

L. Brust

PROCEEDINGS OF THE

ENTOMOLOGICAL
SOCIETY OF
MANITOBA

VOLUME 41

1985

Proceedings of the
Entomological Society of
Manitoba
Volume 41
1985

Robert E. Roughley
Editor
Winnipeg, Manitoba

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Chapter I

MINUTES OF THE 41ST ANNUAL MEETING

ENTOMOLOGICAL SOCIETY OF MANITOBA

13:30 h, 25 October, 1985
Seminar Room
Freshwater Institute
501 University Crescent
WINNIPEG, Manitoba
R3T 2N2

The President, Dr. R.A. Ellis, presided. A quorum being present, the President called the meeting to order and asked the Secretary of the Society, Dr. N.D.G. White, to take minutes of the meeting.

Present:

Executive: Dr. R.A. Ellis, President; Dr. G.K. Bracken, Past-President; Dr. M.M. Galloway, President-Elect; Drs. T.D. Galloway and J.C. Conroy, Regional Director to E.S.C. (overlapping terms); Mr. Y.D. Deedat, Member-at-Large.

Executive Staff: Mr. W.L. Askew, Treasurer; Dr. R.E. Roughley, Editor of the Proceedings; Dr. N.D.G. White, Secretary.

Members:

R.M. Gadawski	D. Smith	F. Matheson
L. Smith	R.A. Brust	H.G. Wylie
S.R. Loschiavo	D. Dixon	W.B. Preston
N.J. Holliday	G.H. Gerber	S.C. Jay
T. Pankiw	M. Trottier	D. Pollock
W. Turnock	A.G. Robinson	

1. Agenda (Appendix A).

Motion - T. Galloway/J.Conroy: Adoption of the Agenda.

CARRIED

2. Minutes of the 41st Annual Meeting

Motion - J. Conroy/G. Gerber: Adoption of the minutes of the 40th Annual Meeting of the Entomological Society of Manitoba Incorporated, held on 9 November, 1984, and published in the Proceedings of the Entomological Society of Manitoba (Vol. 40, 1984).

CARRIED

3. Business arising from the minutes of the 40th Annual Meeting
ESM Scholarships (Appendix B).

Dr. S.C. Jay presented recommendations and guidelines for the proposed E.S.M. scholarship award.

Motion - S.C. Jay/G.H. Gerber: To adopt the proposed E.S.M. scholarship guidelines as submitted.

Discussion arose over typographical inaccuracies which were unanimously dealt with. Dr. M. Galloway suggested that the monetary award not be given to students already holding large scholarships. The membership discussed the issue but concluded the original guidelines were satisfactory.

CARRIED

4. EXECUTIVE REPORTS

4(a). President (Appendix C)

Motion - R. Ellis/R. Brust: Acceptance of the President's report as circulated.

CARRIED

4(b). Treasurer/Auditor (Appendix D)

Motion - W. Askew/M. Galloway: Acceptance of the Treasurer's/Auditor report.

CARRIED

Motion - W. Askew/M. Galloway: That H. Samboluk be reappointed as the auditor of the Entomological Society of Manitoba for the fiscal year ending in 1986.

CARRIED

- 4(c). Editor - Proceedings of the Entomological Society of Manitoba
(Appendix E)

Motion - R Roughley/T. Galloway: Acceptance of the circulated report.

CARRIED

- 4(d). Regional Director to E.S.C.

An oral report on activities of the national society was presented by J. Conroy.

Motion - J. Conroy/T. Galloway: Acceptance of the Regional Director's report.

CARRIED

- 4(e). Endowment Fund Board (Appendix F)

Motion - R. Brust/J. Conroy: Acceptance of the Endowment Fund Board report.

CARRIED

- 4(f). Finance Committee (Appendix G)

Motion - R. Brust/G. Gerber: Acceptance of the 1986-1987 projected budget for the society.

CARRIED

Amendment to the Trust Fund Agreement to delete references to the Manitoba Entomologist, which is no longer published, will be dealt with at the forthcoming Special Meeting of the membership.

5. COMMITTEE REPORTS

Motion - J. Conroy/N. Holliday: That all Committee Reports be received.

CARRIED

- 5(a). Publicity/Newsletter (Appendix H)

- 5(b). Social (Appendix I)

- 5(c). Public Education and Youth (Appendix J)
- 5(d). Common Names (Appendix K)
- 5(e). Archivist (Appendix L)
- 5(f). Manitoba Environmental Council - no report.
- 5(g). ESC Awards - no report.

Motion - J. Conroy/D. Dixon: To pass a motion of recognition and congratulations to Cam Jay on being elected a Fellow of the Entomological Society of Canada.

CARRIED

Motion - J. Conroy/N. Holliday: To pass a motion of recognition and congratulations to R.N. Sinha on receiving the Gold Medal Award for Outstanding Achievement in Canadian Entomology from the Entomological Society of Canada.

CARRIED

- 5(h). ESM Awards - Dr. Loschiavo announced that Darren Pollock is this year's award winner.
- 5(i). ESC Scholarship - No report.
- 5(j). Scientific Program - Dr. Bill Turnock presented an oral report on the success of the 1985 annual meeting, held jointly with the Entomological Society of Saskatchewan. A good program was presented and there was good support from both the ESM and ESS members. Over 75 people registered at the meetings.
- An issue that was raised was whether the Scientific Program Chairperson was responsible for the entire Annual Meeting program including social aspects. It was suggested that in the future there should be an Annual Meeting Committee with one chairperson and including members of the Social Committee, rather than having responsibility split between the Scientific Program and Social Committees.
- 5(k). 1986 Joint Annual Meeting (ESM-ESC) (Appendix M)

5(1). Membership (Appendix N)

6. 1985/1986 ELECTION RESULTS - Dr. S. Loschiavo reported the election results for the Scrutineer Committee. Special thanks were extended to Gordon Hamilton for witnessing and assisting in ballot counting.

President-Elect:	P. MacKay
Member-at-Large:	D. Dixon
Regional Director to ESC:	J. Conroy
Honorary Members:	R. Heron
	A.G. Robinson
	F.L. Watters
	P. Westdal

Motion - S. Loschiavo/J. Conroy: To destroy the ballots of the 1985-1986 elections.

CARRIED

7. TRANSFER OF OFFICE - The office of the president was transferred from Dr. R. Ellis to Dr. M. Galloway.

8. OTHER BUSINESS

Motion - G. Bracken/J. Conroy: To adopt the current Rules and Regulations of the Society (Appendix O)

CARRIED

Motion - G. Bracken/J. Conroy: To adopt proposed structure and duties of the Finance Committee for inclusion in the Rules and Regulations (Appendix P).

CARRIED

Motion - R. Brust/A.G. Robinson: That an award of \$100.00 be given for the best paper presented by a student at Annual General Meetings of the ESM, beginning in 1987.

CARRIED

9. ADJOURNMENT: J. Conroy (15:00 h of 25, October, 1985).

APPENDIX A

ENTOMOLOGICAL SOCIETY OF MANITOBA

41st Annual Business Meeting
October 25, 1985

AGENDA

1. Appointment of Secretary to record proceedings of the annual business meeting.
2. Acceptance of Agenda.
3. Minutes of last annual meeting.
4. Business arising from the minutes.
 - a) ESM Scholarship Committee Recommendations - C. Jay.
5. Reports - Executive, Trustees.
 - a) President R.A. Ellis
 - b) Treasurer (Auditor) W. Askew
 - c) Editor of the Proceedings R.E. Roughley
 - d) Regional Director to ESC T.D. Galloway
 - e) Endowment Fund Board R.A. Brust
(Amendment to Trust Agreement)
6. Reports - Committees
 - a) Finance Committee R.A. Brust
 - b) Publicity, Newsletter R. Gadawski
 - c) Social W. Ralley
 - d) Education & Youth Encouragement D. Wright
 - e) E.S.C. Insect Common Names A.G. Robinson
 - f) Archivist A.G. Robinson
 - g) Manitoba Environmental Council --
 - h) Awards (ESC)
 - i) Awards (ESM) S.R. Loschiavo
 - j) ESC Scholarship Committee
 - k) Scientific Program W.J. Turnock
 - l) Joint Annual Meeting ESM-ESC, 1986 N. Holliday
 - m) Membership Committee T.D. Galloway
7. 1985-1986 Election Results - Scrutineer Committee, S.R. Loschiavo
8. Transfer of office

9. Other business:
 - a) Adoption of current rules and regulations
 - b) Adoption of attached guidelines for composition and function of the finance committee for inclusion in the Society's Rules and Regulations.
10. Adjournment.

APPENDIX B

E.S.M. Scholarship Guidelines

1. Award: A certificate and \$1000.00 to assist students in their graduate programs. The scholarship shall be awarded at the Annual Meeting of the E.S.M.
2. Eligibility:
 - (a) A student must be a M.Sc. or Ph.D. major in the Discipline of Entomology at a university of Manitoba.
 - (b) A student must be registered as a graduate at a university in Manitoba for at least 12 months prior to October 1 of the year in which the scholarship is to be awarded.
3. Conditions:
 - (a) A graduate student shall receive only one E.S.M. scholarship per degree.
 - (b) All students who apply for the scholarship shall be considered as candidates. In cases where awards already being held by a student preclude the acceptance of the scholarship, then the scholarship will be converted to a certificate and a \$100.00 book prize. The runner up may then be awarded the scholarship.
4. Criteria for Selecting a Candidate:

The student must demonstrate 1) superior scholastic ability, 2) high research potential (as evidenced by industriousness, good judgement, originality, organizational ability, as well as a conscientious attitude) and 3) excellent communication skills.
5. Procedures:

(a) The Scholarship Committee of the E.S.M. shall be the Selection Committee for this scholarship. It is recommended that at least one member of the Committee be a university faculty member.

(b) It is the responsibility of this Committee to (1) advertise the scholarship, (2) to distribute and collect applications and references and (3) to select the candidate for the scholarship.

(c) The Selection Committee reserves the right not to award a scholarship in a year when no suitable candidate can be identified.

(d) The deadline date for accepting applications is October 1 of the year in which the Scholarship is to be awarded.

(Note: Applications and referee's forms are available from the Secretary, ESM).

APPENDIX C

PRESIDENT'S REPORT:

Slow, but steady, progress was made in the growth of our Society this year, thanks to the dedication and efforts of a core group of enthusiastic members. Executive meetings were devoted mainly to housekeeping business, including a review of our Letters Patent and By-Laws, ESM Committee Guidelines, Budget Estimates, and Scholarship Guidelines. Hopefully the actions taken this year will facilitate the activities of future Executives and Committees. Your Executive also followed, with interest, the work of this year's ESM/ESS and next year's ESM/ESC joint annual meeting planners.

As always, the role of the executive is secondary to the activities of the members and chairman of Committees whose work keeps the Society moving forward. On behalf of this year's Executive and the Society I thank these members for their dedication and willingness to actively participate in the Society's business. There were too many people involved to name them all here. However, I must single out the following because I was so impressed by their efforts on behalf of the Society in 1984/1985: i.e., all members of the Executive but especially Noel White, Reiny Brust, Cam Jay, Sam Loschiavo, Neil Holliday, George Gerber, John Conroy, Bill Turnock, Randy Gadawski, and Wendy Ralley.

My challenge to the 1985/1986 Executive and those that follow is to work to improve the membership's interest and support of Society business and social activities. If you make something interesting and enjoyable enough, more people will want to be actively involved.

R.A. Ellis,
President, 1985/1986.

APPENDIX D

ENTOMOLOGICAL SOCIETY OF MANITOBA INC.
AUDIT REPORT FOR THE YEAR ENDED
AUGUST 31, 1985

I have examined the records of the Entomological Society of Manitoba for the year ended August 31, 1985.

In my opinion the attached financial statements present fairly the financial position of the Society as at the year ended August 31, 1985 and the results of its operations for the year then ended in accordance with generally accepted accounting principles.

Helen Samboluk

ENTOMOLOGICAL SOCIETY OF MANITOBA INC.
AUDIT SHEET
FOR THE YEAR ENDING AUGUST 31, 1985

ASSETS:

Current Account Balance		\$1,090.45
Savings Account Balance		3,072.12
Investments:		
CH6727	\$2,000.00	
HK9093	3,024.33	
XK5133	2,000.00	
XM3845	3,000.00	
EN9903	2,000.00	
JJ4133	7,200.00	
LQ1596	<u>2,000.00</u>	
		21,224.33
Petty Cash: Treasurer		25.00
Secretary		50.00
Editor		<u>25.00</u>
		\$25,486.90

LIABILITIES AND SURPLUS:

Liabilities	nil	
Surplus Account		
Balance as at 31/8/84	23,486.15	
Net Income for period	<u>2,000.75</u>	
		<u>\$25,486.90</u>

ENTOMOLOGICAL SOCIETY OF MANITOBA INC.
STATEMENT OF RECEIPTS AND DISBURSEMENTS
FOR THE YEAR ENDING AUGUST 31, 1985

RECEIPTS:

Membership	\$1,483.35	
Subscriptions	367.33	
Page Charges	391.21	
Reprints	147.20	
Committees	331.00	
Annual Meeting	1,912.50	
Premium on US Funds	<u>71.43</u>	
		\$4,704.03

DISBURSEMENTS:

Printing	\$1,634.32	
Stationery	44.84	
Postage	524.92	
Bank Charges & Safety Deposit	29.60	
Committee Expenses	358.25	
Annual Meeting	2,027.63	
1986 Joint ESM-ESC Meeting	500.00	
Miscellaneous	<u>55.00</u>	
		<u>5,174.56</u>

Net Loss from Operations	\$(470.53)	
G.I.C. Investment Income	2,289.20	
Investment Interest	<u>182.08</u>	

NET INCOME for year ending August 31, 1985 \$2,000.75

APPENDIX E

ANNUAL REPORT OF THE EDITOR OF THE PROCEEDINGS
OF THE SOCIETY

Three hundred copies of Volume 40 (1984) were ordered. The initial cost for printing was \$1,111.63. With the return to the Society of the cost of printing the scientific papers (\$425.00) the net cost is \$686.63, or \$2.29/copy. This represents an increase of \$0.77/copy over the cost/copy of Volume 39 but it is still less than the cost/copy of Volume 38

R.E. Roughley
Editor

APPENDIX F

Entomological Society of Manitoba
Annual Report of the Endowment Fund Board

Guaranteed Investment Certificates with Royal Trust				
<u>Cert. No.</u>	<u>\$ Amt.</u>	<u>Interest Rate</u>	<u>Maturity</u>	<u>Annual Int.</u>
LQ1596	2000	10.875	Aug. 1990	\$217.50
JJ4133	7200	12.125	Nov. 1989	873.00
EN9903	2000	12.375	Apr. 1989	247.50
XM3845	3000	10.875	Dec. 1988	326.25
XK5133	2000	11.375	June 1988	227.50
HK9093	3024.33	12.375	Dec. 1987	374.26
CH6727	2000	18.875	Oct. 1986	372.50
Total	21,224.33	\bar{x} 12.431		2,638.51

W. Askew
F. Matheson
R. Brust, Chairperson
October 8, 1985.

APPENDIX G

Entomological Society of Manitoba

BUDGET	1983-84 ¹ Actual	1984-85 Actual	1985-86 Actual & Projected	1986-87 Projected
Endowment Fund	16,224.33	21,224.33	21,224.33	23,000.00
INCOME				
Endowment Fund and Bank Interest	2,199.72	2,471.28	2,700.00	2,800.00
Dues, ESM	674.00	1,483.36	1,400.00	1,400.00
Subscriptions, Proceedings Annual General Meeting	328.60	367.33	300.00	300.00
Youth Education Committee	1,322.00	1,912.50	1,900.00	1,900.00
Social Committee	300.00	200.00	200.00	200.00
Miscellaneous	132.00	131.00	100.00	100.00
Proceedings, ESM - Page & reprint charges	105.27	71.43	100.00	100.00
		538.41	425.00	200.00
Total	5,061.59	7,175.31	7,125.00	7,000.00
EXPENSES				
ESM Scholarship			1,000.00	1,000.00
Proceedings, ESM		1,001.90	1,111.63	1,200.00
Annual General Meeting	997.34	1,280.19	1,400.00	2,400.00 ²
Invited Seminar Speaker(s) (AGM)	721.71	747.44	750.00	0.00
Newsletter & Photocopying	488.48	633.32	650.00	650.00
Postage	647.35	524.92	550.00	600.00
Youth Education Committee	178.06	0.00	500.00	500.00
Awards Committee	106.25	0.00	100.00	100.00
Stationery Supplies	522.58	44.84	100.00	100.00
Social Committee	165.00	358.25	300.00	300.00
Miscellaneous	120.43	583.70 ²	100.00	150.00
Total	3,947.20	5,174.56	6,561.63	7,000.00

¹ Fiscal year ends 31 August.

² Includes \$500 cash advance for 1986 ESC/ESM Meeting.

October 8, 1985.
Finance Committee, ESM
R.A. Brust, Chairperson.

APPENDIX H

ANNUAL REPORT OF THE PUBLICITY COMMITTEE

This was a year of change, marked by the departure of Dr. Roy Ellis from the position of Publicity Chairperson. I'm very grateful to Roy for his early advice as I am to the many members of the Society who have contributed over the past year. I also extend my sincere appreciation to Mrs. Bernice MacLeod for her technical assistance.

To date, four issues of the ESM Newsletter have been prepared for Volume 12 in 1985, appearing in January, March, June, and September. A fifth issue for this volume be prepared in December.

R.M. Gadawski
Editor, ESM Newsletter
25 October 1985.

APPENDIX I

REPORT TO THE AGM, 1985

SOCIAL COMMITTEE

The social committee organized three events this year, other than those at the annual meeting. Close to 60 people attended the New Members Social and it was a great success. The speakers at both luncheons meetings, Dr. Roger Crosskey and Dr. Gard Otis, were visitors to the Department of Entomology and they were invited to speak at our Society luncheons. Both luncheons were well attended despite the inconvenient times.

Wendy Ralley
Chairperson

APPENDIX J

YOUTH ENCOURAGEMENT AND PUBLIC AWARENESS REPORT

This year, the Youth Encouragement Committee spoke to 16 groups of children. These groups were comprised of Beavers, Nursery Schools and Elementary Schools. In July, a workshop was held for a group of children at the Fort Whyte Centre. I thank Dr. T. Galloway, Wendy Ralley, Gene Fortney, Brian Galka and Heather Morris for their help.

Daryl Wright
Chairperson

APPENDIX K

ENTOMOLOGICAL SOCIETY OF MANITOBA
REPORT
OF THE
COMMON NAMES COMMITTEE

No new names, or changes proposed for presently used names, were received by the Common Names Committee since the 1984 Annual General Meeting.

The Chairperson has received a copy of "French Names of Insects of Canada, with corresponding Latin and English Names", compiled and edited by P. Benoit, Laurentian Forest Research Centre, dated May 1983, and also a list of corrections to this copy, dated July 1985.

A.G. Robinson, Chairperson.

APPENDIX L

REPORT OF
THE
ARCHIVES COMMITTEE

There is nothing new to report from the Archives Committee. Newsletters are added to the Archives, as received. If anyone has material which they wish placed in the Society Archives, please give it to the undersigned.

A.G. Robinson, Chairperson

APPENDIX M

REPORT OF THE 1986 JOINT ANNUAL MEETING COMMITTEE.

The committee and its various sub-committees have met several times during the year and the major actions taken have been to establish the overall format of the scientific and social programmes, to begin raising money to support the meeting, and to begin publicity.

The meeting will be at the Holiday Inn South from 6-8 October 1986. There will be two symposia: "Insect-Plant Relationships" and "Current Topics in Insect Physiology". The four speakers involved in each symposium have already agreed to participate, as have the Heritage Lecturer (Dr. E.J. LeRoux) and the Plenary Lecturer (Dr. J.E. Hollebone). The major social events will be a reception at the Winnipeg Art Gallery on October 6, and a banquet at the Holiday Inn South on 7 October.

Requests for support from Government and Industry have already been made and so far at least \$2000. have been committed. In addition, an application for a Natural Sciences and Engineering Council of Canada (NSERC) Conference Grant has been made.

The first notice of the meeting has already been sent to the Bulletin of the Entomological Society of Canada and a notice will appear in the next newsletter of the Entomological Society of Manitoba. All registrants at the 1985 Annual Meeting of the Entomological Society of Canada received information on the 1986 meeting.

J.C. Conroy
G.H. Gerber
N.J. Holliday (Chairperson)

APPENDIX N

MEMBERSHIP COMMITTEE REPORT - 1985

This represents the first year of existence for this committee. For the most part our current system of contacting new entomologists and for reminding existing members is established and seems to work reasonably well. Following the lead of the ESC and several regional societies, it is recommended that the committee, perhaps in conjunction with the Public Education and Youth Encouragement Committee, seek to contact amateur entomologists in the province and ensure their awareness in the ESM.

T.D. Galloway
Chairperson
25.X.1985

APPENDIX O

THE ENTOMOLOGICAL SOCIETY OF MANITOBA RULES AND REGULATIONS 1985-1986

Article VI. Dues and Fees

1. The Treasurer in writing, shall remind all members whose dues are ten months in arrears that they shall be considered to have resigned from the Society if their dues are not paid in full within the ensuing two months.

Article IX. Executive Members

1. Regional Director (par. 3): Election of the Regional Director, when required, shall be held at the same time as the annual election of members of the Executive. The newly elected Regional Director shall take office two months prior to the Annual Meeting of the National

Society. He will attend meetings of the Governing Board of the National Society and provide a written report of the proceedings at the annual meeting of the ESM.

2. The Regional Director's annual report to the Governing Board of the ESC, if required, will be prepared by the out-going director, in collaboration with the in-coming director who will be responsible for submission of the report.
3. The Regional Director's (one only) cost of travel, accomodation, and food, if required, to attend meetings of the ESC Governing Board will be paid by the National Society. Accomodation and meal costs will be equivalent to current Agriculture Canada per diem rates.

Article X. Executive Staff

1. As specified in the Society's By-Laws and by the President, the duties of the Executive Staff shall include:

Secretary

- a) To keep minutes of all meetings of the Society and of the Executive.
- b) Conduct the correspondence of the Society as directed by the President.
- c) Issue notice of meetings of the Society and of the Executive as directed by the President.
- d) In conjunction with the Treasurer, maintain the membership list of the Society.
- e) Process and acknowledge applications for membership.
- f) Publicize to the membership via the Newsletter or other means, the names of the nominees for election to the Executive, as provided by the Past-President at least two weeks prior to the closing date for nominations (see Rules and Regulations for Art. XV - Committees).
- g) Confirm annually the student status of Student Members, and report same to the Treasurer.

Treasurer

- a) Custody of the Society's funds and monies.
- b) Provide financial statements as required by the President.
- c) Arrange for annual audit of the Society's books of account in sufficient time for the auditor's report to be submitted at the Annual General Meeting.

- d) Notify in writing all members 10 months delinquent in payment of dues (See Rules and Regulations for Article VI - Dues and Fees).
- e) In conjunction with the Secretary, maintain the Society's membership list and process applications for membership.
- f) Shall be a member of the Endowment Fund Board.

Editor - Proceedings of the Entomological Society of Manitoba

Preparation and publication of the Proceedings in accordance with the policies and directives of the Executive.

Article XII. The Endowment Fund

1. The objective of the Endowment Fund is:

Provision of financial support for special projects which are in accordance with the policies and directives of the Executive.

2. The Endowment Fund's principal shall be generated by:
 - a) 40% of the Society's membership dues.
 - b) 100% of the life membership dues.
 - c) All tax deductible donations.
 - d) Monies transferred to the fund from the Society's general operating account(s).
3. The Society's signing officers shall be the signing officers for the fund.
4. Monies shall be invested for the Fund by the by the Treasurer of the Society. He shall receive a directive on the amount to be invested, and type and duration of investment to be made, from the Chairperson of the Board. This directive shall be approved by the Executive before it is executed.
5. The approval of the membership at a general meeting is required for all proposals to withdraw monies from the Fund.

The Endowment Fund Board

6. The board shall consist of a Chairperson and two members (one of which shall be the Treasurer) appointed by the Executive. The term of appointment shall be three years (excluding the Treasurer). Consecutive terms of appointment are permissible.
7. The Chairperson of the Board shall be a resident of Manitoba.
8. One member of the Board shall be replaced or re-appointed each year.

9. In the event of the absence of a member of the Board, the President may appoint a proxy for the duration of the member's absence.
10. Investment of the principle and interest of the Fund, and dispersment of Fund monies, are the responsibility of the Board following approval by the Executive.
11. The Board shall prepare an annual report and financial statement for presentation at the Society's Annual General Meeting.

Article XV. Committees

1. The Nominations Committee chairman (Past-President) shall provide the Secretary with a list of nominees for election to the Executive no later than 31 May of each year.
2. The President shall appoint a Scrutineers Committee for the purpose of examining, counting, and reporting the results of all mail ballots (see Rules and Regulations for Art. XVII - Elections). The Scrutineers Committee appointed to scrutinize the mail ballot for election of the Executive shall be named no later than July 1. Any scrutineers committee shall consist of a named chairman who must be an Active or Honorary member of the Society, and two members who need not be members of the Society.

Article XVII. Elections

1. All mail ballots shall be returned to the Secretary, who will have them delivered UNOPENED to the chairman of the Scrutineers Committee within one week of the close of the ballot.
2. The Secretary shall record the number of ballots issued for any election by mail ballot.
3. The Scrutineers Committee shall prepare a written report of the results of any mail ballot. The Report shall show:
 - a) number of ballots issued (obtained from the Secretary).
 - b) total number of ballots returned.
 - c) number of spoilt ballots.
 - d) number of ballots received by each candidate.
 - e) name(s) of successful candidate for each position(s) based on a simple majority of the ballots in favour.
4. The Scrutineers Committee report shall be signed by the chairman and members of the Committee, and shall be delivered to the President on or before the date stipulated by him. For election of the executive, the date for delivery of the report should be no later than 30 September.

APPENDIX P

RULES AND REGULATIONS

Article XV - Committees

3. The Financial Committee includes the Endowment Fund Board, Member-at-Large, Editor of the Proceedings, and one other member of the ESM. Chairperson of the Endowment Fund Board will act as Chairperson of the Finance Committee.

Duties of the Finance Committee are:

1. To establish and recommend yearly membership fees, and page charges to the Proceedings.
2. Review and recomend optimal banking procedures for the Society.
3. Assist in preparing Annual budgets for committees.
4. Review reporting procedures and their presentation at the A.G.M.
5. Prepare for the A.G.M. a prejection of money generated by the Endowment Fund avaiable for "special projects".
6. Deal with other financial matters as required.

JOINT ANNUAL MEETING, 1985
ENTOMOLOGICAL SOCIETY OF MANITOBA
ENTOMOLOGICAL SOCIETY OF SASKATCHEWAN

ABSTRACTS OF PRESENTED PAPERS

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* ABSTRACTS ARE PRINTED AS RECEIVED *
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LONG RANGE TRANSPORT OF NOCTUIDS,
EMPHASIS ON THE BLACK CUTWORM

William B. Showers

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Research of the long range dispersal of the Heliothis complex, the armyworm, Heliothis unipuncta (Haworth), fall armyworm, Spodoptera frugiperda (J.E. Smith), and the oriental armyworm, Mythimna separata (Walker) will be reviewed. The result of indepth studies on long range dispersal of black cutworms, Agrotis ipsilon (Hufnagel) using marker pollen and mark, release, capture combined with wind back-tracking techniques will be presented.

CAPTURES OF CUTWORM MOTHS IN SEX ATTRACTANT TRAPS
VS. FIELD POPULATIONS OF THEIR LARVAE.

G.L. Ayre

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The relationship between moth captures in sex attractant traps and larval numbers in soil samples for three species of cutworms were extremely variable over a four year period in a seed alfalfa field at Dugald, Manitoba. In 1982, 143 larvae of E. ochrogaster compared with a catch of 1114 adults which, in turn, produced 432 larvae in 1983. In 1984, 38 larvae compared with 1171 adults which resulted in only 7 larvae in 1985. In 1983 the larva:adult ratio for E. messoria was 1:0.15 and in 1984 it was 1:2. The adult:larva ratio in 1982/3 was 1:2 but in 1984/5 it was only 1:0.04. For Feltia jaculifera the larva:adult ratio was 1:12.6 in 1982 and in 1983 no larvae were found but 752 adults were

caught. The adult:larva ratio was 1:0.008 in 1983/4 and in 1984 700 adults were caught but no larvae were found in 1985. A test for correlation between numbers of adults in individual traps and larvae from corresponding soil samples showed all relationships be significant ($P=0.05$).

The currently accepted economic threshold level for cutworms in many crops is 4 larvae/ m^2 (Manitoba insect control guide-1985). As adult catches did not reflect differences in average annual larval populations which ranged from 0.25 to 15/ m^2 it is obvious that sex attractant catches are unsuitable as a measure for potential economic loss through cutworms of these species.

WIDE-RANGING BLACK-FLY PESTS OF LIVESTOCK
AND PEOPLE IN SASKATCHEWAN.

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From earliest days of settlement in Saskatchewan, threats of outbreaks of black flies from the Saskatchewan River have worried livestock producers. Outbreaks occur at unpredictable intervals and often are widespread. In 1947 livestock were killed by Simulium arcticum carried on northerly winds about 200 km. from the nearest breeding sites (Fredeen, 1981). Following completion of hydroelectric dams on both branches of the Saskatchewan in the 1960's, summertime flows changed from deep and turbid to shallow and clear. Increased insolation, reduced velocities and amounts of effluents from large cities encouraged growth of aquatic plants on previously barren river beds (Fredeen, 1977a). Larvae of S. arcticum became scarce but other species commenced breeding in the river. One of these, S. luggeri quickly became a formidable pest. Unlike S. arcticum it attacks people, it recycles continuously all summer and its larval attachment sites in new weed beds are extensive. In 1978, outbreaks spread into some 38,00km² causing losses estimated to have exceeded \$2.9 million and misery to thousands of people for most of the summer (Fredeen, 1985).

Control is most efficient when applied to sources of outbreaks, i.e. larvae in rivers (Fredeen, 1977b). Since 1978, timely

applications to the river of small amounts of methoxychlor each summer have reduced numbers of larvae and thereby reduced chances of further major outbreaks. Larviciding is also essential for protection of people because repellents are not effective during outbreaks.

Black-fly management at present consists of a mix between use of larvicides, adulticides and appropriate livestock management practices. Larviciding may remain the cornerstone because it requires use of the least amount of chemical and thus least expense both financially and environmentally.

Fredeen, 1977a. Can. Water Res. J. 2:90-102.

Fredeen, 1977b. Quaest. Ent. 13:321-325.

Fredeen, 1981. Quaest Ent. 17:189-210.

Fredeen, 1985. Quaest Ent. 21:175-208.

SEX PHEROMONE OF THE EUROPEAN CORN BORER,
OSTRINIA NUBILALIS, IN ALBERTA AND MANITOBA.

D.J. Struble, J.R. Byers, and G. Ayre

The sex pheromone of the european corn borer population established near Medicine Hat resembles that of the Iowa strain. A potent attractant inhibitor was discovered. Monitoring the population density and range expansion of this species with pheromone-baited traps was discussed.

LIPID AND FATTY ACID CHARACTERISTICS OF SUGARBEET
ROOT MAGGOT LARVAE, TETANOPS MYOPAEFORMIS (RODER) (DIPTERA: OTITIDAE).

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Lipid and fatty acid characteristics of mature pre-diapause larvae of the sugar-beet root maggots were examined. Lipid appears to be a key energy and metabolite source for support of diapause, pupation, and eclosion. Total lipid constituted about 50% of the dry weight of the mature larvae. Qualitative thin-layer chromatography (TLC) indicated the presence of triacylglycerols, diacylglycerols, and polar lipids with the triacylglycerols being the major lipid class. Additional TLC of the polar lipids indicated the presence of cholesterol, phosphatidylcholine, and phosphatidylethanolamine with the latter being the predominant polar lipids.

The fatty acid composition of total and triacylglycerol fractions was determined. Fourteen distinct fatty acids varying in chain length from 12 to 20 carbons were identified. Unsaturated fatty acids are the major components and make up about 81% of the whole body fatty acid composition. The high proportion of unsaturated fatty acids appears to contribute to the liquid nature of the larval lipids. Polyunsaturated fatty acids accounted for under 1% of the whole body fatty acid composition. Fatty acids from 12 to 16 carbons in length comprised about 80% of the whole body fatty acid composition. the predominant fatty acid was palmitoleic acid (16:1) which constituted about 60% of the whole body fatty acid composition. Other fatty acids present in proportions greater than 1% included myristic (14:0), myristoleic (14:1), palmitic (16:0), stearic (18:0), and oleic (18:1).

ORGANIZATION OF DIGESTION IN AN ADULT CARABID
BEETLE, CALOSOMA LEPIDUM.

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Adult Calosoma lepidum, like other adult carabines, are predators of large, soft-bodied invertebrates. They liquefy prey tissues and ingest this fluid by means of mastication in conjunction with disgorgement of crop contents (which contain proteolytic enzymes) onto the food. The anomaly of lower enzyme levels in foregut contents after feeding upon ground beef (used because it has little or no enzyme activity) can be explained by enzymes left behind on the food. In contrast, when beetles feed upon waxmoth larvae they are able to recover much more of their disgorged secretions. This feeding mechanism allows them to ingest a high percentage of prey protein and avoid the ingestion of indigestible remains. The organization of digestion in carabids differs from that of most insects because the foregut rather than the midgut is the main seat of digestion. However, the concentrations of trypsin in the foregut and midgut lumen are roughly equal. It seems likely that the luminal contents of each region are in equilibrium and that muscular contractions of the proventriculus are responsible for the mixing. Trypsin levels are higher in the foregut because the distensible crop has a larger capacity than the midgut. The rate of movement of material through the gut was studied by feeding the beetles ^{14}C - inulin. Results indicate that the meal is rapidly concentrated and excess fluid is excreted with little loss of radiolabel. This may be brought about by an endo-ectoperitrophic circulation of enzymes as in other insects. However, since these beetles ingest only fluid remains of prey, they may be preadapted to conserve midgut contents by not having to pass indigestible material into the hindgut lumen.

SOUND PRODUCTION AND THE STRIDULATORY APPARATUS
OF SMICRONYX FULVUS LECONTE (COLEOPTERA: CURCULIONIDAE).

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Adult male and female Smicronyx fulvus LeConte produce unpatterned sound. The sound production apparatus of both sexes is located on the abdomen and elytra.

On the left elytron of both sexes the pars stridens is an elongated tear-drop file narrowed cephalad and located distally on the ental sur-

face near the sutural margin. The file is composed of transverse, slightly arched and bowed ridges. A similar but less developed file is located on the right elytron. A greater number of distinctly separated and raised ridges forming a more elongated file distinguishes the male *pars stridens* from the female.

The female plectrum is composed of a double or triple row of paired conical teeth located in a heavily sclerotized band along the margin of the seventh abdominal sternite. A similar arrangement of teeth is located on the seventh abdominal sternite of the male. The sixth abdominal sternite is developed into a well defined secondary plectrum only in the male. In this region the teeth are sharply angular and are arranged in distinct rows that bow cephalad.

Sound produced by rubbing the plectral teeth of the seventh sternite over the *pars stridens* is audibly different between the sexes. The difference is due to the degree of development of the ridges forming the *pars stridens*. Sound resulting from the vibration of a single ridge was recorded for male and female weevils. Amplitudes for individual recordings and paired recordings were analyzed with a time series procedure. Spectral density plotted against frequency reveals a similar pattern for both sexes. There was a tendency for the frequencies to be clumped into two frequency ranges, possibly due to the paired teeth contacting the ridge. The lower frequency range is dominant in the female, with the higher frequency range dominant in the male. The entire frequency range for both sexes is from 1,172 to 12,502 cycles per second, and probably serves to aggregate the species.

METHODS OF DETERMINING GONOTROPHIC AGE OF
CULEX TARSALIS (DIPTERA: CULICIDAE).

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The ability to age Culex tarsalis in terms of its blood-feeding history has traditionally been limited to the distinction between blood-fed and non blood-fed females. It has not been possible to identify those females that have developed eggs without the benefit of a blood meal. However, results indicate that refined estimates of a female's gonotrophic age can be obtained. These methods of determination are based on

the number of dilations in the ovarioles, as well as the condition of the tracheal system of the ovaries. The significance of these results will be discussed as they relate to the epidemiology of Western Equine Encephalitis in Manitoba.

THE IMPACT OF WHEAT MIDGE ON WHEAT YIELDS
IN THE SWAN RIVER AREA IN 1984.

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In late August, 1984, Manitoba Agriculture staff collected 100 head samples from over 130 wheat fields in the Swan River area. The samples were analyzed to determine percent midge damage and the effect of damage on yield. Analysis showed that wheat yields were reduced when damage levels exceeded 5%, although even at damage levels of up to 15%, reduction in yield would not have been enough to cover the cost of control. Significant loss in yield occurred when damage levels approached 20%. Only 9 fields out of 131 sampled had damage levels exceeding 15%.

SURVEY OF SUNFLOWER INSECT PESTS
IN MANITOBA.

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Surveys were conducted in 1983 to determine the status of sunflower insect pest management in Manitoba. Sunflower midge, sunflower beetle and cutworms are the major pests of concern to growers. More than 60% of the growers monitor their fields for insect pests, use economic thresholds and consider the threshold values as an effective decision making tool. However, data obtained from a field survey on sunflower beetle show that growers apply insecticide at well below the threshold values.

A LABORATORY REARING PROCEDURE FOR THE FALSE
CHINCH BUG, NYSIUS ERICAE (SCHILLING).

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The false chinch bug, Nysius ericae (Schilling), transmits a yeast to mustard crops in the prairie provinces. A laboratory rearing procedure for this insect has been developed to provide specimens for yeast transmission studies. Both nymphs and adults are reared on the laboratory bench in clear-plastic boxes. Nymphs are fed hulled sunflower seeds and radish slices; adults hulled sunflower seeds and mustard or canola seedlings. Dental cotton rolls are provided for oviposition, and the eggs can be stored for several months at 5° C. Good sanitation is an integral part of the rearing method.

IMPACT OF COLORADO POTATO BEETLE AND POTATO FLEA BEETLE
ON POTATO YIELDS IN MANITOBA.

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In 1983 and 1984 whole plant bag sampling was used to estimate the population densities of insects on potato cv. Norland in an unsprayed plot in Morden, Manitoba. In experimental plots of the same cultivar, densities of Colorado Potato Beetle were manipulated on individually caged plants so that, throughout the growing season, plants were exposed to either half field density, twice field density, or no beetles. Even at half field density of Colorado Potato Beetle there was a significant reduction in yield. Similar manipulations of potato flea beetle density in 1983 resulted in no significant depression of yield, even at twice field density. In 1984, plants were exposed to four and eight times field density and significant reductions in yield were found.

Verification of results of cage studies were done by comparison of yields in sprayed and unsprayed plots.

CYSTIPHORA SONCHI (BREMI) (DIPTERA: CECIDOMYIIDAE), A NEW
BIOLOGICAL CONTROL AGENT ESTABLISHED IN CANADA ON PERENNIAL SOW-
THISTLE.

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Cystiphora sonchi adults do not feed and the females lay their eggs into the underside of leaves of Sonchus spp. and Aetheorhiza bulbosa (L.) Cass. Galls of about 5 mm diameter develop containing 1 - 2 larvae. The larvae spin a whitish cocoon either inside the gall or in the soil. In the years 1981 to 1985, 85155 laboratory reared larvae and pupae were released in British Columbia, Alberta, Saskatchewan, Manitoba, Quebec and Nova Scotia. The gall midge overwintered in Alberta and it is firmly established in Saskatchewan and Manitoba. In Europe, there are three generations per year, in Saskatchewan two. Thirteen percent of the larvae and 4% of the pupae can survive flooding.

POTENT STRAINS OF BACILLUS THURINGIENSIS BERLINER FOR THE
BERTHA ARMYWORM, MAMESTRA CONFIGURATA WALKER (LEPIDOPTERA, NOCTUIDAE).

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Sixty-one strains of B. thuringiensis (B.t.) belonging to varieties thuringiensis, alesti, kurstaki, dendrolimus, kenyae, galleriae, canadensis, entomocidus, aizawai, and tolworthi were bioassayed by incorporation in an artificial diet for third instar M. configurata larvae. Larvae were only weakly susceptible to the reference standard, B.t. var. kurstaki strain HD-1-S-1980, which is used in commercial preparations of B.t. available in North America for Lepidoptera. Eleven strains were significantly more toxic for M. configurata larvae than the reference standard; strains belonging to var. aizawai were prevalent among these. The three best strains were two to four fold more potent than the reference standard.

THE EFFECT OF TEMPERATURE, EXPOSURE TIME, AND INERT
SUSPENDED PARTICLES ON THE EFFICACY OF BACILLUS THURINGIENSIS
VAR. ISRAELENIS (SEROTYPE H-14) AGAINST LARVAE OF
SIMULIUM VITTATUM ZETT.

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The effects of temperature, exposure time, and the presence of inert suspended particles on the efficacy of Bacillus thuringiensis var. israelensis (Serotype H-14) against larvae of Simulium vittatum Zett. are investigated.

Efficacy of the bacterium decreased with decreasing temperature. Efficacy was superior at 30 min. exposure time over a 15 min. exposure time, only at higher temperatures of lower inert particle concentrations. Initial trials showed that the presence of an inert suspended particle at concentrations as low as 50 mg./l had a significant adverse effect on the efficacy of B.t. H-14. In further experiments involving a range of inert particle concentrations between 5 and 55 mg/l, efficacy of B.t. H-14 decreased as concentration of particle suspension increased. LC-50 values were 0.43, 1.32, 2.84 and 10.93 mg/l at particle suspensions of 5, 10, 25, and 55 mg/l respectively.

Investigations of larval ingestion rate suggest that the loss in B.t. H-14 efficacy at high suspended solid concentrations is due to a reduction in ingestion rate. The average time required for the larvae to replace 50% of the material in the gut was approximately 30, 21, and 50 min. at 10, 25, and 55 mg/l suspended solids, respectively.

EVIDENCE FOR PERSISTENCE AND RECYCLING OF
BACILLUS THURINGIENSIS VAR. ISRAELENIS.

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Bacillus thuringiensis var. israelensis (B.t.i.) was monitored for spore viability in a variety of pool experiments for an extended period of time. Results indicate that B.t.i. not only persisted in each of the pool environments for at least 60 days, but that it recycled in each of the water types. Spores subjected to highly organic conditions, or shading, or a combination of both, had the greatest survival and growth. Spores introduced into an exposed and relatively pristine environment survived and recycled at much lower concentrations.

PATHOGENICITY AND INFECTIVITY OF A NUCLEAR POLYHEDROSIS VIRUS
ON THE DARKSIDED CUTWORM, EUXOX MESSORIA (HARRIS)
(LEPIDOPTERA: NOCTUIDAE).

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Preoral assay of a nuclear polyhedrosis virus was carried out on the first to sixth instars of the darksided cutworm. LD₅₀ was calculated for the six instars. Studies were also carried out to find out the infectivity of the NPV on the larval and pupal developmental period, adult emergence, longevity, and fecundity.

GROUND BEETLES (COLEOPTERA: CARABIDAE) AS PREDATORS OF ORANGE
WHEAT BLOSSOM MIDGE (SITODIPLOSIS MOSELLANA) IN NE SASKATCHEWAN.

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Ground beetles are known to prey on wheat midge in Europe. Thus, it is logical to suggest that they perform a similar role as a biocontrol agent of wheat midge in Saskatchewan. This possibility cannot be overlooked in light of the recent outbreak of midge in the province which poses a growing threat to wheat crops in the region. Studies have, and are, being conducted to determine the impact of Carabid predators on midge populations.

The carabid fauna in the outbreak area has tentatively been identified as being composed of 56 species in 18 genera with minimum numbers of carabid field populations estimated at up to 400,000 individuals/ha². The results of pitfall trapping show approximately 70% of the carabid populations to be composed of four species, Bembidion quadrimaculatum, B. obscurellum, Pterostichus corvus, and Agonum placidum. During feeding tests in the lab, B. quadrimaculatum, B. obscurellum, and Agonum placidum consumed 3.1, 8.5, and 42 midges/beetle/day, respectively. Numbers of larvae killed exceeded numbers eaten by a factor of up to 3 times. Serological tests are being conducted to determine the percentage of individuals/species feeding on midge in the field.

Preliminary results from insecticide trials on B. quadrimaculatum and B. obscurellum show that different insecticides vary in rates of decay and carabid toxicity, although there were no significant differences in the response of the two species to the insecticides tested. Information from insecticide trials is important because, if practical, those insecticides giving the best midge control but having the least impact on

predators may be selected for use in a midge control program. Significant savings to the farmer could result from the conservation of carabid populations through judicious use of insecticides.

POSTER PRESENTATIONS.

BIOLOGY AND POPULATION DYNAMICS OF THE WHEAT MIDGE,
SITODIPLISIS MOSELLANA (GÉHIN), IN SASKATCHEWAN.

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The wheat midge, Stodiplosis molellana (Gehin), is distributed throughout the Northern Hemisphere. It was introduced into Eastern Canada about 1830. In 1983, a yield loss survey, based on infestation levels of midge in wheat heads, revealed losses of about \$30 million in N.E. Saskatchewan. In 1984, about 90% less wheat was sown in this infested area and 80,000 ha. were sprayed with pesticides to combat the midge outbreak in the surrounding areas.

The objectives of the study were:

- 1) To study the life system in relation to larval and pupal development in the soil, adult emergence, oviposition and larval development in the host plant.
- 2) To determine the relationships between population growth, weather and crop phenology.
- 3) To develop a reliable sampling plan for monitoring the various life stages.

In 1984 and 1985 an average of 95% of the larvae in the soil survived the winters. In 1984, 50% of the larvae had left the cocoons by the first week in June. Pupation near the soil surface was about 50% complete by the last week in June. Midge adults began to emerge shortly after and 50% of the adults had appeared by mid-July. The midge life cycle was slower to develop in 1985 delaying the occurrence of each stage by about one week due to cooler conditions. This delay, however, did not affect the synchrony of oviposition with flowering of the wheat plant as crops in general were also slower developing in 1985.

SURVEYING AND COLLECTING INSECTS.

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