R. Lamb (ESM), B. Lyons (ESO), and L. Hollett (AES), Regional Directors; P. de Groot, incoming Director-At-Large; and Secretary, R. West.

1. Notice of Meeting

The notice for this meeting was e-mailed on August 2, 1999 and printed in the March and June (1999) issues of the Bulletin.

2. Additions to and approval of the Agenda

J. Spence moved and R. Lamb seconded that the Agenda be approved.
Carried

3. Proxies and absences

T. Shore (ESBC), C. Cloutier (SEQ), L. Dosdall, V. Nealis, R. Bennett and H. Barclay were absent. R. Lamb acted as proxy for R. Bennett.

4. Minutes - Governing Board Meeting, Oct 31, 1998 (GB I)

The minutes were circulated by R. West on November 20, 1998 and published in the December 1998 and June 1999 issues of the Bulletin. R. Lamb moved and J. Spence seconded that the minutes be approved. Carried

5 . Minutes - 47th Annual General Meeting, November 3, 1998 (AGM)

The minutes were circulated by Secretary R. West on November 20, 1998 and published in the December 1998 issue of the Bulletin. O. Olfert moved and R. Lamb seconded that the minutes be approved. Carried

6. Minutes - Governing Board Meeting, November 4, 1998 (GB II)

The minutes were circulated by Secretary R. West on November 20, 1998 and published in the December 1998 issue of the Bulletin. H.V. Danks moved and R. Lamb seconded that the minutes be approved. Carried

7. Minutes - Executive Council Meeting, April 17, 1999 (EC)

H.V. Danks and R. Lamb seconded that the minutes as circulated by the Secretary on April 23, 1999 be accepted.
Carried

8. Business arising from the previous minutes:

The following items were identified from previous minutes and discussed under New Business:

8.1 Market appraisal of ESC building (GB I – 9.2.2.1, EC – 9.2.2.2. moved to 9.2.2.2)
8.2 Lapsed subscribers and memberships (GB I – 9.2.3, moved to 9.2.14)
8.3 Joint meeting with ESA in 2000 (GB I – 9.2.3, GB II – 5.1, EC 8.1, moved to 9.2.1.1)
8.4 Profit sharing with regional societies (GB I – 9.2.3.1, moved to 9.2.3.1)
8.5 Copyrighting of ESC Publications (GB I – 9.2.4, moved to 9.2.6.1)
8.6 Electronic Publishing with NRC Press (GB I – 9.2.4, EC – 9.2.4, moved to 9.2.4.1)
8.7 Gold Medal winner invited to publish address in Bulletin (GB I – 9.2.6, moved to 9.2.11)
8.8 Membership drive and brochure to attract foreign colleagues (GB I–9.2.14, to 9.2.14)
8.9 Guidelines on issuing press releases (GB I – 9.2.16, moved to 9.2.16.1)
8.10 Directory of entomological education update (GB I – 9.2.17, moved to 9.2.17)
8.11 New scholarships (GB I – 9.2.17, moved to 9.2.18.1)
8.12 Web access (GB I, 9.2.18, moved to 9.2.20)
8.13 Canada Wide Science Fair Prize (GB 1, 9.2.20, moved to 9.2.16.1)
8.14 Commemorative Insect (AGM - 14.1, EC - 8.2, moved to 9.2.21)
8.15 Book Distribution (GB II – 7.1, EC - 9.2.18, moved to 9.2.18)
8.16 Site of 2001 meeting (EC 9.2.1, moved to 9.2.1.2)
8.17 President's reception guidelines (EC 9.2.3, moved to 9.2.3.2)
8.18 Authors' names & web availability of amended common names list (EC-9.2.13,to 9.2.13)
8.19 Conference Travel Fund (EC 9.2.15, moved to 9.2.15.1)

9. New Business

9.1 Correspondence
President Gilkeson introduced several items of correspondence including providing a reporter with information on entomology in Canada. Dan Johnson received a letter to attend a meeting of presidents of 58 different science societies (AIBS). As incoming President, D. Johnson may attend the meeting and pay the registration fee of $100 from discretionary funds. D. Johnson and R. Foottit will review the terms of becoming a member of AIBS and may join if considered appropriate. Travel for D. Johnson to attend the AIBS meeting would be paid for by the AIBS.

Action: D. Johnson, R. Foottit

Correspondence to the Secretary was routine and pertained mainly to information regarding Student Awards. Members of the Entomological Community who died during the past year included Richard Belyea, Bill Cumming, Bill Fox, Conrad Loan, Jack Martin, Bert McCollom, Clayton McGuffin, Willis Neilson, Ozzie Peck, Jack Robins, Mike Sandborne, Ferdnand Schmidt, Jerry Weintraub and Gord Williamson.

9.2 Reports from Officers, Trustees, Committees and Representatives
J. Spence moved and R. Lamb seconded that all reports be received. Carried.

Executive Council

President Gilkeson reported briefly on the activities of the President and Executive during the past year and will present a formal report at the AGM and in the December issue of the Bulletin. J. Turgeon and B. Lyons were congratulated for excellent work on improving *The Canadian Entomologist* and the Web Site.

Joint meeting with ESA in 2000 update, process for decisions, financial agreement
While there does not appear to be any problem ensuring that there will be an excellent scientific program, there does need to be clarification of the financial responsibilities of the three societies as agreed upon by representatives of the ESC, SEQ and ESA. R. Lamb moved and H. Danks seconded that a letter be sent to the ESA President expressing the Boardís position that there be no liability for losses to either the ESC or SEQ, that in return the ESC does not expect to share in any profit.

Action: L. Gilkeson

2001 Meeting Invitation
The 2001 Annual Meeting of the ESC will be held in association with the Entomological Society of Ontario in Niagara Falls. The meeting date and hotel are yet to be confirmed.

Internal communications
L. Gilkeson made the following recommendations for committee chairs:
Send copies (email) of routine communications to ex officio member (s)
Maintain communications with the web master
Contact the Heritage Committee regarding files and documents that may need to be archived.
Records of decisions reached need to be kept. Guidelines need to be provided by the Heritage Committee

Action: Heritage Committee

The board agreed that electronic copies (eg CDs) of minutes and reports be retained at the ESC office.

R. Lamb moved and D. Johnson seconded that recommendations for handling internal communications be written up and provided to board members, trustees, and committee chairs. These instructions can be provided with the committee guidelines.

Action: L. Gilkeson, M. Goettel

9.2.2 Treasurer
B. Foottit presented the Treasurer's Report. A small operating surplus is budgeted for the year 2000. This year funds were reinvested into the Societyís general investment account for the first time in a number of years. Other segments of the Society's finances, including the Endowment and Scholarship Funds and the Headquarters operations, continue to be stable. One area of concern is the slow but steady decline in membership and subscriptions, the main sources of annual revenue for the Society. It will not take a large drop in revenue to upset the financial balance as the Society does not have the financial cushion, of a large amount of annual interest income, that it once had. Sales of the DPVCC book are going well and all copies are expected to be sold within a few years. The ESC clerk has taken an accounting software course to help her with ESC bookkeeping.

9.2.2.1 Auditors Report.
No special requests were received from the Auditor. Costs to audit the DPVCC book were lower than expected.

9.2.2.2 ESC Headquarters Committee
Report received. The furnace will be replaced this fall to prevent any problems arising during the coming winter. There has been some loss in property value reflecting the general real estate market but the Society gains by not having to rent commercial space at current rates. Additional

insurance was purchased to adequately cover material in storage.

Action. New chair of Headquarters Committee

9.2.3 Finance Committee Report received.

Annual Meeting finances
Further to the recommendations of the Finance Committee regarding responsibility for financial losses or profits from joint annual meetings between the ESC and its affiliated provincial societies, R. Lamb moved and D. Johnson seconded that:
'With respect to the balance sheet of joint annual meetings between the ESC and Affiliated Societies, the ESC makes the following non-binding recommendations to the Affiliated Societies:
i. ESC functions (Student reception, President's reception and two Governing Board meetings) should be costed as part of the meeting package and included in the registration fee, and not billed separately to the ESC.
ii. If a meeting is profitable then the monetary advances (up to $2500 to assist with arrangement of scientific program and up to $1500 for special speakers) from the ESC should be returned in full (or to the extent of the profit if it is less than the amount of the advances), but any additional profit should accrue to the host Affiliated Society.
iii. If a meeting loses money, the ESC will cover at least 50% of the loss.'

Carried

The Board requests that the above recommendations be added to the Annual Meeting Guidelines.

Action: T. Shore

9.2.4 Scientific Editor
Report received. Editor Jean Turgeon summarized activities of his office including manuscript processing and assessment, minor changes to the format of *The Canadian Entomologist*, the signing of a three-year contract with NRC Press, development of a series of articles on insect phylogeny to be published as CP Alexander Reviews, special issues of *The Canadian Entomologist* honouring outstanding Canadian entomologists, and appointments of associate editors. Costs to the ESC for manuscript processing were identified. J. Turgeon recommends that a sound and comprehensive marketing strategy be developed for the promotion of *The Canadian Entomologist* as an excellent outlet for research results, especially overseas. The Marketing Committee will contact J. Turgeon and is charged with promotion.

Action: Marketing Committee, J. Turgeon

J. Spence moved and R. Bourchier seconded that in order to increase subscriptions and submissions the possibility be examined of changing the name of the ESC journal.

Carried Action: Publications Committee

The Committee Guidelines for the Publications Committee will be corrected to agree with the Standing Rules concerning appointments of Associate Editors.

Action: M. Goettel (ByLaws, Rules and Regulations Committee)

9.2.4.1 Electronic Publishing with NRC Press
J. Turgeon is in favour of having an electronic copy of *The Canadian Entomologist* on our web

site by 2001.
A discussion paper prepared by Aldyth Holmes of NRC Research Press was circulated to the Board. Highlights include: market for electronic awareness products is growing at a rate of 7% per year publisher's issues including revenue, price, cost, access control, archiving and copyright the journal competes for authors more so than readers (ie., reputation is most important)
NRC journals are currently available in electronic format
NRC has developed and is in favour of parallel publication. Its production processes can be applied to other journals (like *The Canadian Entomologist*)

A letter of thanks will be sent to Aldyth Holmes. Carried: Action: D. Johnson

The Board is generally in favour of parallel publishing (print and electronic) of *The Canadian Entomologist*. However, it needs more information on the costs of electronic versus paper subscriptions, sale of compendia, etc. on CDs, potential savings in mailing costs; quality of keys, photographs, etc. compared to paper copies; location of server, and ways of enhancing electronic functionality (e.g., running models, archival data sets, faunal lists, issues of copyright, making back issues available)

M. Goettel moved and R. Lamb seconded that the Publications Committee, in collaboration with J. Turgeon and NRC, provide a detailed proposal to the Board on the costs involved and how to proceed with parallel publishing of *The Canadian Entomologist*.

Carried Action: Publications Committee, J. Turgeon

9.2.4.2 Special Issues of *The Canadian Entomologist*
A special issue of The Canadian Entomologist will be dedicated as a tribute to Dr. John Borden and published with a surcharge of $15 per page to help cover additional costs. Dr. Geoff Scudder will also be honoured with a special series of articles within a regular issue of *The Canadian Entomologist*.

9.2.5 Editor - *Bulletin*
Report received. Editor H. Barclay gave notice of his intention to resign in 2000. D. Johnson will write a notice for the December *Bulletin* advertising the vacancy.

Action: D. Johnson

9.2.6 Publications Committee
Report received. The terms of Chair, S. Fitzpatrick, and committee member, A. Ewen, have ended and the Board extends its thanks to them. A request was received from H. W. Wilson Company regarding a complimentary subscription to *The Canadian Entomologist* in exchange for indexing the full text of articles and a royalty. H. W. Wilson has indexed abstracts of TCE in Biological & Agricultural Index. No agreements have been entered into, but will be investigated by the new Chair.

Action: Publications Committee

Copyrighting of ESC Publications: No action taken by the Publications Committee.

9.2.7 Nominations Committee
The following were nominated and agreed to stand for election in 1999:

Second Vice-President: Dr. Bernie Roitberg, Dr. Charles Vincent

Director-at-Large: Dr. Peter de Groot, Dr. Kevin Floate, Dr. Douglas Currie

9.2.8 Elections Committee
A total of 172 ballots were counted. Dr. Bernie Roitberg was elected as Second Vice-President and Dr. Peter de Groot was elected as Director-at-Large. R. Lamb moved and J. Spence seconded that the 1999 ballots be destroyed.

Carried: Action: R. Hallett

9.2.9 Achievement Awards Committee
Report received. The 1999 Award winners were Dr. Lubomir Masner (Gold Medal) and Dr. Terry Wheeler (C. Gordon Hewitt Award). The Board extends congratulations to both award winners.

9.2.10 Bilingualism Committee
Report received. The Bilingualism Committee was asked to translate the biographies of both the Gold medal and the Hewitt Award recipients and continues to update the French versions of the Committee Guidelines and the Standing Rules.

Action: Bilingualism Committee

9.2.11 Bylaws, Rules and Regulations Committee
Report received. See item 9.2.10.

9.2.12 Heritage Committee
The committee was very active. Indexed are all Canadian entomological journals and also Tableau, the now defunct news bulletin of Agriculture Canada. It is planned to also index items on entomologists in such journals as Naturaliste Canadien and Ottawa Field Naturalist. The possibility of publication was discussed and it was tentatively decided to aim for early in 2001 to include the entire 20th century. An article was prepared for the March 1999 Bulletin on the subject of obituaries, and a notice was submitted asking for missing annual meeting programs for the National Archives. Additional bulletin items included articles on forest entomologists in Atlantic Canada. Ed Becker maintains two files of importance to ESC heritage, Honours and Deaths/obituaries and welcomes information from members. The committee encourages members to submit heritage information to Canadian publications directly or through the Committee. It is particularly important that awards, retirements, and obituaries be recorded. Artifacts are also welcome.

9.2.13 Insect Common Names and Cultures Committee
Report received. The Board extends its thanks to Elspeth Belton who is retiring after 21 years of dedicated service.

Action: D. Johnson

B. Lyons will contact new Chair John Garland regarding keyword searches on the web site.

Action: B. Lyons, J. Garland

9.2.14 Membership Committee
Report received. As of Sept 30, 1998 the paid membership totaled 526 (Regular ñ 378, Student ñ 72, Emeritus ñ 76). According to a survey of lapsed members, membership in the ESC is too expensive for many potential (and at least some past) supporters and is a prime factor in membership decline. H. Danks noted that downsizing is also a major factor in losing members. The Memberships Committee is charged with making recommendations on how to deal with lapsed

memberships and how to attract new members. A section highlighting the general values of membership could go on the brochure currently in preparation. Perhaps non-members of the ESC or of the host affiliated society should be charged higher registration fees to attend national meetings.

Action: Membership Committee

9.2.15 Student Awards Committee
Report received. Travel Awards of $2,000 each were given to Brian Aukema, University of Wisconsin (Madison), for travel to the University of Montana and to Simon Lachance, for travel to the CABI Bioscience Centre in Switzerland. Post-graduate Awards of $2,000 each were given to Jade Savage, McGill University, who is studying the systematics and zoogeography of the genus Thricops (Diptera: Muscidae), and to Jennifer MacIntyre, University of Guelph, who is studying insecticide resistance and management of the striped cucumber beetle. The 1999 Keith Kevan Scholarship was awarded to Andrew Smith, University of Nebraska - Lincoln, who is studying the systematics of scarab beetles.

Conference Travel Fund
D. Johnson moved and R. Lamb seconded that an ad hoc committee be appointed to develop guidelines on establishing a Presidentís Fund to provide $300 bursaries to students attending the annual meeting. Money may be raised through donations via the ESC membership form, Presidential canvassing of potential corporate donors, and other avenues.

Carried Action: D. Johnson, ad hoc committee

9.2.16 Science Policy Committee
Report received.

Guidelines on issuing press releases
J. Spence circulated a summary of how to write a press release. More information is needed on what news associated with ESC business and awards should be sent out as media releases, what media should be contacted (e.g., home town of award winner), and when news releases should be made.

Action: Science Policy Committee

Canada Wide Science Fair Prize.

J. Spence and B. Lyons provided further information about this prize, which could be sponsored by the ESC ($500) but is handled entirely by the CWSF. Such sponsorship was not recommended.

9.2.17 Student Affairs: No report received.

9.2.18 Marketing Committee
Report received. The Chair, Lloyd Dosdall, concluded his term of service and the Board extends its thanks to him. A brochure on Societal publications was prepared for mailing to Ent. Soc. America members.

New scholarships
The Marketing Committee solicited corporate funding for new student scholarships. Letters of requests for funding and telephone solicitations were made to representatives of several agribusi

ness and forestry companies, but no commitments of scholarship funding were made. Funding requests directed to provincial and federal government agencies also proved fruitless.

Book Distribution
The Marketing Committee was asked to prepare an agreement with M. Jean P. Brisson of Horticentre du Qu(bec authorizing him to distribute and sell publications of the Entomological Society of Canada. Because no replies to several communications were ever received, the Marketing Committee concluded that Mr. Brisson was no longer interested in developing a distribution and sales agreement with the ESC.

9.2.19 ESC Web Site
Report received. The Board thanked B. Lyons for his major overhaul and improvements to the web site including downloadable forms for student awards and a zipped version of the common names list. The ESC web site continues to host the web site for the Biological Survey of Canada (Terrestrial Arthropods). B. Lyons expressed frustration at the lack of input for the Entomology Events module and of feedback in general.
B. Lyons will contact the Bilingualism Committee to assist with translating text into French.

Action: B. Lyons

Ad hoc Bulletin/Web Committee
Report received. The Bulletin must be retained because of its archival value, and the need to provide some information to all members of the Society regardless of their ability to access the Web. The Web Site should be encouraged as a means of more transient communication among members, and particularly for communication with non-members. Based on discussions with the Governing Board and suggestions of members, the following items have been proposed as additions to the Web Site and/or Bulletin:

1) mailing lists, bylaws, committee guidelines - through a password.
2) summaries of recent papers from *The Canadian Entomologist*, either in the Bulletin or on the Web Site.
3) all non-business items from the *Bulletin.*

The Committee concludes:

Make ESC bylaws and committee guidelines available on the Web Site.

Generating and publishing the summaries of Can.Ent. articles cannot be justified given the small benefit likely to occur for our members.

Bulletin items deemed appropriate by the *Bulletin* Editor and Web Master should be sent electronically to the Web Master for posting. Note that the Web Site already presents items from the *Bulletin,* and so this recommendation only confirms that such duplication is desirable.

An interactive forum on the Web Site is probably not warranted at this time, but might be considered again particularly if an enthusiastic supporter of this form of communication can be found to guide such an activity.

The ad hoc Web/Bulletin Committee was charged to continue and to concentrate on identifying areas of (and soliciting) new Bulletin content and assess the benefits of electronic publication of the Bulletin in addition to print publication.

Action: R. Lamb

9.2.21 Ad hoc Commemorative Insect Committee
Report received. The committee recommends that the ESC take no further action towards designating a national insect in cooperation with Heritage Canada based on the apparent lack of public support for such an initiative. The Board expresses its thanks to Hugh Phillip and his committee. No further action required.

9.2.22 Affiliated Entomological Societies

Entomological Society of British Columbia: Report received. The annual meeting of the ESBC will be held at the University of British Columbia on October 22, 1999. The Journal of the ESBC was published for 1998 with 14 peer-reviewed scientific articles. The newsletter Boreus now has a new editor, Dr. Phil Jones. Dr. Ward Strong manages the ESBC web page (**http://www.harbour.com/commorgs/ESBC/**).

Entomological Society of Alberta: Report received. The ESA annual meeting will be held 14-16 October at Waterton Lakes. T. Danyk manages the web page **http://www.biology.ualberta.ca/courses.hp/esa/esa.htm**).

Entomological Society of Saskatchewan: Report received. Planning for the 1999 ESC-ESS joint meeting has been the focus of attention for the past year. The society developed and implemented an ESS web site this year (**http://www.usask.ca/biology/ess/**). Activities related to public education and youth encouragement were numerous again in 1999. Public education is still being supported by retired members: Paul Riegert (Regina) and Cedric Gillott (Saskatoon) continue to be frequent guests on CBC Radio; and Alf Arthur taught a series of general entomology classes at a summer camp for adults.

Entomological Society of Manitoba: Report received. The Youth Encouragement Committee of ESM requested and received grants for the 1998 and 1999 year from the ESC, to assist its activities. The committee arranged about 20 presentations to youth groups ranging in age from preschool to grade 6. The presentations included exhibitions of pinned and preserved specimens, live insects and a slide show. R. Lamb represented the President, ESC, at the Annual Meeting of the ESM., Oct. 16-17, 1998, emphasizing links between the societies and encouraging membership in both. Many of the new ESM members are graduate students at the Department of Entomology, University of Manitoba, and have been advised of the benefits of joining the ESC. This year the Department has organized a van to transport students to the ESC/ESS Annual Meeting, to encourage attendance. This year's ESM meeting will be held November 5-9 and theme is 'Recent Human Activity in Agriculture and the Environment Affecting Insects'.

Entomological Society of Ontario: Report received. The 136th Annual General Meeting of the ESO will be held on 15-17 October 1999 at the Metro Toronto Zoo. The Meeting will feature a Special Symposium titled "Exotic Insect Species: Where Do We Draw the Line". Volume 129 of the Proceedings of the Entomological Society of Ontario was published in December of 1998. Like the ESC, the ESO is also struggling with the issue of electronic publishing of the Society's Proceedings. The insect museum in the Department of Environmental Biology, University of Guelph is the home of the original insect collections of the Entomological Society of Ontario. To promote the museum, the Department recently produced a beautiful, full-colour poster entitled "Ontario Insects". The Department of Environmental Biology has offered to donate 1,000 of the posters ($5,000 value) to the ESO to promote entomology in Ontario. The ESO Board of Directors has decided to make the posters available for display in science classrooms across the province. The Entomological Society of Canada has given $400.00 to the ESO to aid in the ship

ping and distribution of the posters.

Entomological Society of Quebec: Report received. Luc Pelletier, PhD student at Laval University, has replaced Christine Jean as Secretary, Christine now being Rédactrice of Antennae which is the SEQ bulletin. Main activities this year have included organizing the ESQ/ESC/ESA joint meeting to be held in Montréal in 2000. The 1999 Annual Meeting of the SEQ will be held in the Maison du Citoyen in Hull, on October 25 and 26. The main feature of the scientific programme will a symposium on Biodiversity.

Acadian Entomological Society. The new address for the AES site is **www.newfoundlandinsectarium.nf.net/aes** The 59th annual meeting of the Acadian Entomological Society was held at the Glynmill Inn in Corner Brook, August 4 - 6, 1999. The theme for this year's meeting was 'Acadian Entomology - Where Ecology Meets Society.' The 60th annual meeting of the Acadian Entomological Society will take place in Prince Edward Island in 2000.

9.3 Other Business There was no other business.

Adjournment of meeting: The meeting was adjourned at 1415 h following a motion by H. Danks and seconded by D. Johnson. The next meeting of the Governing Board will be held at the Radisson Hotel on Wednesday, September 29th at 12:30 pm.

49th Annual General Meeting
Radisson Hotel
Saskatoon, Saskatchewan
September 28, 1999

President L. Gilkeson called the meeting to order at 16:30 h. Forty four members were present.

Notice of Meeting. Notices of the meeting were published in the March, June and September 1999 issues of the Bulletin (Vol. 31).

Proxies. There were no proxies.

Additions to the Agenda and Approval of the Agenda. P. Fields moved and L. Safranyik seconded that the agenda be accepted.

Carried

Deceased Members of the Entomological Community. A moment of silence was observed in memory of the following members of the Entomological Community who passed away since the last annual meeting: Richard Belyea, Bill Cumming, Bill Fox, Conrad Loan, Jack Martin, Bert McCollom, Clayton McGuffin, Willis Neilson, Ozzie Peck, Jack Robins, Mike Sandborne, Ferdnand Schmidt, Jerry Weintraub and Gord Williamson. R. West thanked E. Becker for writing letters of condolence to the families of the deceased.

Minutes of the 48th Annual General Meeting. Minutes of the 48th Annual General Meeting were printed in the December 1998 issue of the Bulletin (Vol. 30). P. Reigert moved and E. Becker seconded that the minutes be accepted.

Carried No action required

Business Arising from the Minutes. There was no business arising from the previous minutes.

Report from the Governing Board. President Gilkeson presented a report on behalf of the Governing Board. The report from the Governing Board and regular updates are published in the Bulletin. This particular report will be published in the December, 1999 Bulletin (Vol. 31).

Auditor's Report R. Foottit presented the Auditor's Report for 1998 as published in the June 1999 issue of the Bulletin (Vol. 31). R. Foottit moved and I. Otvos seconded that the Auditor's report be accepted.

Carried No action required

Elections Committee Report R. West read the Elections Committee report. Those elected were: Dr. Bernie Roitberg, Second Vice-President; and Dr. Peter de Groot, Director-at-Large.

Installation of Officers President Gilkeson turned the gavel over to D. Johnson as incoming President of the Entomological Society of Canada. The new President accepted the gavel and thanked the Members for the honour of being elected President.

Presentation of Service Awards President Johnson thanked L. Gilkeson, outgoing President, for her service to the Society and presented her with a service award.

Appointment of Auditor R. Foottit moved and B. Lamb seconded that McCay, Duff, and Company be retained as Auditors for 1999.

Carried Action: R. Foottit

Resolutions At the request of President Johnson, H.V. Danks presented the following resolutions on behalf of the Entomological Society of Canada:

13.1 Thanks to Organizing Committee:
Whereas the 1999 Annual Meeting of the Entomological Society of Canada and the Entomological Society of Saskatchewan have met at the Radisson Hotel in Saskatoon, Saskatchewan, September 25-29; and
Whereas there has been a full and interesting meeting of lectures, symposia, and papers; and
Whereas the meeting has been planned with care and concern for those attending; and
Whereas there has been ample opportunity for social interaction and visits to Saskatoon and surrounding areas;
Be it resolved that the Entomological Society of Canada express its sincere thanks to the Organizing Committee for their hard work and skill in arranging a worthwhile and entertaining program; and
Be it further resolved that the Society thank the Organizing Committee and meeting contributors for their generous assistance; and
Be it further resolved that the Society express its thanks to the Management and Staff of the Radisson Hotel for their courteous assistance during the Meeting."

Carried Action: R. West

13.2 Resolution recognizing the value of membership in scientific societies
H.V. Danks moved and B. Lyons seconded that the following resolution be adopted:

'***Whereas*** membership in scientific societies contributes to the professional development of Canadian entomologists, and

Whereas scientific societies provide avenues for the publication and dissemination of publicly funded research, and

Whereas the membership of government entomologists increases the ability of scientific societies to fulfill mandates for the betterment of science, and

Whereas the networks and partnerships encouraged through scientific societies enhance work in the government organizations that employ these entomologists;

Be it resolved that The Entomological Society of Canada recognizes the great value of membership of government entomologists researchers in scientific societies.

Carried Action: D. Johnson

14. New Business

15. Notice of 50th Annual General Meeting
The 50th Annual General Meeting will be held in Montreal, Quebec, December 5, 2000. Further notices for the meeting will be published in the March and June 2000 issues of the Bulletin (Vol. 32).

Action: R.West, H. Barclay

16. Adjournment
President Johnson adjourned the 49th Annual General Meeting at 1650 h following a motion by E. Becker, seconded by J. Turgeon.

MINUTES
Governing Board Meeting, September 29, 1999
Radisson Hotel, Saskatoon

The meeting was called to order at 1230 hours on September 29, 1999 by President D. Johnson. Those present were D. Johnson, President; R. Foottit, Vice-President and Acting Treasurer; L. Gilkeson, Past-President; M. Goettel and P. de Groot, Directors-at-Large; R. Bourchier (ESA), O. Olfert (ESS), R. Lamb, (ESM), B. Lyons (ESO), and L. Hollett (AES), Directors from Affiliated Societies; J. Turgeon, Editor of *The Canadian Entomologist*, and H. Barclay, Bulletin Editor; and R. West, Secretary.

1. Notice of Meeting
Notice of this meeting was emailed on August 2, 1999 and given at the Board Meeting of September 25, 1999.

2. Absences and Proxies
B. Roitberg, T. Shore, R. Bennett, C. Cloutier, V. Nealis and D. Gingras were absent. R. Lamb acted as proxy for R. Bennett.

Additions to and approval of the Agenda
Add Item 7.1 Regional Insect

Add Item 7.2 Acknowledgement to ESC

L. Gilkeson moved and R. Lamb seconded that the agenda as amended be approved.

Carried No action required

4. Minutes of Previous Governing Board Meeting

Minutes of the Governing Board meeting held on September 25, 1999 will be circulated to the Board by the Secretary in October, and published in the December Bulletin.

Action: R. West

5. Business Arising from Previous Governing Board Meeting

5.1 Change to Committee Guideline regarding appointment of Associate Editors

M. Goettel moved and L. Gilkeson seconded that the Publications Committee Guidelines be revised to read, '(c) helping the Board to find Editors.' (i.e., delete 'appointing associate editors and'). Carried Action: R. West

6. Other Business

6.1 Appointments

6.1.1. Executive Council

B. Lyons moved and R. Lamb seconded that the Executive Council for 1999-2000 be: D. Johnson, President; R.G. Foottit, First Vice-President; B. Roitberg, Second Vice-President; and L. Gilkeson, Past-President.

Carried No action required

6.1.2. Trustees

L. Gilkeson moved and M. Goettel seconded that the Trustees for 1999-2000 be:

Treasurer:	G. Gibson
Scientific Editor (*The Canadian Entomologist*):	J. Turgeon
Bulletin Editor:	H. Barclay
Secretary:	R. West

Carried No action required

6.1.3. Committees and Representatives

L.Gilkeson moved and O. Olfert seconded that the Governing Board approve the list of Committees and Representatives as prepared by the President and further that the Governing Board accept the President's appointees to remaining positions to be filled.

Carried

A list of Committee Chairs for 1999-2000 was discussed. The President will write to all Committee Chairs and Representatives confirming their appointments for 1999-2000.

Action: D. Johnson

The Secretary will send terms of reference and Committee Guidelines to all new Chairs.

Action: R.West

6.2 Budget
R. Bourchier moved and B. Lyons seconded that the budget for 2000 as presented by the Treasurer, be approved.

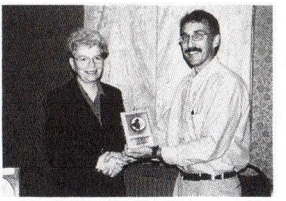
Carried Action: R. Foottit

7. New Business
Regional Insect
L. Gilkeson moved and B. Lamb seconded that the Board endorse actions by any of the affiliated societies who choose to establish a ëRegional Insectí to promote awareness of entomology by the public.

Carried No action required

Acknowledgement to ESC
D. Johnson moved and B. Lamb seconded that requests for information from the ESC be handled with a request that the Society be acknowledged.

Carried



Passing the gavel to Dan Johnson

8. Next Meeting
The next meeting of the Governing Board will be held December 2, 2000 in Montreal.

9. Adjournment
The meeting was adjourned by President Johnson at 1300 h following a motion by M. Goettel, seconded by L. Gilkeson. Carried

New *Bulletin* Editor Sought

Hugh Barclay will be stepping down as *Bulletin* editor in December, 2000. The ESC seeks the names of people interested in taking on this job for a few years. Three people have already indicated interest, but with his characteristic sharpness of memory, Hugh has already forgotten who they are. Would anyone interested please give their name to Vince Nealis at **vnealis@pfc.forestry.ca**

PERSONALIA

Entomological Society of Canada Gold Medal
for Outstanding Achievement in Canadian Entomology in 1999
presented to
Dr. Lubomir Masner
at Saskatoon, Saskatchewan, Sept 27, 1999

The 1999 recipient of the Entomological Society of Canada's Gold Medal for outstanding achievement in entomology is Dr. Lubomir Masner.

Dr. Masner was born and raised in Czechoslovakia. He received his B. Sc. in Zoology (1952) and M.Sc. in Entomology (1957) from Charles University, Prague, and Ph.D in

Entomology (1962) from the Czechoslovak Academy of Sciences. From 1957 to 1968 he worked on biocontrol of forest pests and sytematics of proctotrupoid wasps for the Academy's Institute of Entomology. During this period, as one of the few European experts on proctotrupoids, he received specimens for identification from the Commission Internationale de Lutte Biologique as an official collaborator. From 1964-1965 he was an NRC Postdoctoral Fellow, working on platygastrid parasitoids of cone insects at Agriculture Canada's Biological Control laboratory in Belleville. This was followed by a second fellowship (1968-69) at Simon Fraser University, Burnaby, working on proctotrupoid wasps. Dr. Masner did not return to Czechoslovakia but moved with his wife, son, and daughter to Ottawa in September, 1969, where he had been offered a position at the Canadian National Collection of Insects (CNC), held by Agriculture Canada. He became a Canadian citizen in 1975.

Insect taxonomy has been Dr. Masner's lifelong interest. As an amateur he worked for five years on Czech Coleoptera, particularly Histeridae, building an almost complete collection of the European species before donating it to colleagues. In 1952, he embarked on a lifelong study of proctotrupoid wasps (Hymenoptera). His work in Czechoslovakia culminated in a set of identification keys to the Czech genera of proctotrupoids. He was the first to recognize that proctotrupoids actually consisted of three distinct superfamilies, later to be recognized formally as Ceraphronoidea, Platygastroidea and Proctotrupoidea.

A series of generic revisions ultimately led to several notable generic syntheses for the Ceraphronoidea (1967, *Bull. Inst. R. Sci. Nat. Belge* 43: 1-33), Scelionidae (1976, *Mem. Ent. Soc. Can.* No. 97), Platygastridae (1989, *Mem. Ent. Soc. Can.* No. 147), Diapriinae (soon to be published), and a revised key to families of proctotrupoids (1985, *Aust. J. Zool.* 33: 1-761-783) Thus, most members of these two large, diverse, economically important, and morphologically and biologically interesting groups of wasps can now be reliably identified at least to genus.

Good taxonomic research must be based on study of type specimens supplemented heavily by collections of much needed, fresh material. At the species level, Dr. Masner systematically studied type specimens at all the classical European institutions and published important type species catalogues. His intensive and extensive collecting trips, 31 of them privately sponsored and taken during his holidays, were the source of much fresh material. Yet, not content with only his own collecting, always on the lookout for more specimens from anywhere, and with a resolute singlemindedness and perseverence, Dr. Masner encouraged or cajoled many students and colleagues into giving him residues of samples from their own collecting efforts. From these he personally or with colleagues extracted not only his wasps but most other Hymenoptera as well. The result is an unrivalled collection of at least 400,000 pinned, labelled and generically identified proctotupoids and easily as many again stored in ethanol. This collection is unsurpassed in number and quality of specimens and species, mostly still undescribed, and includes most of the world genera. At least an equal number of other Hymenoptera collected by him are in the CNC, making its parasitic Hymenoptera collection one of the finest in the world.

Most students of proctotrupoids today, representing many countries, have studied with Dr. Masner in Ottawa, often staying in his house while studying the CNC collection and learning proper specimen preparation, collecting and sorting techniques. Some have spent several months to a year as postdoctoral fellows working with him on large manuscripts. In return, he has been invited to several universities on short term grants to identify proctotrupoid wasps and update their collections.

Dr. Masner was an adjunct professor at Carleton University for four years, has been an external adviser and examiner for nine Ph.D. students, and is a Research Associate of the Florida State Collection of Arthropods, Gainesville, Museo de Historia Natural, Santo Domingo and, recently, the American Museum of Natural History, New York.

Dr. Masner is a dynamic speaker and teacher with a knowledge of Hymenoptera that goes well beyond proctotrupoids. He has taught students in 17 weeklong Hymenoptera workshops offered to an estimated 500 students in the USA and Canada during a 16 year period. He was the first to start a newsletter, Proctos, launched in 1972, devoted to a specific group of Hymenoptera. With the help of other hymenopterists, Dr. Masner proposed creating a Hymenopterist Society, currently with over 300 members worldwide and its own journal, and served two consecutive terms as its first president.

Although he retired officially in 1998 Dr. Masner goes to work daily to continue his studies on and enlarge the collection of his wasps, a collection that will be of lasting value to generations of proctotrupoid taxonomists.

Through his impressive research that brought considerable taxonomic order to an abundant, diverse and difficult group of wasps initially in taxonomic chaos, his incredible enthusiasm and dynamism, his tremendous influence on a generation of proctotrupoid taxonomists and many other hymenopterists as well, and his willingness to share his wealth of knowledge on Hymenoptera with students and colleagues alike, Lubomir has clearly distinguished himself as a candidate worthy of receiving the gold medal of the Entomological Society of Canada.

Medaille d'Or de la Societe d'Entomologie
DU CANADA
pour souligner la contribution exceptionnelle en entomologie canadienne 1999
présenté a
Dr. Lubomir Masner
à Saskatoon, Saskatchewan le 27 septembre, 1999

La Médaille d'Or, attribuée par la Société d'entomologie du Canada à un chercheur pour ses réalisations remarquables dans le domaine de l'entomologie, est décernée cette année au Dr. Lubomir Masner. Le Dr. Masner est né et a grandi en Tchécoslovaquie. Il a obtenu son B.Sc. en Zoologie (1952) et sa Maîtrise en entomologie (1957) de l'Université Charles de Prague. Il a complété son Doctorat en entomologie (1962) à l'Académie des Sciences de Tchécoslovaquie. De 1957 à 1968, il a travaillé à l'Institut d'entomologie de l'Académie où il s'est intéressé au contrôle biologique des insectes nuisibles des forêts et à la systématique des guêpes proctotrupoides. Durant cette période, il a été un collaborateur officiel de la Commission Internationale de Lutte Biologique, organisme pour lequel il a fait l'identification de spécimens de proctotrupoides en tant que l'un des rares experts européens de ce groupe. À partir de 1964-1965, il a effectué un stage postdoctoral (CRSNG) au laboratoire de lutte biologique de la station d'Agriculture Canada à Belleville au cours duquel il a étudié les parasitoïdes platygastrides des insectes ravageurs des cônes. Il a ensuite entrepris un deuxième stage postdoctoral (1968-69), cette fois à l'Université Simon Fraser, Burnaby, où il a travaillé sur les guêpes proctotrupoides. Le Dr. Masner ne retourna pas en Tchécslovaquie. Acceptant un poste à la Collection nationale canadienne d'insectes (CNC) d'Agriculture Canada, il a plutôt déménagé à Ottawa avec sa famille (sa femme, son fils et sa fille) en septembre 1969. Il a obtenu sa citayenneté canadienne en 1975.

Tout au long de sa vie, le Dr. Masner a entretenu un intérêt indéfectible pour la taxonomie des insectes. En tant qu'amateur, il a travaillé cinq ans sur les coléoptères tchèques, plus particulièrement sur la famille des Histeridae, accumulant une collection presque complete des espèces européennes, collection qu'il a léguée à ses collègues. En 1952, il a entrepris l'étude des guêpes proctotrudoide (Hyménoptère), travail qui occupera toute sa carrière. Son travail en Tchécoslovaquie a conduit à la production d'une série de clés d'identification des différents gen

res de guêpes proctotrupoides tchèques. Il a été le premier à reconnaître que les guêpes proctotrupoides étaient en réalité constituees de trois superfamilles distinctes, plus tard identifiées formellement comme étant les Ceraphronoidea, Platygastroidea et Proctotrupoidea.

Une série de révisions des genres l'a ultimement conduit à la production de plusieurs synthèses remarquables portant sur les Ceraphronoidea (1967, *Bull. Inst. R. Sci. Nat. Belge* 43: 1-33), Scelionidae (1976, *Mem. Ent. Soc. Can.* No. 97), Platygastridae (1989, *Mem. Ent. Soc. Can.* No. 147), Diapriinae (qui sera publiée incessamment), et l'élaboration d'une clé revue et corrigée des familles de prototrupoides (1985, *Aust. J. Zool.* 33: 1-761-783). Grâce à son travail, la plupart des membres de ces deux grands groupes de guêpes diversifiés, d'importance économique, et ayant un intérêt tant morphologique que biologique, peuvent maintenant être identifiés de manière fiable jusqu'au genre.

Toute bonne recherche en taxonomie doit être basée sur l'étude de spécimens types et complétée avec la récolte de matériel frais. Au niveau des espèces, le Dr. Masner a systématiquement étudié les spécimens types de toutes les institutions classiques européennes et publié d'importants catalogues des espèces types. Ses voyages de récolte intensive et extensive, 31 d'entre eux effectués à ses propres frais durant ses vacances annuelles, lui ont permis de récolter une grande quantité de matériel frais. Non satisfait de ses récoltes personnelles, le Dr. Masner a constamment cherché a obtenir d'autres spécimens frais avec une détermination et une persévérance inlassables, convaincant plusieurs étudiants et collègues de lui donner les restes de leurs échantillons. Il a extrait de ces échantillons, seul ou en collaboration avec d'autres collègues, non seulement des guêpes proctotrudoides, mais aussi des spécimens de la plupart des autres groupes d'hyménoptères. Le résultat fut l'établissement d'une collection sans précédent, constituée d'au moins 400 000 guêpes proctotrupoides montées, étiquetées et identifiées au genre. Il en a aussi conservé tout autant dans l'éthanol. Cette collection se démarque par le nombre et la qualité des spécimens et espèces qu'elle contient. La plupart des espèces ne sont pas encore décrites, et la collection inclut la plupart des genres existants de par le monde. La collection du CNC contient aussi au moins un nombre égal d'autres hyménoptères qu'il a personnellement récolté, faisant de sa collection d'hyménoptères parasitiques l'une des plus belles au monde.

La plupart des spécialistes actuels des guêpes proctotrupoides, travaillant dans plusieurs pays, ont étudié avec le Dr. Masner à Ottawa. Plusieurs d'entre eux ont été hébergés chez le Dr. Masner lors de leur séjour à la collection du CNC, alors qu'ils y apprenaient les techniques de récolte, de tri et de préparation des specimens. Certains étudiants au postdoctorat ont collaboré avec lui pendant plusieurs mois, voire une année entière, à la rédaction d'imposants manuscrits. En échange, il a été l'invité de plusieurs universités pour identifier les guêpes proctotrupoides et remettre à jour leur collection.

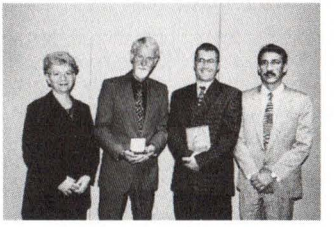
Le Dr. Masner a été professeur adjoint à l'Université de Carleton pendant quatre ans, conseiller externe et examinateur pour neuf thèses de doctorat. De plus, il est associé de recherche à la Collection de l'Etat de Floride (Gainesville), du Museo de Historia Natural (Santa Domingo) et, récemment, du American Museum of Natural History (New York).

Le Dr. Masner est un conférencier et un professeur dynamique dont la connaissance des hyménoptères déborde largement du cadre des guêpes proctotrupoides. Pendant 16 ans, il a donné 17 ateliers d'une durée d'une semaine sur les hyménoptères à plus de 500 étudiants des U.S.A. et du Canada. En 1972, il a été le premier à créer un bulletin entièrement consacré à un groupe spécifique d'hyménoptères, Proctos. Conjointement avec d'autres collègues, le Dr. Masner a proposé la création d'une societé d'hyménoptéristes, qui compte aujourd'hui plus de 300 membres à travers le monde et qui publie sa propre revue. Il a aussi assumé la charge de premier président de cette Société pendant deux termes consécutifs. Bien qu'il ait officiellement pris sa retraite en

1998, le Dr. Masner va travailler tous les jours pour poursuivre son étude des hyménoptères. Il continue à ajouter des spécimens à sa collection qui est, et demeurera, un trésor inestimable pour les générations futures de taxonomistes des proctotrupoides.

Grâce à son impressionnant travail de recherche qui a permis d'ordonner le chaos taxonomique d'un groupe d'hyménoptères abondant, diversifié et difficile à classifier, grâce à son enthousiasme et son dynamisme incroyables, son immense influence sur une génération de taxonomistes des guêpes proctotrupoides et sur plusieurs hyménoptéristes, ainsi que son empressement à partager avec ses étudiants et collègues son immense baguage de connaissance des hyménoptères, Lubomir s'est clairement distingué comme un candidat digne de recevoir la Médaille d'Or de la Société d'entomologie du Canada.

Entomological Society of Canada C. Gordon Hewitt Award for Outstanding Achievement in Canadian Entomology in 1999 presented to Terry Wheeler at Saskatoon, Saskatchewan September 27, 1999



Linda Gilkeson, Lubomir Masner, Terry Wheeler and Dan Johnson

The 1999 recipient of the Entomological Society of Canada's C. Gordon Hewitt award for outstanding achievement in entomology by an individual under 40 is Dr. Terry Wheeler of the Department of Natural Resource Sciences, McGill University, Ste-Anne-de-Bellevue, Quebec.

Dr. Wheeler was born on June 8, 1960 in St. John's, Newfoundland and, after several years in southern Ontario, returned to Newfoundland to study biology at Memorial University. After an abortive foray into marine biology, Terry's interest in insects was awakened in Dr. Dave Larsonís entomology class and this led to an honours thesis on the ecology of bird lice on Newfoundland passerines. Following the completion of his B.Sc. in 1985, Terry returned to southern Ontario to study the systematics of monogenean flatworms for an M.Sc. (1987) in parasitology at the University of Guelph. He returned to entomology for a Ph.D. (1991) with Dr. Steve Marshall at the University of Guelph on the systematics of the sphaerocerid fly genus Rachispoda. Dr. Wheeler spent two years as a NSERC Postdoctoral Fellow with Dr. Henry Howden at Carleton University and Dr. Jeff Cumming at the Canadian National Collection of Insects in Ottawa. During his time in Ottawa, he developed an interest in the fly family Chloropidae and continued his research on the higher classification of the acalyptrate Diptera.

Dr. Wheeler became an Assistant Professor of Entomology at McGill University in 1995 and in 1997 he was appointed Director of the Lyman Entomological Museum and Research Laboratory. The primary focus of his current research program is the systematics of Chloropidae, but he has other current projects on various acalyptrate families, and a growing interest in the diversity and zoogeography of Diptera in grasslands. Dr. Wheeler is the author or co-author of 32 refereed articles in scientific journals, as well as numerous miscellaneous publications and conference presentations, primarily on Diptera systematics and diversity, but also on a variety of other subjects including ecology of avian ectoparasites, parasite systematics, insect collecting methods and specimen preparation techniques. Dr. Wheeler's research has been supported by grants from NSERC and FCAR (Quebec) since 1996.

Since 1995, Dr. Wheeler has supervised seven graduate students and 16 undergraduate

research project students at the Lyman Museum. He also teaches several courses at the undergraduate and graduate levels in systematic theory, zoogeography, systematic entomology and earth history. Dr. Wheeler has established an active and productive program in research and training at the Lyman Museum. After several years of uncertainty, the Lyman has re-established its

standing in the entomological community as a centre for research on insect systematics and biodiversity. One of the factors in this resurgence is an influx of students to Dr. Wheeler's lab who have been very successful at securing scholarships and research funding from external agencies. The consistent presence and success of Dr. Wheeler's students at scientific conferences and their frequent interactions with scientists at other institutions is a direct reflection of his dedication to graduate training and supervision.

In addition to his research and teaching activities, Dr. Wheeler has served on many committees in professional societies over the years including the Dipterology Fund Grants Committee, the Scientific Committee of the Biological Survey of Canada (Terrestrial Arthropods) and the Entomological Society of America Graduate Student Committee. He has been particularly active in the affairs of the Entomological Society of Canada and has served on the Finance, Nominations, Graduate Research Travel Grants and Student Awards Committees. He has also been involved in the organization of numerous conferences and workshops; of particular note is his role as secretary of the Third International Congress of Dipterology (Guelph 1994).

Société d'Entomologie du Canada prix C. Gordon Hewitt
pour souligner la contribution exceptionnelle en entomologie canadienne 1999
présenté à

Terry Wheeler

à Saskatoon, Saskatchewan le 27 septembre, 1999

Le récipiendaire du Prix C. Gordon Hewitt remis par la Société d'entomologie du Canada, afin de souligner la contribution exceptionnelle en entomologie d'un chercheur âgé de moins de quarante ans, est attribué cette année au Dr. Terry Wheeler du "Department of Natural Resource Sciences", de l'Universite McGill, Ste-Anne-de-Bellevue, Québec.

Le Dr. Wheeler est né le 8 juin 1960 à St. John's (Terre Neuve). Après avoir vécu plusieurs années dans le sud de l'Ontario, il revient dans sa province natale pour y étudier la biologie à l'Université Memorial. Après une brève incursion en biologie marine, l'intérêt de Terry pour les insectes est éveillé lors du cours d'entomologie du Dr. Dave Larson, ce qui le conduit à faire une thèse, reçue avec mention, sur l'écologie des poux des oiseaux passereaux de Terre-Neuve. Après l'obtention de son BSc. en 1985, Terry retourne dans le sud de l'Ontario où il entreprend des études de Maîtrise (1987) en parasitologie à l'Université de Guelph sur la systématique des plathelminthes monogéniques. De retour à l'entomologie, il fait son Doctorat (1991) sous la supervision du Dr. Steve Marshall à l'Université de Guelph où il étudie la systématique des mouches sphaeroceride du genre Rachispoda. Le Dr. Wheeler passe ensuite deux ans comme étudiant postdoctoral (CRSNG) aux laboratoires des Dr. Henry Howden de l'Université de Carleton et Jeff Cumming de la Collection nationale canadienne d'insectes à Ottawa. Pendant ce passage à Ottawa, il développe un vif intérêt pour la famille des mouches Chloropidae et poursuit ses recherches sur la classification des diptères acalyptrates.

Le Dr. Wheeler devient professeur adjoint en entomologie à l'Université McGill en 1995

et, en 1997, il est nommé directeur du "Lyman Entomological Museum and Research Laboratory." Son programme de recherche actuel se concentre principalement sur la systématique des mouches Chloropidae, mais inclut aussi d'autres projets portant sur différentes familles de mouches acalyptrates. Terry manifeste également un intérêt croissant pour la biodiversité et la zoogéographie des diptères des prairies. En plus d'avoir effectué plusieurs conférences, le Dr. Wheeler est auteur et coauteur de 32 articles publies dans des revues scientifiques et de plusieurs articles dans des publications sans comité de lecture. Ces communications portent principalement sur la systématique et la diversité des diptères, mais aussi sur l'écologie des ectoparasites des oiseaux, la systématique des parasites, les méthodes de récolte d'insectes et les techniques de montage et de préparation des spécimens. Les projets de recherche du Dr. Wheeler sont financés par le CRSNG et le FCAR (Québec) depuis 1996.

Depuis 1995, le Dr. Wheeler a supervisé le travail de sept étudiants gradués et de 16 étudiants au Baccalauréat au Musée Lyman. Il enseigne aussi plusieurs cours de premier cycle universitaire et de cycle supérieur portant sur la théorie de la systématique, la zoogéographie, la systématique en entomologie et sur l'histoire géologique et biologique de la Terre. Le Dr. Wheeler a instauré un programme actif et productif de recherche ainsi que des stages de formation au Musée Lyman. Après plusieurs années de flottement, le Musée Lyman a rétabli sa réputation au sein de la communauté scientifique en tant que centre de recherche en systématique des insectes et en biodiversité. Un des facteurs de cette renaissance est l'arrivée au laboratoire du Dr. Wheeler d'étudiants boursiers qui ont été capables d'obtenir des fonds de recherche d'organismes subventionneurs. La présence et le succès régulier des étudiants du Dr. Wheeler aux congrès scientifiques, ainsi que leurs interactions fréquentes avec les scientifiques d'autres institutions sont autant d'indices de son dévouement à la formation et la supervision des étudiants gradués.

En plus de ses activités de recherche et d'enseignement, le Dr. Wheeler a assumé au cours des années des charges au sein de plusieurs comités de Sociétés professionnelles, incluant le Comité des bourses en Diptérologie, le Comité scientifique de la Commission biologique du Canada (Arthropodes terrestres) et le Comité des étudiants gradués de la Société américaine d'entomologie. Il a été particulièrement actif dans les affaires de la Société canadienne d'entomologie en servant au sein des Comités des Finances, des Nominations, des Bourses de voyages pour les étudiants gradués et des Prix d'excellence pour les étudiants. Il a aussi été impliqué dans l'organisation de plusieurs congrès et groupes de travail. Il est important de noter qu'il a été secrétaire du Troisième Congrès international de Diptérologie (Guelph 1994).

Entomological Society of Canada Norman Criddle Award for Outstanding Achievement in Amateur Entomology in 1999 presented to Dr. Bernie Gollop at Saskatoon, Saskatchewan September 27, 1999

The Entomological Society of Canada Norman Criddle Award recognises the contribution of an outstanding non-professional entomologist to the furtherance of entomology in Canada. The award may be given for outstanding work in teaching or research, community projects, publicity, popular writing, preparation of slide sets or films, or any other activity that enhances the image of entomology. The recipient is selected by the affiliate society that hosts the annual meeting of the Entomological Society of Canada. This year the Criddle Award goes to Dr. J.B. Gollop.

Bernie Gollop, an Ottawa native, has a B.A. from Loyola College, Montreal, M.Sc. from Cornell University, and a Ph.D. from the University of Saskatchewan. As a child, Bernie, encouraged by his parents, developed a strong interest in birds. This interest led to his becoming both an avid 'birder' and a professional avian biologist. He began working for the Canadian Wildlife Service in 1949 and in the same year married his long-standing partner, Maddie (though any connection between these two events remains intangible!). Bernie was the first resident representative of CWS in Saskatchewan and in the 1960's, after visiting similar institutions in Europe, had major input into the design of the Prairie Wildlife Research Centre on the University of Saskatchewan Campus, which currently houses more than 60 staff and graduate students. He was briefly the Centre's Director but soon returned to being a Research Scientist, when he could continue to study and work 'hands on' with the creatures he had so long admired. Bernie's early

research included studies on waterfowl breeding biology and demography, as well as assessment of waterfowl damage to cereal crops. As part of such studies, he had a major role in pioneering the use of dogs to catch flightless young mallards for banding. Other research included assessment of damage caused by sandhill cranes and population studies of songbirds (esp. savannah sparrow), including the identification of individual birds by their song.

Bernie represented the CWS at several Mississippi Flyway Conferences; he organised and chaired the 1969 International Wetlands Seminar, in Saskatoon, and edited the seminar transactions; he was the senior author of "*The Eskimo Curlew - A Vanishing Species?*" published in 1986; and he was co-compiler for 10 years for the Prairie Provinces Region of the Audubon Society's quarterly "*American Birds*." Fortunately for prairie, indeed Canadian, entomology, in the mid-1980s Bernie's major interest switched from birds to butterflies. This change was so pervasive that, by the 1990's, his field book contents went from 99% birds to 99% butterflies! For a number of years, Bernie has organised and conducted butterfly workshops and has led weekly butterfly field trips each summer around Saskatoon. In fact, from early Spring to late Fall, Bernie is almost impossible to get hold of at home during the day, as he is inevitably out walking two dogs (neither of which is his); that is, he's on a butterfly trip somewhere in the Saskatoon area! With Anna Leighton, he co-edited "*Saskatchewan Butterflies - 1998*", the first annual report on the butterflies of this province. With Ron Hooper (the Criddle Award winner in 1983), he produced the first annotated checklist on Saskatchewan butterflies, and the same two authors have written the butterfly section in the new edition of "*The Atlas of Saskatchewan*". He is also a regular contributor of butterfly (and bird) articles to both "*The Blue Jay*" (the quarterly journal of the Saskatchewan Natural History Society) and "*Nature Notes*" (a weekly nature column produced by the Saskatoon Natural History Society). Bernie has been a member of the North American Butterfly Association since its inception in 1992 and is also in The Lepidopterists' Society.

Each year, Bernie serves as a volunteer in a biodiversity project of Saskatchewan Environment and Resource Management. With his son, Mike, he participates in 10 butterfly surveys from the Cypress Hills and Roche Percee to the Waskesiu River. These surveys also form part of an international butterfly survey known as the 4th of July Counts (counts made within a month of July 4th).

However, Bernie's interests extend beyond butterflies and birds. He is a strong advocate for all projects that stimulate amateur interest in natural history. He has been a member of both the Saskatoon and the provincial Natural History Societies for more than 40 years; he was editor of "*The Blue Jay*" for 4 years; and, with Peter Jonker, he edited "*Nature Viewing Sites in the Saskatoon Area*". Like Norman Criddle, Bernie Gollop is a keen student of natural history, as well as a professional biologist. He is a worthy recipient of the E.S.C.'s Award.

Cedric Gillott

In Memory

John Robert Barron (1932-1997)

John Robert Barron was born on 23 December 1932 to Robert and Floribel Barron of Niagara Falls, Ontario. He was of Scottish/Irish decent. His ancestors settled in the Niagara Falls area in 1750. His father was a buisnessman and his mother a school teacher and his mother always hoped her only son would be a minister or teacher.

John was fascinated with insects as far back as he could remember and by the time he was nine he secretly wished he could just spend his life studying insects. As a young boy he had severe hearing difficulties and became more and more isolated. This possibly contributed to him becoming very shy and introverted, which he remained much of his life. Few people got to know John well. He had a very active family and spent a lot of vacation time with cousins fishing and exploring the Muskoka area.

In December, 1955, John married Marion Ruth Burton, also from Niagara Falls. He made an attempt to pursue one of his mother's ambitions for him but quickly realized that he was not suited for the ministry and tried teaching instead. He taught a grade eight class in Montreal in the mid-fifties but it was quickly apparent to him that this was also not his vocation so together he and his wife decided that it was time he pursued his dream of entomology.

John enrolled in Macdonald College and received his B.Sc. (Agr.) in 1961. He and Marion lived in married quarters at Macdonald College, commonly referred to as "The Huts" in those years. The quarters consisted of one room with shared bathroom and there were plenty of cockroaches who shared the space with them as well. John told Marion, who was pregnant at the time, that they couldn`t have the baby until the semester was over. Dutifully, the baby was born within a couple of days after John's last exam. Catherine Elizabeth (Cathie), born in Montreal in 1961, was their only child. She was married in 1981 to Richard Loken from Outlook, Saskatchewan. Much to John's delight his first grandchild was born in September, 1982. Cathie and Richard had three sons and one daughter and John was happy to have four grandchildren, Geoffery, Lona, Chritian and Trevor. The Lokens have lived in Athabasca, Alberta, for much of their marriage.

While at MacDonald in 1959, John got to know Jean-Marie Perron, a fellow student. Both had a similar personality, that is to say reserved, uncommunicative, solitary. They were part of the same work team in Professor MacFarlane's physiology lab. Sharing a phobia of reptiles and amphibians they had long moments of hesitation when confronted with a frog. It was always John who heroically sacrificed the animal. Free time and often Saturdays and Sundays were spent in Professor Duporte's lab, dissecting insects to complete his morphology course.

In 1962 John was accepted as a graduate student at the University of Alberta, Edmonton, and also as an extension entomologist for the Province of Alberta. In early 1969 he completed his Ph.D. in entomology (on trogositid beetles) and accepted a position to work on ichneumonid wasps at the Canadian National Collection of Insects (CNC) in the Entomology Research Institute, Ottawa, where he worked until his death.

In the early 1970's, Dr. Perron and John found themselves in circumstances that permitted John to put into practice his professional talents and scientific competence. The Quebec Ministry of Cultural Affairs had just deposited in Laval University the historically important insect collection assembled by abbot Lèon Provancher. The collection was in a deplorable state and Dr. Perron wanted to have it properly curated. Since there was no taxonomist at Laval, John was asked to help out. With the help of a few colleagues at the CNC and also the Smithsonian Institution in

Washington, DC, an agreement was made to restore this portion of our Canadian national heritage. It was agreed that the two Provancher collections deposited in Laval University, the one that Provancher sold to the Quebec Government in 1877 and the one that he left at his death in Cap Rouge, would not only undergo scientific revision but their historical importance would be highlighted. John was the principal architect of this retauration. He spent almost four years revising the 526 types of Provancher ichneumonids, and over the next 10 years off and on during in his free time he finished cataloguing the remainder of both collections. This was done during trips to Laval at which he also gave taxonomy courses to graduate students. Part of the work was done at home in Ottawa where he carried boxes of specimens, often completely filling up his VW beetle. Type specimens were arranged alphabetically and the rest of the collection was arranged according to Provancher's manuscript catalogues. John's name is henceforth associated with Quebec's first great naturalist, whom he admired. Thank you John!

Over the years John had various hobbies. He became fascinated with stamp collecting as a very young boy and collected them with great seriousness all his life, leaving behind a massive collection when he died. He also collected coins though not with the same degree of devotion as for stamps but certainly with enjoyment. In the seventies John and his first wife became fascinated with collecting rocks. As a teenager, Catherine remembers all those rock collecting trips and the boxes and boxes of rocks in their garage. To this day she still does not know what happened to them and would like to find out. Many were large, some massive, and many beautiful. While living in a house by the Rideau River, John also became interested in gardening. He had a lawn you could eat off within a year of living there. John planted shrubs and trees and had a most beautiful rock flower garden which lined the winding driveway. The neighbours still occasionally mention his rock garden, saying that it has never been as beautiful as it was then. He had a real knack and like anything else he took on he put his all into it until it was mastered. John always enjoyed having a pet dog around. Early in life he prefered Carin Terriers and later his passion became Shelties (Shetland sheepdogs). With all his hobbies keeping him busy, John wasn't one to help around the house except with laundry. He always did the laundry. That was his job in both his marriages and no one else ever did laundry!

In 1979 John was separated and later became divorced. He remarried in 1983 to Ruth Swedlove. She died in December, 1996. He met Ruth while taking evening courses at Carleton University. He had almost completed a degree in Philosophy, specializing in Nietsche, at his death.

John was a dedicated worker in taxonomy but was plagued with health problems, including food allergies, which resulted in a certain amount of lost time at work. A fall from a ladder at home resulting in a badly broken leg affected his mobility somewhat which also contributed to his retiring nature in his later years. Thus, he preferred to work quietly in his office and rarely joined the rest of the Hymenoptera unit for coffee or occasional collecting outings during his last decade at the CNC. Nevetheless, his door stayed open and he was always willing to answer questions and help where he could. Although never mastering the Ichneumonidae to the extent that he knew the Trogositidae, he did some fine work on the Eucerotinae and Ctenopelmatinae. John was known for his neatness and organization. His publications, like his minuscule and precise handwriting, show great attention to detail.

As a member of several professional societies, particularly the Entomological Societies of America and Canada, John received several journals such as *Quaestiones Entomologicae, The American Naturalist, The Canadian Entomologist, The Canadian Field Naturalist, Annals of the Entomological Society of America, Evolution,* and *Le naturaliste Canadien*, which he read voraciously.

Trogositidae remained John's favorite insect group long after he switched to studying Icheneumonidae at the CNC. He kept a collection of trogositids at home and apparently had been working on a catalog of them. John remained the recognized expert on this family and found time to publish at least one more paper on the family towards the end of his career. After his death, the trogositid collection was donated to the CNC together with a small private collection of miscellaneous insects made during the 1950's and when he was a student at Macdonald College. At Cathie's request, much of his personal entomological library was donated to the University of Northern British Columbia, but his ichneumonid reprints and books remained at the CNC for future workers on this family. At his death, John was the only research taxonomist in Canada working on this very large and important group of parasitic wasps.

While still on staff with Agriculture Canada and after a brief illness he died in March 17th, 1997, at 64 years of age. We warmly thank Dr. Jean-Marie Perron, Professor Emeritus, University of Laval, for his contribution.

Cathie Loken
John Huber.

Richard M. Belyea (1920-1999)

Richard M. Belyea died 21 June 1999 at Fredericton New Brunswick, after living with prostate cancer for 12 years. Dick, as he was known to his associates, approached his bout with cancer with the same head-on style of management he was noted for throughout his career with the Canadian Forest Service (throughout its many name changes and reorganizations). Dr. Belyea's approach was influenced by his wartime experience as a navigator and executive officer on the corvette HMCS Owen Sound on convoy duty throughout the darkest days of the Battle of the Atlantic. It was an experience that instilled in him qualities of a good naval officer - a sense of order, the "voice of command" and the determination to run a tight ship.

Dick joined the Forest Biology Division of the Dept of Agriculture in 1946 and was assigned to the Forest Insect Laboratory at Sault Ste. Marie, Ontario. Where his management capabilities led him into a management role early in his career. His direct contributions to entomology were therefore modest. He was put in charge of its Black Sturgeon Lake Field Station in 1948, and by 1952 became director of the Laboratory itself. In 1960, he was appointed Director of the Forestry Biology Laboratory in Fredericton; in 1965, he returned to direct the Sault Ste. Marie Laboratory which, incorporating the forestry elements of the former Dept. of Northern Affairs and Natural Resources, had grown to become the Great Lakes Forest Research Centre.

In 1969, he was appointed Director of Operations at the Ottawa Headquarters at a time when the Canadian Forestry Service was undergoing drastic budget cuts. The process was devastating to morale. However, Dr. Belyea's ability as an organizer and a hard negotiator was a significant factor in minimizing the intended size of the cuts and lessening their negative impact. In addition, he ensured that the department continued to function at a high level by developing operational procedures that increased efficiency to a level yet to be surpassed. Entomological research and surveys continued to be a major component of the program in keeping with its importance to forestry.

In 1973, he returned to Fredericton to serve as Director of the Maritimes Forest Research Centre until 1977. He retired in Fredericton in 1980 after having served as an advisor on preliminary planning for the construction of the Hugh John Flemming Forestry Centre.

As a laboratory Director he maintained a close interest in every project and required convincing on all matters. He espoused efficiency, ruthlessly eliminated inefficiencies, and stu

diously defended his staff against poorly thought-out policies from higher levels that he felt were detrimental.

Dick was a graduate of the University of Toronto where he received his undergraduate degree in Science before joining the Navy in 1941. After the war he returned to the University of Toronto in 1945, where he received his PhD in 1951. His research work clarified the role of associated insect species in the death of balsam fir trees severely weakened by spruce budworm defoliation (*Can.Ent* 84:325 and *J. Forestry* 50:729).

In retirement, he pursued his hobby of wood working and carpentry, at which he was a master, and developed an interest in landscape gardening. He enjoyed music, having played the clarinet in his younger days, and with his wife Jane, regularly attended musical concerts. He also maintained his skills as a navigator on sailing trips with his close friend Dr. John Anderson, a forest entomologist, physiologist, and former President of the University of New Brunswick, and on one particular trip successfully navigating by dead reckoning through 60 miles of dense Bay-of-Fundy fog, reaching his destination with pinpoint precision.

Born in Fredericton of Huguenot and United Empire Loyalist descent, he moved to Toronto at an early age, and spent his youth and most of his career in Ontario. He is survived by three children, sons Scott and Stephen and daughter Alison (Mrs. R. Randall) and brother William. He was predeceased by his wife Jane and brothers Edwin and Joseph. His ashes were buried in his back garden alongside those of his beloved wife Jane.

D.G.Embree
Fredericton

W.T.A. Neilson (1929-1998)

After a brief illness, Willis T.A. Neilson passed away on November 10, 1998 in Kentville, Nova Scotia. A native of Fredericton, New Brunswick, Willis graduated from U.N.B. with a BSc (Biology) in 1950 and began his career in entomology with Agriculture Canada in Fredericton. His early research focussed on insect pests of lowbush blueberry, and included life history studies on several species of climbing cutworms and sawflies. The latter were the subject of his thesis for an MSc (Entomology) from Cornell University.

Willis's later research was on the blueberry maggot and the apple maggot, and these studies continued after he transferred to the Kentville Research Centre in 1965. He published extensively on the biology and control of these important insect pests, and was internationally recognized for his contributions in this field. He retired in 1989.

He was a member of the Acadian Entomological Society, the Entomological Society of Canada and the American Entomological Society, as well as being active on various regional, national and international committees and research groups.

Willis is survived by his wife Annette, son Robert (wife Charlene), two daughters, Ann Carver (husband David), Margo Thomas (husband Peter), and seven grandchildren, all of whom reside in Kentville.

George Wood
Fredericton

William Robin Richards (1926-1998)

Rob Richards was born November 13, 1926, in Regina, Saskatchewan and died May 25, 1998. He received his PhD from the University of Illinois (taxonomy of Collembola) in 1951 and joined the Institute of Entomology in Ottawa in 1954 and retired in 1981. He worked primarily on aphid taxonomy, publishing over 80 papers, and also carried out taxonomic research on scale insects and psyllids. His most important contributions were a series of monographs on aphids on deciduous trees and sedges. Throughout his career, he collected extensively and developed a large collection of aphids in the CNC.

Bob Foottit
Ottawa

John Keith "Jack" Robins (1918 - 1999)

Jack Robins was a "flatlander" from Griffin, Saskatchewan but in 1939 moved to Calgary and in a few years became the quintessential "mountain man" as familiar in the forest as on the plains. After completing a course in electronics he joined the Alberta Forest Service as District Ranger in Rocky Mountain House. There he met and soon married Margaret "Peggy" Edwards.

In the 40's he served for two years in the Air Force as a radar/electronics specialist. In 1948, he was recruited by the Division of Forest Biology, Agriculture Science Service as Chief Ranger of the Forest Insect Survey in the newly established laboratory in Calgary. He shortly proved himself a "guide, philosopher and friend" (Pope) to his Rangers, the scientific staff and the lab Chief, George Hopping. He molded the rangers into an efficient, highly productive survey team with no perceptible friction. He provided a friendly liaison with the scientific staff, often assisting them with their projects. He was perfectly at home with either survey or science. To the lab Head, George Hopping, he became an invaluable planner, architect, supervisor and craftsman on many projects ranging from mechanical and other "fix-it" work, renovating an army H hut for staff quarters in Kananaskis field station, outfitting the insectary, assisting in the construction of a field station in Banff National Park, building scientific equipment to captaining an expedition up the McKenzie River to near the Arctic circle. A man of many talents, he will be remembered for his professionalism and work ethos.

In the early 60's, the Calgary lab was transferred to Edmonton and the Canadian Forest Service. The gradual diminution of the Canadian Forest Insect Survey and forest insect research sapped the initiative and esprit de corps of the Survey. There was increasing bureaucratization and suppression of individual effort which removed much of the joy Jack had in his work. In 1975 he opted for early retirement, moved to Chase, British Columbia, built his retirement home, and took up beekeeping and heavy-duty gardening. He and Peggy became "snowbirds" wintering in the desert town of Quartzite, Arizona. Many of his friends of those winters joined him on his annual salmon fishing trips to Lund, British Columbia.

In addition to his close-knit family: Peggy, son John and wife Kelly, three grandchildren, two sisters, a brother and numerous nieces and nephews. Jack left behind a legion of friends throughout Canada and the United States - I know of no enemy.

Ron Stark
Sandpoint, Idaho

Jerome Wientraub (1922 - 1999)

Jerome (Jerry) Weintraub passed away in Lethbridge, Alberta on August 18, 1999. Jerry was born in Radom, Poland and at an early age came to Canada with his parents, who settled in

Toronto. He earned his B.A. degree at the University of Toronto in 1946 and an M.Sc. degree in Entomology at the University of Minnesota in 1949.

Between university terms, Jerry worked as a Student Assistant at the Canada Department of Agriculture parasite Laboratory, Belleville, Ontario and with the Ontario Department of Lands and Forests. Jerry began his career in Veterinary - medical Entomology in 1949, when he accepted a position with the Canada Department of Agriculture, Livestock Insects Laboratory at Kamloops, B.C. There he conducted investigations on warble fly ecology and physiology. He also assisted in investigations on tick ecology.

In 1953, Jerry was transferred to the Livestock Insects Laboratory at Lethbridge, Alberta, where he continued studies on warble fly ecology and physiology. Even though the laboratory went through several changes in name, Jerry's projects did not change and, through his efforts at Lethbridge, Jerry is recognized as the world's authority on warble fly ecology and physiology. He developed techniques for rearing warble in sufficient numbers on a year round basis for experiments. He demonstrated that warble fly males could be sterilized with gamma radiation and when released among field populations there was a reduction in the field populations.

Results from Jerry's research and his leadership have been applied to a large scale Canada/U.S. cooperative project on the eradication of warble flies and he influenced scientists of U.S., U.K. and France. Jerry was selected by C.I.D.A. to conduct an expert evaluation on warble control programs in Pakistan for which aid was requested. Jerry presented results from his research work at international symposia and conferences. He co-chaired a symposium and presented a lead paper at the VIIth Conference on the World Association for Advanced Veterinary Parasitology.

Jerry was an active member and Chair for one term of the Western Committee on Livestock Insects. He was a member of the Western Forum and the Alberta Warble Control Advisory Committee. He provided expertise on warble control to Alberta Agriculture, Alberta Environment, chemical companies and producer and meat packing organizations. Jerry was a member of the Entomological Society of Alberta, where he served as President, Vice-president, editor and Librarian. He was a member of the Entomological Society of America, Entomological Society of Canada and Canadian Society of Zoologists.

In private life, Jerry loved Arts and Music. He was involved with the Lethbridge Allied Arts Council and the Lethbridge Symphony Association. Jerry was a devoted husband and family man. He is survived by his wife Ann and children Ruth, David, Sara, Barry and eight grandchildren. Jerry will be missed by his family and many friends and colleagues.

Joe Shemanchuk
Lethbridge

Awards

Horticultural Award to Charles Vincent

Charles Vincent (Horticultural Research and Development Centre, Agriculture and Agri-Food Canada, Saint-Jean-sur-Richelieu, Qc) was recently awarded the "Medal for Agronomic Distinction" during the Annual meeting of the Quebec Order of Agronomists (ca. 3000 members) for his work in plant protection. Charles recently co-edited a book on "Insect management with

physical methods", to be published in French (INRA Ed., Paris) in 1999 and later in English (Springer Verlag, Heidelberg, Germany). On that theme, he is currently writing a paper to be published in the 2001 volume of Annual Review of Entomology. He is co-chair of the local arrangement Committee, ESA-ESC-SEQ meeting to be held in Montreal in December 2000.

Charles Vincent (Centre de recherche et de développement en horticulture d'Agriculture et agro-alimentaire Canada à Saint-Jean-sur-Richelieu) a recu la "Médaille de Distinction agronomique" lors du Congrès annuel de l'Ordre des Agronomes du Québec (environ 3000 membres) pour son travail en protection des plantes. Charles a récemment fait la co-édition scientifique d'un livre sur "La lutte physique en phytoprotection" qui sera publié prochainement en francais aux Editions de l'INRA (Paris) et puis en anglais chez Springer-Verlag (Heidelberg, Allemagne). Sur ce thème, il écrit un article qui paraîtra dans le numéro de 2001 de Annual Review of Entomology. Il est co-responsable de l'organisation locale du Congres conjoint (Entomological Society of America-Entomological Society of Canada-Société d'entomologie du Québec) qui de tiendra à Montréal en décembre 2000.

ESC Awards

Travel and Research Grants Award was won by Simon LaChance (Guelph) and Brian Aukema (U of Wisconsin)

The Keith Kevan Award was won by Andrew Smith

Post-Secondary Awards were won by Jade Savage (McGill) and Jennifer McIntyre (Guelph)

Gillott, Ryall, Savage
Wytrykush, Diehl, Gilkeson

ARTICLES

Gold Medal Address
The role of taxonomists and natural history collections in biodiversity studies
presented by Dr. Lubomir Masner
September 27, 1999 at Saskatoon

Ladies and gentlemen, dear friends: The news about the Gold Medal took me by complete surprise! To describe my feelings more precisely it was a mixture of jolt, euphoria and elation. However, soon afterwards a sneaky doubt has emerged and I started asking myself about my merits and suitability for this top award. As a compromise between these two feelings I eventually ended up with a quiet humble job and a resolution to try even harder to deserve my Gold Medal.

The moment of surprise described above was, in actuality, not entirely complete and sudden. Some six months ago I noticed unusual activity of several of my colleagues in the Centre focused on my past accomplishments and milestones of my scientific career. For a moment I feared that some kind of appraisal procedure is in effect in spite of my voluntary early retirement two years ago. This bad feeling was fortunately soon dispelled when I learned that I am being nominated for the Gold Medal award. However, by knowing that there are many slips between the nomination and selection I remained realistically sceptical about the final outcome. Well, I am now in front of you with best determination to condense my philosophies and beliefs of my past 30 years of service to Canadian entomology into a mere 30 minutes of elusive time.

Logically, I should start with thanks to all who contributed to my scientific career here in

Canada. Chronologically, I must start with the late Dr. Bryan P. Beirne (formerly with Simon Fraser University) who was instrumental with provision of a NRC Postdoctoral Fellowship to bail me out of occupied Czechoslovakia in 1968. Then Dr. E. Leroux (formerly Agriculture Canada) had a vision by offering me a post with the Entomology Research Institute in Ottawa. The late Dr. G. Holland, past Director of the above Institute, used his very last days of office to create ideal conditions for my future scientific career. By coincidence all three gentlemen mentioned above were awarded the Gold Medal of this Society. Secondly, my deepest gratitude goes to the Canadian government, specifically Agriculture Canada, for providing me with a good salary and working conditions that permitted me to build up this world best and most complete collection of proctotrupoid wasps. Thanks to Agriculture Canada I was able to travel throughout the North American continent, attend meetings, visit museums and other scientific institutions, to meet my colleagues here and abroad. My thanks go to my colleagues in the Canadian National Collection, especially the team of hymenopterists for stimulating atmosphere and friendship; my special thanks go to those who had faith in my work and nominated me for this great award. Similarly, my thanks are to the ESC Selection Committee for the final decision. I feel grateful to all the support from CanaColl, a non-profit foundation associated with Agriculture Canada. Last but not least my sincere thanks go to my family, especially my wife Marcela, for putting up with me by enduring my quest for the never ending goals of entomological biodiversity.

Biodiversity became an instant slogan, a buzz-word and a trend in the past two decades. Although well recognized by most biologists from the onset of scientific research it was the general public and among them especially the science managers and politicians who came to a humble understanding that in critical retrospect we actually know very little about the multitude of living forms around us. Eventually, the three phases of Biodiversity studies, viz. Inventory, Interpretation and Interrelationships, were understood as a logical sequence to follow in order to better understand the diversity of life. Paradoxically enough in this positive development of public awareness we are witnessing a dangerous decline in funding of taxonomy and natural history collections, i.e. the two main pillars on which the study of biodiversity rests. In my opinion the most severe problem is in completion of the Inventory; with an alarming rate of habitat destruction resulting in mass extinction of species on one side and dwindling field activities of the few taxonomists on the other side, one must ponder a very serious question: "Who will do this enormous task of alpha taxonomy?" Regrettably, alpha taxonomy is often portraited as a simple, if not primitive, exercise of low scientific value. However, the critics simply forget that without knowing the species not only by names but also by their biological attributes no further consideration is possible. Therefore, the phase of Inventory must be accomplished first, followed by solid taxonomic revisions with good keys. It is only logical that the main tool in this process is strong natural history collections. It is also logical that collections grow by intensive, versatile and well planned field work. The new information, either in form of specimens or biological observations is therefore transferred by means of field work, from Nature, the primary data base, into our systems. This process cannot be substituted, bypassed or replaced. It is a long, arduous process, a kind of a Cinderella job but it is unavoidable and eventually enormously gratifying.

Let me use my own research group, the parasitic wasps, called proctotrupoids or shortly the proctos, to illustrate the above thoughts. From a single family called the Proctotrypidae by Ashmead in 1893 the group is now understood as three non-related superfamilies comprising 14 extant families worldwide. The updated (unpublished) check list of species in America north of Mexico is 1234 described species. However, the estimated number of species is, incredible: 10,000 to 12,000! These estimates result from 30 years of intensive exploration of Nearctic fauna, from numerous revisions where the known vs. newly discovered species ratio varied between 1.5-20 times. Several long term/large scale surveys currently underway also support the above view. Among them is a 4 year biodiversity study of an apple orchard in Quebec (St. John) where 285 species were so far recorded but only some 10% of species can be named; the remain

ing 90% are either undescribed or belong to very large genera where no revisions or keys exist. Similarly, the ongoing survey of insect fauna of boreal forests in Alberta clearly points out the family Diapriidae (Proctotrupoidea) as the most diverse and numerically most abundant group of all Hymenoptera. However, no keys exist, even to genera, and not a single genus of the subfamily Belytinae (the most abundant group) was ever revised and no keys are available. By taking on this project I will be walking into totally uncharted territory, playing Linnaeus in an entomological Star Trek adventure. My ongoing revision of Nearctic members of the genus Idris Foerst. (Scelionidae), egg parasitoids of various spiders, can be compared to a taxonomic ticking bomb. Whereas the 199 Nearctic Catalog lists 10 species names to this date I managed to collect and recognize nearly 200 species safely entered into Delta computer program. The latter figure is clearly not a final one as more species are being discovered with almost every sample made. Furthermore, the presumed centres of Idris species diversity such as the sun belt from Florida to California was only recently touched and rearings from the host eggs are in true infancies.

With almost clairvoyant vision I anticipated the above challenge while joining the Department in 1969. Some 15 drawers of badly curated specimens with problematic identifications was all I inherited as a base for my future research. I was then facing a dilemma to either start using this "base" for launching my taxonomic work (and thus appease my superiors) or to postpone publications and start intensive building of a new research collection. It was a risky decision but one with a happy ending, indeed! Today I can proudly report a collection housed in 754 drawers (26 full cabinets), with no unsorted backlog, with all groups about equally curated. The above collection is truly worldwide is scope and content, with estimated 95% of world genera represented, with thousands of species recognized and hundreds of species prepared for descriptions. In addition to this main collection we maintain, as a backup, extensive collection in alcohol, stored in cold conditions; the latter collection estimated in 7 million of specimens as intended for further research, exchanges, donations, studies in morphology or anatomy, including DNA. And, to placate my superiors, I still managed to publish some 100 scientific papers and more are in preparation or planned.

Two major ideas or strategies in collection building were my guiding lights. First, I tried to start with my own "backyard," i.e. the fauna of Eastern Canada and the US. Gradually, I expanded into the rest of the Nearctic region and only then into adjacent tropics and other parts of the World. Second, I critically judged virtually every specimen before it was incorporated. This strategy termed the edited acquisitioning calls for clear reason behind each specimen acquired. The purpose was to avoid undue duplication, ballast and waste of resources, and clogging of storage space. Thus a lean but taxonomically salient collection of nearly 400,000 chosen specimens was assembled. Clearly, this was created not only for myself but for generations of taxonomists hopefully to come.

Although the Department generously supported my field surveys in Canada and the US it became soon obvious to me that the center of diversity of proctos is outside the Nearctic region. So starting in 1978 I went on the first of 33 major collection expeditions to the tropics and the southern temperate zone. With no official support I resorted to finance this enterprise from my own funds and since no official time was granted I decided to use days of my statutory leave. This way literally hundreds of samples of insects from prime sites such as national parks, etc. were brought to Canada and donated to the Canadian National Collection. These samples form the core of my beloved collection which I intend to keep perfecting as time allows. The areas of the World sampled (in decreasing scale) are as follows: West Indies and the broader Caribbean, Mexico, Central America (especially Costa Rica), South America (Venezuela, Ecuador, Chile, Bolivia), New Zealand, Australia, Japan, Europe (Central and the Mediterranean).

I was fortunate to have numerous helpers in the above quest. Some 150 colleagues world

wide, both professionals, amateurs or plain farmers and foresters responded to my appeal and kindly supplied rich material from desired areas. Among them were some superheroes and I wish to single out these Magnificent Five, viz. Stewart and Jarmila Peck (Ottawa), John S. Noyes (London, U.K.), Paul Hanson (San José, Costa Rica), Rev. Anthony Watshan (Zimbabwe) and Fred Bennett (formerly Trinidad). Without their help and generosity my collection would be much deprived.

The success in building this large collection in just 30 years would be impossible without the invention or development of new collecting tools and techniques. These technologies aimed at mass sampling or collecting in specific microhabitats were products of joint effort of our team, especially my dear colleague and friend, Dr. Henri Goulet. We also designed simple tools for rapid retrieval of minute specimens from masses of samples, hereby increasing the productivity as well as the quality of specimens.

In conclusion I wish to formulate three proposals to enhance the importance of taxonomic research in biodiversity studies, viz.

1) To create a continent-wide taxonomic network (Canada-US) ensuring continuity in taxonomic expertise. In practical terms this means having for each major group one senior expert acting as trainer/teacher and at least two junior students as successors.

2) To create a joint Canadian-US planning committee to prepare a long term, priorized plan of continuing expertise in taxonomy. In Canada, specifically it means a creation of a program similar to the PEET program in the US.

3) To create a continent-wide data base of residual material of biological specimens, especially from mass sampling. Many ongoing biodiversity projects will generate such material which, in absence of centralized body, would be damaged or lost.

At the very end let me appeal, particularly to young students, to take the above challenges seriously, with utmost vigour and élan, to devote most energy and intelligence to solving the pressing problems of today's biodiversity crisis. Perhaps by trying harder we all will succeed and, maybe, you will too, one day, get a Gold Medal. Good Luck!

The Heritage Lecture

Early Prairie Entomology and Entomologists

Paul Riegert

"In the beginning..." the Good Book tells us there was a separation of the sea from the land "and it was good." The continents were formed and the land was populated with a multitude of beasts and the birds, including the insects. Geologists tell us that the continent of North America appeared in the tropical equatorial region of Earth in the Carboniferous Era some 320 million years ago. Then it moved ever so slowly northward in the next 200 million years, through various periods of time to its present location during the Cretaceous Era some 65 million years ago. The Great Inland Sea with its muddy bottom, dried up, the flora and fauna changed and then glaciation marked its passage by carving its indelible signature on the landscape, leaving behind the remains that are the physical landmarks of the present era.

The insects that abounded were invariably confined within the ecological pallisades of restricted ecosystems. In Western Canada the largest distinctive system was that which encom

passed the vast grassland plains of the southern region. It was ringed by a transitional grass-tree complex — the aspen parkland — and receded northward through a forested area to end in the tundra of arctic Canada. The Province of Saskatchewan included all of these four regions: grassland, aspen-parkland, forest and tundra. When man invaded these regions after the last Ice Age — some 20,000 years ago — he preferred the milder climate and the gentler climes of the southern districts. Even today the vast majority of the human population may be found in the lower half of the province.

But the insects were not so choosy. They quickly adapted to specific conditions to live and thrive in all parts of the province. The early explorers soon learned of the mosquitoes, blackflies, tabanids, and culicoides that haunted them wherever they went. The new settlers tried to ignore and live with these self-same insects, but were sometimes confronted by the devastation caused by the Rocky Mountain locust. All too well did they become acquainted with head lice, cockroaches and larder beetles; those that were unknowingly brought into the settlements with their grain and personal belongings. More was learned of the insect populations in Saskatchewan by the early collectors and naturalists such as those of the Geological Survey of Canada. Well-known individuals of that Survey — Robert Bell, John Macoun and J.B. Tyrell — soon had compiled long lists of indigenous insects, most of them new to the scientific world and appealing to collectors world-wide.

There were no entomologists per se in Saskatchewan to lend a hand in identifying them and to distinguish friend from foe. In Ottawa, the Dominion Entomologist, James Fletcher, had been appointed in 1884 to oversee, regulate and perform all entomological research in the Dominion. Consequently he, together with about 400 observers and correspondents, kept a close watch on insects, both noxious and beneficial, and attempted to keep outbreaks under control. But ancillary help was on hand. In Alberta, from 1898-1902, he had Percy Gregson and the North-West Entomological Society to lead the way. In Manitoba there was Norman Criddle to assist in the entomological tasks. An enthusiastic help-mate in Saskatchewan was Thomas N. Willing, (see *Bull. Ent. Soc. Can.* 16(2):32-33. 1983. And *Dictionary of Canadian Biographies* 14: 1066-1067. 1998) who from 1880 onwards until his death, both as an employee of the Territorial Department of Agriculture and as a Professor of Biology at the University of Saskatchewan, aided the cause of entomology by competent extension work and teaching.

But, one may ask, why was there a need for extensive entomological work? The settlement of Saskatchewan, from the early 1880s onward, increased the amount of land that was being disturbed for extensive agricultural purposes. The insects that had been indigenous to the prairie and forest of the fledgling province, were suddenly presented with a great variety of other food, plants of the domesticated variety. This cafeteria of food was not ignored, but readily accepted by the insects. In 1885, Fletcher discovered the wheat stem sawfly near some domestic wheat fields near Indian Head, Saskatchewan. It had been content to survive in the natives grasses of the plains, but when supplied with seemingly unlimited fields of grain, it quickly adapted to the new food (and home) and became a pest of note to the farmers. It soon caused losses of up to 10% of harvested crops. This amounted from two to 22 million dollars annually.

Cutworms and wireworms that had lived contentedly in the soil and were nurtured in the past by a multitude of grass stems and roots, now found more succulent food in the cereal grain fields, and became instant enemies of the farmers. Then there were the numerous insects of gardens and small shrubs, of coniferous and deciduous trees, of large and small animals, and of stored products and homes. There seemed to be insects all over the place, as rightly there were, but hitherto there had been no one, other than the few roaming indigenous bands of Plains Indians, to take note of their presence. But soon after the settlers arrived, along with infestations of injurious insects, came loud notes of protest and cries for help. As could be expected, there were

demands that the government do something — get someone on hand to help the general population to not only understand what was going on, but also to do something about "getting rid" of the pests that seemed to increase with every passing year.

The Entomological Branch of the federal Department of Agriculture — specifically James Fletcher, his assistant Arthur Gibson, and his successor, C. Gordon Hewitt, — were aware that more help was needed in the western provinces to combat insect infestations and curb outbreaks. Although Norman Criddle in Manitoba and E.H. Strickland in Alberta, had been a great help in attending to most of the insect problems in Saskatchewan, there was a need for a "resident" entomologist in Saskatchewan. Alfred E. Cameron, a recent addition to the staff of the Entomological Branch, had in 1915 been assigned to help Reginald C. Treherne of the Agassiz Laboratory in British Columbia, to combat the ravages of the pear thrip in that province. By 1917, this task had been accomplished, so Cameron was free to go elsewhere, and thus he was assigned to go to Saskatoon to tackle problems brought on by mosquitoes, horseflies, botflies, warble flies and blackflies. Here he established the first Dominion Entomological Laboratory (DEL) on the campus of the University of Saskatchewan.

The new laboratory was actually just a small room in the basement of the Physics Building where Cameron established an office with borrowed furniture, a borrowed miscroscope and a rented automobile. All he got from Ottawa was some paper and pencils, a hand lens, tweezers, a Schmitt Box and some insect pins. How would any of you like to start a laboratory and undertake research of the biology of blackflies and tabanids with that kind of equipment? Nevertheless, he did some detailed and careful work and published a very respectable and insightful paper that still is of value today (see *Can. Dept. Agric. Tech. Bull.* No 5, 1918). But more pressing insect problems came to the fore in Saskatchewan, in particular, the outbreak of and destruction by hordes of grasshoppers. Cameron was delegated to take an active part in the provincial control campaign, as well as to look after some of the problems associated with cutworms. Field crop insects and economic entomology were not Cameron's strongpoints; he preferred research on insects of medical-veterinary importance and in academia. When Walter Murray, then President of the University of Saskatchewan, offered him a position in which he was to teach Entomology and Parasitology, he accepted.

That left a vacancy in the ranks of federal entomology in Saskatchewan, a position that Hewitt soon filled by appointing Kenneth M. King, who arrived in Saskatoon on 17 August 1922 to take up his new position. He too found a paucity of equipment on hand. The legacy left to him by Cameron was a well-used typewriter, a chair, and a 1920 Model T Ford car, along with two desk-top trays, one wastepaper basket, 24 Schmitt boxes without insects, 12 lamp chimneys, and 20 flower pots. All other furnishings and records were removed to an upstairs office in the Physics Building, the first floor of which housed the Department of Biology.

Almost immediately after King's arrival an "ecological" atmosphere was established in the province. King, a graduate of the University of Illinois and a student of the Shelford school of ecological thought, incepted studies involving the insects in a prairie grassland ecosystem. The project continued for many years, and every new staff member who came to work at the laboratory — up to WW II— was involved in some aspect of it. All insects found on the plots were painstakingly collected by sweep net and more often by soil sampling, to obtain larval and pupal specimens. All collections were bottled or pinned and preserved for later identification. Alas, the incredible mass of material collected was overwhelming and remained on shelves and in storage cabinets for more than 20 years. There was no qualified taxonomist on hand who would willingly take on the colossal task. The project data were never fully analysed (statisticians refused to collate the information because it was not collected in a manner that (they said!) lent itself to statistical analyses), nor were the insects fully identified. A waste, one may ask? Yes to some, but it's

effects were widespread. When any insect research was incepted at the laboratory, it was immediately charged with the ecological concept of interdependence of all insect activity with the environment, a concept that is still very much in vogue today. This concept — the holistic approach to biological studies — was never relaxed throughout the life of the laboratory.

But there was more to the work of the DEL in Saskatoon than ecology. Not only were the grasshoppers causing havoc to all crops, including gardens and forage crops, the pale western cutworm, wireworms and the wheat stem sawfly needed urgent attention because they too always seemed to be present in outbreak proportions. Then also, research was needed to find viable methods of controlling the insects. This invariably would demand, first of all, the true identification of the insects, followed by a very detailed study of their life history and habits. Only then could extensive and intensive trials and experiments on chemical, cultural or biological control by undertaken.

On another front, in southern Saskatchewan, a similar situation prevailed. The insect threat to trees and shelterbelts on the prairies was very real. The larch sawfly, spruce budworm, pine needle scale, wood borers and tent caterpillars, often epidemic in native forest stands in the central and northern parts of the province, spilled over during periodic outbreaks in the man-made shelterbelts, shade trees and ornamental plantings in small towns and settlers' farms. J.M. Swaine, Head of the Division of Forest Insects of the Entomological Branch, consulted with A. Gibson, the Dominion Entomologist, and decided to send an entomologist to the prairies to investigate the problem(s).

J.J. de Gryse took up these new duties at Indian Head on 14 August 1923, and established the second DEL on the grounds of the Experimental Farm. Here he was immediately involved in quelling a tent caterpillar outbreak as well as staving off the hoards of grasshoppers that threatened the farmers' livelihood. When time permitted he made a quick survey of the province to determine what other insect pests needed attention and found a dozen species that required control. But by November he had had enough of the desolate prairies and returned to Ottawa.

However, the tent caterpillar outbreak in Saskatchewan had increased in 1924 and de Gryse was ordered back to Indian Head; arriving there in late April. The pine needle scale outbreak increased his work load, but he quickly devised a method of control comprising dormant sprays as opposed to the arsenical stomach poison used on the caterpillars. 1925 was even more devastating for deciduous trees. The forest tent caterpillar came out in force in spring and reduced the trees to November-like skeletons. He was glad to return to Ottawa by October to get away from the wilds of Saskatchewan, the harsh winters and the lack of social and entertainment arts.

Although the University of Saskatchewan had some entomological expertise in its rank by the presence of T.N. Willing, this was terminated by his death in 1920. When L.G. Saunders was appointed to the Biology Department by President Murray in 1925, there was some renewal of entomological expertise. However, these talents were not in the field of economic entomology, thus of no immediate help to the farmer and his problems.

In the spring of 1926 the Livestock Insect Division of the Entomological Branch, had decided that a man was urgently needed in Saskatchewan to investigate livestock insect problems, especially warble flies and the many biting flies. Consequently Eric Hearle was dispatched to Indian Head where he was to make his headquarters in the already established DEL on the Experimental Farm. It was argued that one man, on site, should be capable of handling all insect problems of livestock and forest, especially since K.M. King — and his assistant Ellis McMillan who had come on stream in 1925 — was also on hand to cover the problems in central and northern parts of the province. Alas, very little work was done with livestock insects until mid summer because the tent caterpillar once more required Hearle's full attention. After that he had time to only advise farmers of their shade tree, shelterbelt, and livestock insect problem and had no time to investigate control strategies. Thus it became abundantly clear that one man in southern

Saskatchewan could not handle all of the entomological problems that developed there.

The following spring (1926) Kenneth Stewart, a recent Master's graduate from McGill, was appointed to fill the gap and was assigned the task of studying and devising control methods to combat the noxious insects of shade trees and shelterbelts. Eric Hearle confined his activities to studies of life histories, surveys of abundance and assisting in the control of mosquitoes and warble flies. However, his work was short lived for he was re-assigned to Kamloops in June of 1928 to found and develop the Livestock Insect Laboratory in that city.

But what about the DEL in Saskatoon. The weighty problems of grasshoppers, wireworms, and cutworms were exceeding the capabilities of King and McMillan. In 1927, Arni P. Arnason was appointed to assist King with the wireworm problem, one that was receiving a great deal of attention and involved King's ecological, holistic, biological investigation of wireworm populations. To determine the causes of population fluctuations they had started the "Rotation Project" in co-operation with the Swift Current Experimental Farm one that encompassed enormous amounts of labour of soil sampling in annual counts made in soil of plots that were subjected to systematized, rotational crop plantings and summerallow. In 1928, Robert Glen — who later became Research Director, Dominion Entomologist, and finally the Director General of today's Research Branch — joined the staff of the Saskatoon DEL and was also assigned to the wireworm project. His job was to determine what species of worms were present and ferret out their morphological structure and life histories. In the same year, 1928, Lorne C. Paul was also added to the roster of entomological workers. His duties comprised the supervision of surveys and control strategies of grasshoppers. These insects had long been the chief culprits that decimated farmers' crops and it was time that someone devoted full time attention to their control.

The cadre of the five entomologists, King, McMillan, Arnason, Glen and Paul, was the nucleus of the DEL's dynamicity. Although the mandate of the Entomological Branch was research, i.e. to determine the identity and life histories of insects and to devise control strategies of noxious insects, these men permitted their duties to extend far beyond those parameters. King's policy of operation was to help the farmer in any way he could. That meant the DEL would, and was, involved in actual control campaigns and extension work. This policy was to be in force for many years to come.

Almost from the day these workers were hired, they were not only researchers, but extension specialists in entomology. Every inquiry concerning an insect problem was investigated, the insects were identified and a control remedy was given - and often demonstrated. This meant many hours on the telephone, but primarily it meant actual visits to farmers in the field. Many days were spent "on the road", examining fields where either cutworms or wireworms had thinned seedling crops to near extinction, or showing farmers the best way to spread arsenic-laced sawdust baits. Then there were lectures and seminars, and field days to attend. Talks and demonstrations on insect life histories and control were commonplace. Actual participation in provincial control campaigns involving grasshoppers, cutworms and sawflies was not only expected by the farming public but willingly performed by all the entomologists.

Of course, there was also the research to attend to. This involved — at least in the spring — the drudgery of sifting soil in the on-going studies of wireworm populations to determine how crop rotations, climatic factors, and tillage methods affected the survival and well-being of the insects and the severity of damage to the farmers' crop. When the "Great Depression" settled on the western world, it had a devastating effect on agriculture in western Canada. The drought conditions, when added to the severe distress of the economic situation, demanded that every effort be made to maintain agricultural production at its highest possible level. Thus it was incumbent upon all who were concerned with insects, to pay paramount attention to their control.

All insect control studies, as well as those associated with the ecological project, demanded an immense amount of manpower. Willing students, when they graduated, joined the staff of

DEL. In 1933, Howard McDonald, William B. Fox and Virgil L. Berg were added to the roster of entomological manpower. McDonald was soon to take over the cutworm project, especially that of the red-backed cutworm which was causing serious destruction of cereal crops in central and northern districts. Fox lent a hand to the wireworm project and ably directed the field staff who worked on the rotation project. Virgil Berg was assigned to the grasshopper project. When not involved in the annual adult and egg abundance surveys — used to prepare the annual outbreak forecast — he studied the parasites. His work on the life history and habits of the beefly predator (Systoechus vulgaris), netted him an M.Sc. from the University of Saskatchewan in 1936. Despite their best efforts, surveillance and detailing of damages to crops and control efforts by provincial authorities, the losses of crop were astounding. As the drought continued the grasshopper plague increased to levels never before experienced on the prairies. Manpower was extracted from many sources to help fight the plague.

Harry Williamson was added to the DEL staff in 1935. P.C. Brown, a member of the staff of the Plant Protection Office in Estevan, Saskatchewan, was seconded to conduct the annual surveys of abundance of grasshoppers in southern Saskatchewan. All available staff from the DEL in Saskatoon were put to the task. Ken Stewart from the DEL in Indian Head, dropped his research work on shelterbelt insects and helped with extension duties in the grasshopper and pale western cutworm control campaigns. This action did not mean that all work with shelterbelt insects ceased. In 1928 and 1929 he had the help of Dave Arnott for the summer months. The forest tent caterpillar was the chief insect of concern, but there were a host of other pests — including pine needle scale, red spider mite, Bruce spanworm, willow leaf beetle, caragana blister beetle and poplar borer — whose outbreaks had to be investigated and control methods devised. Then control recommendations had to be devised as well as supervising their application by farmers.

When Arnott left in October 1929 for Chatham, Ontario, there were other seasonal employees on hand to lend assistance, viz. Allan Ross, Robert Williamson, Cecil Douglas and Lloyd Peterson. The latter two remained in the employ of the DEL and did most of the research work at the Indian Head facility. Research was on-going to find control methods to curb the onslaught of fall cankerworm, willow leaf beetles, spruce aphids and several other insect pests. This left Stewart free — despite the objections of his Chief of Forest Insect Investigations, J.M. Swaine, and the Acting Director of the Division of Forest Insects, J.J. de Gryse — to lend assistance in the control of the pale western cutworm outbreak that had reduced by 50%, the seedling stands of more than 10,000 acres of cereal crops in the southern Saskatchewan. Luckily this outbreak centered around Indian Head and thus Stewart was right in the thick of surveys, damage assessments, and giving farmers advice on control. When the outbreak continued for two more years the entomologists of DEL Saskatchewan, were relieved and gratified to have someone on hand nearby to do the extension work to help the farmers.

By 1935, Harold McMahon had been added to the staff at the DEL Saskatoon. He was immediately assigned duties related to grasshopper control along with all other employees. The drought had continued and the prolonged outbreak of grasshoppers and intensified to the point where more than one million acres of land (1,562 square miles) were very severely infested and another 49 million acres (76,562 square miles) were threatened by variable densities of marauding hordes of insects. Two-thirds of the agricultural land of the province was threatened. Such infestations had never before been witnessed in the province. Provincial control authorities were putting forth an all-out effort to control the grasshoppers and welcomed every federal entomologist (as well as many provincial and municipal governmental personnel) who gave them assis

tance in directing control operations, instructing farmers in ways to control the pests, and investigating every local complaint and call for help that came from the farming public. When the events of the day are examined in retrospect, it was the prolonged outbreak of grasshoppers — especially from 1932 to 1939 — that boosted the presence of entomologists and entomological endeavour in the province. The need for information concerning the biology and control of these insects loomed large enough in the minds of administrative personnel of the Entomological Branch, that they utilized to the fullest the authority given them by the Agricultural Pest' Control Act of 1910, to increase the staff to meet the needs of the time. In 1939, Lloyd G. Putman joined the ranks of the "grasshopper fighters" at DEL Saskatoon, and Herman W. Moore and Paul W. Riegert in 1944.

The early entomologists, comprising the members of the DEL Saskatoon up to the Second World War, were the basic building blocks that resulted in the blossoming of entomological science in the next two decades. The scientists, beginning with Alfred E. Cameron in 1917, through to Paul W. Riegert in 1944, were steadily immersed in all aspects of the various insect outbreaks. Although they were research personnel, they were weighted down with the immediate need to serve the farmers. This need was met by an intensive search for, and resolution of a method of insect control — be that chemical control for a "quick fix" but more often than not it was resolved by cultural and biological control schemes that fitted into the daily routine of agriculture as practiced by prairie farmers.

The DEL Indian Head had also increased in the number of staff and the duties that they performed. The inauguration of the Forest Insect Survey in 1940 added a cadre of active workers that detailed the location and occurrence of a multitude of insects affecting shelterbelt plantings and ornamental trees. This facility also mushroomed in numbers of trained entomologists and eclipsed in the immediate post-war years to a viable and energetic aggregation of workers the likes of which had never before been seen in the province. Added to this was the influx of special-expertise entomologists to take part in expanded programs of physiology, toxicology, and ecology at the DEL Saskatoon. They were all included in the second-wave of entomological excellence, reaching a pinnacle of research which may well be regarded as the "Golden Age" of entomology in Saskatchewan. But that is another story.

Guest Lecture

Entomology, Environment and Society
Dr. David Pimentel
College of Agriculture and Life Sciences
Cornell University, Ithaca, NY

In future decades, entomology will continue to play an important role in world food security. To understand the food security issues that we face, we need to recognize that the world population currently stands at more 6 billion, with more than a quarter million people added to the population every day. Based on current rates of increase, the world population is projected to double to more than 12 billion in less than 50 years (PRB, 1999).

Meanwhile, more than 3 billion humans are now malnourished worldwide; this is the largest number and proportion of hungry humans ever recorded in history (WHO, 1996)! Conceivably, the numbers of malnourished could reach 5 billion in future decades.

Reports from the Food and Agriculture Organization of the United Nations and the U.S. Department of Agriculture, as well as numerous other international organizations, further confirm

the serious nature of global food supply issues (RS and NAS, 1992; NAS, 1994). For example, the per capita availability of world cereal grains, which make up 80% to 90% of the world's food supply, has been declining for the past 17 years (Pimentel et al., 1999). These shortages are now reflected in major increases in the price of cereal grains, the basic food for billions of people around the world.

Agricultural Resources

Thus, as the world population continues to expand, greater pressure than ever before is being placed on all the basic resources that are essential for a secure, dependable food system. The continued production of an adequate food supply depends on ample cropland, fresh water, energy, and safe pest control. More than 99% of the world's food supply comes from the land, while less than 1% is from oceans and other aquatic habitats (FAO, 1991). Obviously, as the human population grows, the requirements for all these resources will escalate. Even if these resources are never completely depleted, on a per capita basis, their supply will decline significantly because they must be divided among more and more people. Unfortunately, while the human population grows exponentially, food production can only increase linearly.

Land

Throughout the world, fertile cropland is being lost from production at an alarming rate. Soil erosion by wind and water, as well as by overuse and mismanagement, is responsible for the loss of about 30% of the worldís cropland during the past 40 years (Pimentel et al., 1995). Once fertile soil is lost, it takes approximately 500 years or more to form a layer of fertile soil only 25 mm thick. For successful crop production, at least 150 mm of soil is required.

At present, most replacement land for eroded and unproductive agricultural land comes from cleared forest land and marginal land. The pressing need for more cropland accounts for 60% to 90% of the world's deforestation. Despite such land replacement strategies, world cropland per capita is declining and now stands at less than 0.27 ha per capita, or about 50% of the 0.5 ha per capita considered the minimum for the production of a diverse diet similar to that of the U.S. and Europe (Lal and Stewart, 1990).

Water

Fresh water is critical for all vegetation, including crops. All plants use and transpire massive amounts of water during the growing season. For example, a hectare of corn, producing about 8,000 kg/ha, will transpire more than 5 million liters of water during the growing season (Pimentel et al., 1997a). This means that more than 8 million liters of water must reach each hectare of corn during the growing season. In total, agricultural production consumes more fresh water than any other human activity. Specifically, about 87% of the fresh water supply is consumed in the western United States. This water is used up by agriculture, and thus is unavailable for other uses (Gleick, 1993).

Worldwide water resources are under great stress and competition as populous cities, states, and countries increase their withdrawal of water from rivers, lakes, and aquifers every year. For example, by the time the Colorado River reaches Mexico, it has been reduced to a trickle into the Gulf of California (Sheridan, 1983). Water shortages in the U.S. and elsewhere in the world are already reflected in the 12% per capita decline in crop irrigation during the past twenty years (Postel, 1992).

Though an ample quantity of water is vital, its purity is essential. Diseases, associated with impure water and unsanitary systems, rob people of their health, nutrients, and livelihood. These problems are most serious in developing countries, where about 90% percent of human diseases can be traced to a lack of pure water (WHO, 1992).

Disease and malnutrition problems appear to be particularly serious in the third world,

where poverty and poor sanitation are endemic (Shetty and Shetty, 1993). In addition, the number of people living in urban areas is doubling every 10 to 20 years, thereby increasing water, air, soil pollution, and food shortages.

Energy

Energy from many sources, but especially fossil energy, is a prime resource needed for food production. Nearly 75% of the fossil energy used each year throughout the world is consumed by populations living in developed countries. Of this, about 17% is expended in the production, processing, and packaging of food products (Pimentel and Pimentel, 1996). In particular, the intensive farming technologies characteristic of developed countries rely on massive amounts of fossil energy for fertilizers, pesticides, irrigation, and for machines that substitute for human labor. In contrast, developing countries use fossil energy primarily for fertilizers and irrigation to help maintain yields, rather than to reduce human labor inputs (Giampietro and Pimentel, 1993).

Because fossil energy is a finite resource, its depletion accelerates as human populations expand and their food needs increase. The U.S. Department of Energy warns that U.S. will exhaust all of its oil reserves within the next 15 years (BP, 1994; Youngquist, 1997). Consider that at present, the U.S. is importing more than 65% of its oil. To sustain its energy based activities, U.S. oil imports will have to increase in future decades.

Worldwide, supplies of oil are projected to be depleted in about 50 years (Youngquist, 1997; Campbell, 1997). The decline in oil supplies will result in much higher oil prices for everyone and signal the need for changes in oil use.

Pest Control

Worldwide, pests (insects, diseases, and weeds) destroy more than 40% of all potential food production in the world, despite the application of more than 2.5 million tons of pesticide each year, plus the use of nonchemical controls (Pimentel, 1997). After the 60% of the food is harvested, another group of pests, including insects and microbes and rodents, destroy about 20% of the harvested food stores. Thus, about 52% of total world food produced is lost to pests, despite all types of control, including pesticides.

The heavy use of pesticides causes about 26 million human pesticide poisonings annually, with approximately 220,000 deaths (WHO, 1992). In addition, the environmental impacts of pesticides, such as bird and wildlife kills, are significant, estimated to cost about $9 billion annually in the United States (Pimentel et al., 1999).

There are many opportunities to reduce pesticide use by 50% or more in North America and the world (Pimentel et al., 1993). In general, the public desires this change; when accomplished, it will make pest control more economical and environmentally sound.

Biodiversity

A productive and sustainable agricultural system, and indeed the quality of human life, also depends on maintaining the integrity of the natural biodiversity that exists on earth. Though often small in size, diverse insects and other species serve as natural enemies to control pests, help degrade wastes, improve soil quality, fix nitrogen for plants, pollinate crops and other vegetation, providing numerous other vital services for humans and their environment (Pimentel et al., 1997b). Insect pollinators, for example, are essential for the production of about one-third of the world's food (Pimentel et al., 1997b).

What of the next Century?

Strategies for global food security must be based first and foremost on the conservation and careful management of the land, water, energy, pesticides, and all other biological resources required for food production. This means that our stewardship of world resources will have to change and improve. The basic needs of the global population must be brought into balance with the availability of life-sustaining natural resources. The conservation of these resources will require the coordinated efforts of all individuals and countries. Once these finite resources are exhausted, they cannot be replaced by human technology. More efficient and environmentally sound agricultural technologies must be developed and put into practice to secure the continued productivity of agriculture (Pimentel and Pimentel, 1996). As entomologists, we have much to contribute to this vital effort.

Unfortunately, none of these conservation measures will be sufficient to ensure adequate food supplies for future generations unless the growth in the human population is simultaneously curtailed. Several studies have confirmed that to enjoy a relatively high standard of living, the optimum human population should be less than 200 million for the U.S. and less than 2 billion for the world (Pimentel et al., 1999). This harsh projection assumes that from now until such an optimum population is achieved, all strategies for the conservation of soil, water, energy, and biological resources are successfully implemented and an ecologically sound, productive environment is maintained. The lives and livelihood of future generations depend on what the present generation is willing to do now.

Certainly, limiting human population numbers will cause some economic and social problems, but these are minor compared with the economic, social, and environmental catastrophes that could ensue if the world population doubles to 12 billion. Some people feel that reducing population numbers will infringe on their freedom to reproduce. However, continued rapid population growth will mean that we will lose our freedom from malnutrition, poverty, increasing diseases, traffic gridlock, and our freedom to enjoy our natural environment.

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SCHOLARSHIPS AND GRANTS

Entomological Society of Canada Graduate Research-Travel Grants Invitation for Applications

Preamble

To foster graduate education in entomology, the Entomological Society of Canada will offer two research-travel grants, awarded annually on a competitive basis. The intent of these grants is to help students increase the scope of the graduate training. These grants, up to a maximum of $2,000, will provide an opportunity for students to undertake research or course work pertinent to their thesis subject that could not be carried out at their own institution, and that represents a significant addition to the planned thesis research or course work.

Eligibility

To be eligible, a student must:

1) be enrolled as a full-time graduate student
2) be an active member of the Entomological Society of Canada

Format of the Application

The application will be in the format of a grant proposal, where the applicant will provide the following information: 1) the subject of the thesis; 2) a pertinent review of the literature in the field; 3) a concise presentation of the status of the ongoing thesis research; 4) a description of the research or course work to be undertaken, clearly indicating a) the relevance to the overall goal of the thesis, b) an explanation of why such work cannot be carried out at the student's

own university, and c) the justification of the site where the research/course work will be carried out; 5) a budget for the proposed project, including a justification for how costs not covered by the grant will be covered; 6) anticipated dates of travel and date on which grant money is needed.

The application shall also be accompanied by: 1) an up-to-date C.V.; 2) a supporting letter from the senior advisor; and 3) when appropriate, a supporting letter from the scientist or Department Head at the institution where the applicant wishes to go.

Evaluation Procedure

The scientific merit of each application will be evaluated by a committee that has the option of sending specific projects out for external review by experts in the field. Comments from the Awards Committee members will be provided to the applicant upon request.

Timetable and Application Procedure

Application forms, which may be obtained from the Chair of the Student Awards Committee or at **http://www.biology.ualberta.ca/esc.hp/gform.htm**, must be completed in full, and the original plus three copies returned to the Chair of the Student Awards Committee by **15 February 2000.** The committee will evaluate all applications by 30 April 2000 and determine if, and to whom, grants will be awarded. The successful applicants will be informed immediately, thereby providing sufficient time for students wishing to start in the fall to make necessary arrangements. Grants must be used in the 12 months following the award.

Recipients must provide a short final report, as well as a detailed list of expenses, in the three months that follow the trip. Any money not spent must be returned to the Society.

All communications regarding these awards, including requests for applications, should be addressed to:

Dr. B. Staffan Lindgren, Chair, ESC Student Awards Committee
College of Science and Management, University of Northern British Columbia
3333 University Way, Prince George, BC V2N 4Z9
E-mail: lindgren@unbc.ca

Subventions de recherche-voyage au niveau des études supérieures
Société entomologique du Canada
Invitation à soumettre des demandes

Préambule

Pour promouvoir les études supérieures en entomologie, la Société d'entomologie du Canada offre deux subventions de recherche-voyage, qui seront décernées chaque année lors d'un concours. Ces subventions ont pour objet d'aider les étudiants et étudiantes à élargir le champ de leur formation supérieure. Le montant accordé, qui peut aller jusqu'à 2 000 $, doit permettre aux récipiendaires de suivre des cours ou d'effectuer des travaux portant sur leur sujet de thèse, cours et travaux qu'ils ne pourraient pas entreprendre autrement dans leur propre établissement et qui constituent un ajout important au programme de recherche prévu.

Admissibilité

Pour être admissible, un étudiant ou une étudiante doit :

1) être inscrit comme étudiant à temps complet au niveau des études supérieures
2) être membre actif de la Société d'entomologie du Canada

Présentation de la demande

La demande doit se présenter comme une proposition, dans laquelle le candidat ou la candidate fournit les informations suivantes : 1) sujet de la thèse; 2) revue des documents pertinents; 3) résumé de l'état d'avancement de la thèse; 4) description de la recherche ou des travaux à effectuer, avec les précisions suivantes : a) pertinence de l'objectif global de la thèse, b) raisons pour lesquelles les travaux ne peuvent être effectués à l'université d'attache et c) raisons expliquant pourquoi le candidat ou la candidate a choisi un lieu plutôt qu'un autre pour effectuer ses recherches; 5) budget du projet proposé et des explications concernant le mode de règlement des dépenses non couvertes par la bourse; 6) dates prévues pour le voyage et date à laquelle le candidat ou la candidate aura besoin de la subvention.

Le candidat ou la candidate doit joindre à sa demande : 1) un CV à jour; 2) une lettre de référence de son directeur; 3) au besoin, une lettre d'appui du scientifique ou chef de département de l'établissement où il ou elle souhaite mener à bien son projet.

Méthode d'évaluation

Le mérite scientifique de chaque demande sera évalué par un comité qui pourra soumettre certains projets à l'examen d'experts compétents de l'extérieur. Sur demande, un rapport des commentaires du comité des prix sera remis à chaque candidat et candidate.

Échéancier et marche à suivre pour la présentation des demandes

Les formulaires de demande, qui sont disponibles auprès du président du Comité des prix aux étudiants de la Société ou sur notre site internet à l'adresse suivante: **http//www.biology.ualberta.ca/esc.hp/gform.htm**, doivent être complétés (original, ainsi que trois copies), et retournés au président du Comité, au plus tard le 15 février 2000. Le comité évaluera toutes les demandes pour le 30 avril 2000 et il déterminera si des subventions seront accordées et, le cas échéant, à qui. Les heureux ou heureuses récipiendaires seront informé(e)s sans délai, de façon à ce qu'ils ou elles disposent de tout le temps voulu pour entamer leur projet dès l'automne suivant, si tel est leur souhait. Les subventions doivent être utilisées dans les 12 mois suivant leur attribution.

Les récipiendaires doivent remettre un court rapport final ainsi qu'une liste détaillée de leurs dépenses, dans les trois mois suivant leur voyage. Toute somme non dépensée doit être retournée à la Société.

Toute correspondance relative aux bourses, incluant les demandes de formulaires doit être adressée à:

Dr. B. Staffan Lindgren, Chair, ESC Student Awards Committee
College of Science and Management, University of Northern British Columbia
3333 University Way, Prince George, BC V2N 4Z9
E-mail: lindgren@unbc.ca

Entomological Society of Canada Postgraduate Awards 2000

The Entomological Society of Canada will offer two postgraduate awards of $2,000 each to assist students beginning graduate study and research leading to an advanced degree in entomology. The postgraduate awards will be made on the basis of high scholastic achievement.

Invitation for Applications

Eligibility: Applicants for either scholarship must be members of the Entomological Society of Canada. The successful applicants must be either Canadian citizens or landed immigrants with

Bachelor's degrees from Canadian universities. Applicants must begin their first year of post-graduate studies between 15 June 1998 and 31 December 2000. The studies and research must be carried out at a Canadian university. Each award is conditional upon certification by the Department Head that successful applicants have been accepted into the first year of a program of study and research for an advanced degree with full graduate status. A student who was unable to gain admission or enters graduate school as a qualifying candidate is not eligible to receive an award.

Method of Application -Applicants must submit a properly completed form , with support documents. Application forms are available at http://www.biology.ualberta.ca/esc.hp/form.htm, or from the Chair of the ESC Student Awards Committee. The original and 3 copies of the application must be submitted to the Chair of the Student Awards Committee postmarked no later than 10 June 2000. Please specify if you are applying for the Postgraduate Award, the Keith Kevan Scholarship, or both.

Process of Selection and Award Presentation -Applications will be reviewed by a committee of the Society. An announcement of the two winners will be made at the annual meeting of the Society and each winner will receive a certificate. Payment of the award will be made in October 2000.

Regulations

Earnings from Other Sources -Award holders are permitted, under normal circumstances, to demonstrate, instruct or assist in non-degree related research for a maximum of 200 hours per annum, provided that the Head of their Department considers this is desirable and that it does not hinder the progress of their studies. Apart from these assistantships, award holders will devote their full time to study and research and will not undertake any paid work during the school term. They may hold other awards and scholarships.

Transfers -Awards are made on the condition that the winners engage in a program of graduate studies and research for an advanced degree in entomology in Canada. Students, who after receiving the award, wish to change their graduate program or transfer to a foreign university may be asked to decline the award. Any change in the course of study, department or university in which an award winner is registered requires prior approval of the Scholarship Committee. A request for permissions to transfer must be supported by statements from Heads of Departments.

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

All communications regarding these awards, including requests for applications, should be addressed to:

Dr. B. Staffan Lindgren, Chair, ESC Student Awards Committee
College of Science and Management, University of Northern British Columbia
3333 University Way, Prince George, BC V2N 4Z9
E-mail: lindgren@unbc.ca

La Société d'entomologie du Canada Bourse pour Etudiants Post-Gradués 2000

La Société d'entomologie du Canada offrira deux bourses d'une valeur de $2,000 chacune pour aider des étudiants qui débutent des études post-graduées et des recherches en vue de l'obtention d'un diplôme d'études supérieures en entomologie. Les bourses seront accordées aux étudiants ou étudiantes en raison des seuls critères de réussite académique.

Avis

Éligibilité: Les candidats pour chacune des bourses doivent être membres de la Société d'entomologie du Canada. Les candidats doivent aussi être Canadiens ou résidents reconnus du Canada et détenir un baccalauréat d'une université canadienne. Les candidats doivent obligatoirement avoir débuté leur première année d'études post-graduées entre le 15 juin 1998 et le 31 décembre 2000, et effectuer leur étude et recherche dans une université canadienne. Les bourses ne seront accordées que lorsque les directeurs de Département auront certifié que les candidats choisis sont inscrits en première année d'un programme d'études supérieures, et ce avec tous les privilèges attachés au statut d'étudiant gradué. Un étudiant qui n'a pu être admis à l'École des Gradués, ou qui s'incrit en vue de compléter l'obtention de crédits, n'est pas éligible à la bourse.

Procédure: Les candidats devront soumettre leur candidature à l'aide du formulaire approprié et y joindre tous les documents requis. Les formulaires sont disponibles auprès du président du Comité des bourses aux étudiants de la Société ou sur notre site internet à l'adresse suivante: http//www.biology.ualberta.ca/esc.hp/form.htm. Le formulaire original, ainsi que trois copies, devront être envoyés au président du Comité des bourses aux étudiants de la Société et reçus au plus tard le 10 juin 2000. Veuillez préciser si vous désirez les formulaires pour la Bourse Post-graduée ou la Bourse Keith Kevan.

Sélection et remise des bourses: L'analyse des candidatures se fait par un comité de la Société, et l'annonce des récipiendaires se fera à la réunion annuelle de la Société où ils recevront un certificat. Le paiement de la bourse aura lieu en octobre 2000.

Règlement

Autres sources de revenus: Un boursier pourra normalement donner des séances de cours ou de démonstration et être auxiliaire de recherche jusqu'à un maximum de 200 heures par année, en autant que le Directeur de son département considère cela profitable et que ces tâches additionnelles ne nuisent pas au progrès de l'étudiant. Mises à part ces exceptions, un boursier devra consacrer tout son temps à ses études et recherches et n'accepter aucune autre rémunération. Il peut cependant jouir d'une autre bourse ou d'un prix.

Transferts: Les bourses sont accordées à condition que les boursiers entreprennent des études graduées en vue de l'obtention d'un diplôme en entomologie au Canada. Les boursiers qui décideront de changer de champ d'études, ou de transférer dans une université hors du Canada peuvent se voir retirer leur bourse. Après acceptation de la bourse, tout changement de programme d'études, de département ou d'université devra recevoir au préalable l'approbation du Comité de la Bourse de la SEC. Une telle demande doit être accompagnée de documents provenant des Directeurs des départements concernés.

Frais supplementaires: La somme offerte est invariable. En aucun cas la Société n'accordera de montant supplémentaire. Des frais additionnelles, par exemple, pour assister aux réunions scientifiques, payer des frais de cours, défrayer des coûts de publications, etc..., ne seront autorisés sous aucune considération. Toute correspondance relative aux bourses, incluant les demandes de

formulaires doit être adressée à:

Dr. B. Staffan Lindgren, Chair, ESC Student Awards Committee
College of Science and Management, University of Northern British Columbia
3333 University Way, Prince George, BC V2N 4Z9
E-mail: lindgren@unbc.ca

1 *Le masculin est employé dans ce texte pour désigner les personnes des deux sexes.*

POSITION AVAILABLE

Dept. of Biology: Animal Molecular Biologist. The Department of Biology at the University of Regina invites applications for a tenure-track position at the Assistant Professor level, effective July 1, 2000 (subject to budgetary approval). We are seeking qualified individuals who use molecular techniques to study animal systems. The successful candidate will be welcomed to interact with members of GenBioTek, an interdepartmental unit made up of individuals who use molecular techniques in their research. Candidates must have a recent PhD, postdoctoral experience and a productive research record. As well as establishing an externally-funded research program, the successful candidate will be expected to participate in the teaching of undergraduate and graduate courses, and to develop an advanced undergraduate course in his/her area of expertise. Start-up research funds will be provided, as well as a reduced teaching load in the first two years. To apply for the position, submit a letter of application outlining research and teaching goals, a curriculum vitae, samples of research publications, and arrange for three letters of reference to be sent to: **Dr. W. Chapco, Head, Department of Biology, University of Regina, Regina, SK, S4S 0A2 Canada. (fax 306-585-4894; phone 306-585-4231; e-mail William.Chapco@uregina.ca).** The closing date for applications is **December 31, 1999**. Further information about the department is available on the world-wide web at: **http://www.uregina.ca./science/biology.** In accordance with Canadian Immigration Regulations, preference will be given to citizens and permanent residents of Canada. The University of Regina is committed to the principle of employment equity.

Harold Weger

PUBLICATIONS

Book Review

Mound, L. A. and G. Kibby. 1998. *Thysanoptera. An Identification Guide.* Second Edition. CAB International. (Oxford University Press). New York. vi + 70 pp. 337 figures. Glossary. Host plant and taxonomic indices. Ring bound. $35.00 (U. S.).

For unknown reasons, the last two decades have witnessed a world-wide explosion in the impact of pest thrips in agriculture, particularly in the glasshouse industry. This book enables applied entomologists and growers with little knowledge of thrips, but with access to a good compound microscope, to collect, prepare and easily identify to suborder, family, subfamily and genus (and, for the thripid genera *Caliothrips* (5 species), *Frankliniella* (9), *Scirtothrips* (9) and *Thrips* (15), to species) adults of the common and pest thrips of the world. The authors' reasons for publishing a second edition only nine years after the first (Palmer, J. M., L. A. Mound, and G. J. du Heaume. 1989. CIE Guides to Insects of Importance to man. 2. Thysanoptera. CAB International Inst. of Entomology) were to update its information and to facilitate its use by per

sons uncomfortable with English or with the use of dichotomous keys.

The book has been totally reorganized and differs from the first edition in the following ways. It contains a pictorial rather than a dichotomous key to family, subfamily and genus; much new information on life history, distribution, economic importance, and characters; an annotated classification of the order including the latest information on known diversity within the eight families and 60 genera treated (about 2 percent of described species); a glossary defining the structures used in identification; and a host plant index. The book lacks an appendix to the distribution, prey and economic importance of members of key genera in each geographical area of the world (this information now provided in the classification) and Figures 251 and 252 of the first edition illustrating the life history stages of *Teuchothrips disjunctus* (Phlaeothripidae) and *Thrips obscuratus* (Thripidae), although these figures are still referred to on p. 2.

Most line drawings (337 generally by Jennifer Palmer or Graham du Heaume and acknowledged on the back of the title page), are from the first edition (252) but have been carefully reorganized within the 62 paired boxes of the pictorial key with important characters indicated with arrows on the drawings, as in the Peterson Field Guides, and with bulleted statements describing them within each box (the 51 figures illustrating dichotomous keys to pest species within the genera *Caliothrips, Frankliniella, Scirtothrips* and *Thrips* are presented separately). These are printed with varying success in the visual key where some have been overly reduced, with unsatisfactory results, to accommodate the addition of new figures.

Success in identification requires each thrips to be properly mounted on glass slides in Hoyer's medium (temporary) or Canada Balsam (permanent) as fully explained in the section on specimen preparation. I identified specimens of several species selected from my collection from throughout the order and the world using the keys and they work extremely well--for the genera treated--except in step 50 where the left box leaves one dangling somewhere in the abyss of the Phlaeothripidae. Also, in the left box for step 55, the top figure of a fore wing of *Aleurodothrips fasciapennis*, has the posterior wing cilia emerging from in front of its leading edge and an additional row of short, posterior setae that are not present on the wings of this species. Finally, in the right box for step 61, the bottom figure does not show the foretarsal tooth indicated.

The bibliography contains 101 references (46 new; 20 omitted from the 76 in edition 1) and will enable users to trace down all important references on all aspects of Thysanoptera.

The book is ring bound within shiny black covers, has a stereoscan micrograph of a *Sericothrips sp.* female (Thripidae) on the front and lies flat when open. It provides an accurate, concise and detailed introduction to the study of Thysanoptera and will be of great use to growers, applied entomologists and other biologists wishing to jumpstart their understanding of these fine little creatures and to identify pest species they encounter (it will also frustrate them when a thrips is collected belonging to a genus not treated by the book). I wish it had been available when I first started working with thrips in 1963.

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