

Proceedings of the
Eighteenth Annual Meeting
of the
ENTOMOLOGICAL SOCIETY
of
ALBERTA



Edmonton, Alberta
November 6th - 7th, 1970

Proceedings of the 18th Annual Meeting of the
ENTOMOLOGICAL SOCIETY OF ALBERTA

November 6-7, 1970

O. S. Longman Building
6909 - 116th Street
Edmonton, Alberta.

Volume 18

August 1971

Officers - 1970

President	J. B. Gurba
Vice President	G. Pritchard
Secretary	B. S. Heming
Treasurer	R. D. Dixon
Editor	D. A. Craig
Directors	M. M. Chance (Edmonton) D. J. Larson (Calgary) S. McDonald (Lethbridge)
Regional Director	W. O. Haufe

COMMITTEES FOR THE EIGHTEENTH ANNUAL MEETING

Finance	B. Hocking (Chairman)
Insect Collection Competition	D.A. Craig (Chairman) D.J. Larson G. Pritchard
Local Arrangements:	R.D. Dixon (Chairman) W.G. Evans R. Stevenson
Photography and Projection:	E. Gushul
Program:	M.M. Chance (Chairman) D.A. Craig L.K. Peterson
Social and Banquet	G.E. Ball (Chairman) L.K. Peterson L. Safranyik

The Entomological Society of Alberta acknowledges with thanks assistance from the University of Alberta.

TABLE OF CONTENTS

	Page
Program outline	1
Abstracts of papers	
Some aspects of the comparative ecology of populations of certain carabids of wet habitats at George Lake - A. R. Carter	4
Simuliidae evolution - which way? - D. A. Craig	4
The biology of the intertidal beetle, <i>Thalassotrechus barbarae</i> (Horn) - W. G. Evans	4
You can never do just one thing - A. B. Ewen	4
Rearing methods for carabids - H. Goulet	5
On rotation of the hypopygium and the abdominal segmentation of male cyclorrhaphous Diptera - G. C. D. Griffiths	5
Collecting insects, Oviposition by decapitated mosquitoes, Rotifera in action. (Film) - E. T. Gushul	6
Forage aphids. - A. M. Harper	6
A technique for collecting ectoparasites from small birds and mammals - D. F. J. Hilton	7
Curves; us and insects. - B. Hocking	7
Dieldrin resistance in <i>Hylemia brassicae</i> populations from the Edmonton area - S. McDonald and G. E. Swailes	7
Preliminary investigation of temporal and spacial isolation of moths at George Lake - D. Pforr	8
Some inhabitants of hot pools at Banff - G. Pritchard	8
An ecological approach to the control of mosquito larvae - A. C. Schaaf	8
Insect host-plant relationships in an oligophagous species <i>Phytomyza matricariae</i> Hendel (Diptera: Agromyzidae). - V. K. Sehgal	9

TABLE OF CONTENTS (cont'd)

A review of instrumentation for determining the structure of an organic compound - D.L. Struble	9
Contra-reception - G.E. Swailes	9
Pictorial highlights	10
Society business	
Minutes of the executive meeting, November 5, 1970	14
Minutes of the 18th annual business meeting	
Part I, November 6, 1970	15
Part II, November 7, 1970	17
Financial statement 1970	20
Report of insect-collection committee	21
1970 report of regional director - W.O. Haufe	22
List of Entomological Society of Alberta prize winners	24
History of Awards - Insect Collection Competition	25
Presidents of the Entomological Society of Alberta	30
Obituary - R.H. Painter	31
Obituary - J.W. Edmunds	33
Membership List	34

PROGRAM OUTLINE

Thursday evening, November 5

The Saskatchewan Room,
Faculty Club, University of Alberta,
11435 Saskatchewan Drive.

- 8:00 P.M. Executive meeting
- 8:00 P.M. Registration and no-host reception

Friday morning, November 6

Conference Room, 9th Floor,
O. S. Longman Building,
6909 - 116th Street, Edmonton.

- 8:00 A.M. Registration
- 8:30 A.M. President's remarks and announcements
- 9:00 A.M. Panel discussion
- Topic: Entomology and the Cost-Benefit Concept
Panel Moderator: W.G. Evans.
- | | | |
|---------------------|--------------|-------------|
| Discussion leaders: | E.E. Daniel | S.B. Smith |
| | N.D. Holmes | J.W. Clarke |
| | G.R. Whenham | |
- 10:30 A.M. Coffee
- Discussion
- 12:00 Lunch

Friday afternoon, November 6

- 1:30 P.M. Business meeting, first session

Contributed papers

CHAIRMAN - D. M. Rosenberg

- 2:15 P.M. V. K. Sehgal - Insect host-plant relationships in an
 oligophagous species *Phytomyza matricariae* Hendel (Diptera:
 Agromyzidae).
- 2:35 P.M. A. M. Harper - Forage aphids.

- 2:55 P.M. D. F. J. Hilton - A technique for collecting ectoparasites from small birds and mammals.
- 3:05 P.M. Coffee
- 3:30 P.M. H. Goulet - Rearing methods for carabids.
- 3:45 P.M. A. Carter - Some aspects of the comparative ecology of populations of certain carabids of wet habitats at George Lake.
- 4:00 P.M. D. Pforr - Preliminary investigation of temporal and spacial isolation of moths at George Lake.
- 4:10 P.M. B. Hocking - Curves; us and insects.
- 4:30 P.M. A. B. Ewen - You can never do just one thing.

Friday evening, November 6.

- 6:00 P.M. Cocktails
- 6:30 P.M. Acid Rock
- 7:00 P.M. Banquet - The Faculty Club

Guest Speaker: Professor J. J. Bond
Director,
Boreal Institute.

Saturday morning, November 7.

Conference Room, 9th floor
O. S. Longman Building,
6909 - 116th Street, Edmonton.

- 8:30 A.M. Business meeting, second session

Contributed papers

CHAIRMAN: H. F. Cerezke

- 9:30 A.M. D. L. Struble - A review of instrumentation for determining the structure of an organic compound.
- 9:50 A.M. S. McDonald and G. E. Swailes - Dieldrin resistance in *Hylemia brassicae* populations from the Edmonton area.

- 10:05 A.M. A. C. Schaaf - An ecological approach to the control of mosquito larvae.
- 10:20 A.M. E. T. Gushul - Collecting insects, Oviposition by decapitated mosquitoes, Rotifera in action (Film).
- 10:35 A.M. Coffee
- Chairman: M. A. Chance
- 11:00 A.M. G. C. D. Griffiths - On rotation of the hypopygium and the abdominal segmentation of male cyclorraphous Diptera.
- 11:15 A.M. D. A. Craig - Simuliidae evolution which way?
- 11:35 A.M. G. Pritchard - Some inhabitants of hot pools at Banff.
- 11:50 A.M. W. G. Evans - The biology of the intertidal beetle, *Thalassotrechus barbarae* (Horn).
- 12:10 A.M. G. E. Swailes - Contra-reception.

ABSTRACTS OF PAPERS

Some aspects of the comparative ecology of populations of certain carabids of wet habitats at George Lake.

A. Carter

Some ecological characters of larvae and adults of four *Patrobis* species were studied. A possible phylogeny of the six North American species was outlined, and it was indicated how populations of these species came to occupy their present habitats.

Simuliidae evolution - which way?

D. A. Craig

The presently accepted theories of Simuliidae phylogeny will be reviewed. The effect of the discovery of cephalic fans on the first instars of *Prosimulium susanae* and *Twinnia biclavata*, on the theories of phylogeny will be considered.

The Biology of the intertidal beetle,
Thalassotrechus barbarae (Horn).

W. G. Evans

This terrestrial carabid beetle inhabits the high intertidal zone of the rocky shore extending from northern California to the lower part of Baja California. The adults are nocturnal and congregate in crevices during the day as well as during periods of high tides at night. When the nocturnal tides are low the adults emerge from the crevices and forage for food such as dipterous larvae, zooplankton stranded on rock surfaces or small crustaceans and molluscs. Mating also takes place at this time. The larvae are confined to crevices where they scavenge material brought in by water. Pupation also takes place in crevices. Though the adults are nocturnal there is no evidence to suggest that they also have a tidal rhythm superimposed on the nocturnal rhythm.

"You can never do just one thing"

A. B. Ewen

Garrett Hardin's first law of ecology warns us of the consequences we must expect if we do not thoroughly research our environment and our

tamperings with it. But treating only the symptoms and ignoring the disease never will be really effective. Although pollution problems are serious, we also must recognize the basic cause of these problems - North America, along with the rest of the world, has too many people. Thus, in order to give anti-pollution programs the impact they deserve, we must couple them with a recognition of the need to establish a zero growth rate for our population.

A Method for Rearing Carabidae for Precise Data Collection

H. Goulet

A method is described to rear carabids very successfully as well as to obtain precise quantitative and qualitative data at any time during a study on the life history of any species. The method has been tried on numerous species of various genera in numerous tribes of non-specialized carabids (such as parasitic commensal and food-specific carabids) with success above 70% from the egg to the adult stages.

On rotation of the hypopygium and the abdominal segmentation of male cyclorrhaphous Diptera.

G. C. D. Griffiths

It has long been known that the hypopygium of male cyclorrhaphous Diptera is rotated through 360 degrees, but there has been controversy on whether segments preceding the hypopygium are involved. The late Dr. G. C. Crampton argued that the 7th segment is rotated through 90 degrees and the 8th segment through 180 degrees, on the basis of the asymmetrical morphology of the postabdominal sclerites in the Calyptratae and certain other Schizophora. This argument has been justifiably criticised because (i) asymmetrical development may occur *in situ* in the absence of rotation, and (ii) there are many Cyclorrhapha in which the male postabdomen is fully symmetrical, including *Drosophila* in which the occurrence of rotation has been repeatedly confirmed.

The opportunity of clarifying this question was provided recently by Dr. E. L. Kessel's discovery that part of the rotation in Platyppezidae occurs after emergence from the puparium. Photographs of a newly emerged specimen of *Plesioclythia agarici* (Willard) were shown. These showed that when the hypopygium is in inverse position the large sclerite of the 8th segment occupies a lateral position on the left side. The sclerites of the 6th and 7th segments are not involved in rotation. The 360 degree rotation of the hypopygium can thus be resolved into two components, one of 180 degrees between the 7th and 8th segments and one of 180 degrees between the 8th segment and hypopygium. The large sclerite

of the 8th segment which occupies a dorsal position when rotation has been completed may be accepted as the 8th sternum, in agreement with Crampton.

The circumverse position of the hypopygium in *Cyclorrhapha* seems to have been first evolved as a rest position, since in *Platypezidae* the hypopygium is "unwound" to the inverse position for copulation (which occurs in the air). In *Schizophora* the full rotation of 360 degrees is completed within the puparium and is irreversible. Since circumversion in *Schizophora* has no known functional significance *per se*, it probably persists because it has become firmly entrenched in the ontogenetic process. The known mutations which produce rotational abnormalities are all highly disadvantageous.

Collecting Insects

Induced Oviposition (by Decapitation) in *Aedes aegypti*
Cinephotomicrography of Rotifera and Ciliata
Time-Lapse Growth Study - Barley, Peas.

E. T. Gushul

These motion pictures represent a portion of the practical submission required by the Biological Photographic Association in their examinations for Certification of a Registered Biological Photographer. My certification is in the field of natural sciences. This assignment was intended to demonstrate various techniques, creativity, and skills necessary to produce a motion picture. It included script writing, time-lapse technique, cinephotomicrography, cinephotomacrography, comparative techniques, titling, dissolves, etc.

Forage Aphids

A. M. Harper

Cereals are shown about mid-July as annual forage crops in the area just east of the foothills in southern Alberta. These annual forages, which are known as cover crops, serve three purposes: (1) provide fall and early winter pasture for cattle that are moved from summer range, (2) prevent soil erosion, and (3) hold snow on the land during winter.

Cover crops are frequently attacked by grain aphids and by barley yellow dwarf, a virus disease that is transmitted only by these aphids. The occurrence and intensity of the disease depends on those factors that influence the migration and build-up of populations of the aphids. Damage caused by the virus depends on the age of the plants when they become infected young plants being most severely damaged.

Laboratory and field studies showed: (1) forage and protein yields of barley and oats are severely reduced by aphids and by barley yellow

dwarf virus, (2) the insecticide malathion will control the aphids, and (3) in some years parasites and predators are important in controlling the aphids.

A technique for collecting ectoparasites from small birds and mammals

D. F. J. Hilton

A technique has been developed that enables the collection of the entire host ectoparasite population. This technique utilizes a solution of potassium hydroxide to dissolve the host's hair or feathers and a zinc sulfate solution to concentrate the ectoparasites. As well, a method for rapidly collecting the concentrated ectoparasites is described. With a slight modification this technique can be applied to larger birds and mammals.

Curves; us and insects.

B. Hocking

The interest shown in curves by male *Homo sapiens* L. was compared with that shown by several insect species, especially *Malacosoma disstria* Hbn. Studies of the facility with which insects pass through truncated cones of various apical angles, even in total darkness, suggested that sensitivity to radius of curvature rests in fields of tactile hairs.

Dieldrin Resistance in *Hylemya brassicae* (Bouché) populations from the Edmonton area

S. McDonald and G. E. Swailes

Hylemya brassicae (Bouché), the cabbage maggot, has developed dieldrin-resistance in the Edmonton area. This strain was not homogeneous with respect to dieldrin-resistance where 36 percent of the male adults were 45 times and 30 percent of the female adults were 20 times more resistant to dieldrin than the susceptible portion of this population. The latter was found to be comparable to the dieldrin-susceptible strain from Lethbridge, Alberta.

Four less persistent insecticides are currently being developed as alternative controls for this species and from base-line toxicity data on these alternates there was no indication that cross-resistance was developing in the dieldrin-resistant strain.

Preliminary Investigation of Temporal
and Spatial Isolation of Moths at George Lake.

D. E. Pforr

An experiment was designed to test habitat and time preference as found in the nocturnal flight of Lepidoptera. Robinson light traps were used in two adjacent habitats at George Lake. The author arranged for time intervals to be sampled. Some complications of light trapping were outlined. Projected charts indicated that even with the absence of statistics some species are isolated from others in nocturnal flight.

Some Inhabitants of Hot Pools at Banff

G. Pritchard

The outflow from the Cave and Basin Springs at Banff forms a series of pools in the Bow Valley. The uppermost of these pools maintains a temperature of 27°C throughout the year and supports a lush vegetation, as well as five species of tropical fish which breed in the pools, and a variety of invertebrates. The seasonal history of *Argia vivida* (Odonata; Coenagrionidae) is under investigation, particularly with regard to the role of photoperiod in the regulation of growth rates and adult emergence. *A. vivida* is also found in cold spring-fed streams and constancy of temperature rather than the temperature itself appears to be the determinant of this species distribution in Northern United States and Canada.

An Ecological Approach to Mosquito Control
in the Edmonton Area

A. C. Schaaf

Mosquito larval populations were surveyed in the Edmonton area during the spring and summer of 1970. These surveys revealed that larval habitats are related to vegetation type, pool longevity, and species preference. Habitat use varied with the species group, univoltine or multivoltine, throughout the seasonal history of the habitat. Weather conditions were shown to influence both the number of mosquito generations and the habitat types. Habitats were classified according to vegetation, vegetation density, longevity and precipitation.

Habitat criteria were used to aid in recognition of breeding sites from both the ground and air. Habitat recognition and species behaviour were used as criteria for design and simplification of the control program.

Insect host-plant relationships in an oligophagous species
Phytomyza matricariae Hendel (Diptera: Agromyzidae)

V. K. Sehgal

Host-plant relationships of an oligophagous species *Phytomyza matricariae* Hendel are discussed in adults and larvae. Observations were made on the general biology. The members of this species feed in nature around Edmonton only on the representatives of the plant genera *Achillea*, *Chrysanthemum*, *Matricaria* and *Tanacetum*, belonging to the tribe Anthemideae, family Compositae. Thirty-eight plant species belonging to 17 families were tested for acceptability to gravid females for feeding and oviposition. Comparison of the index of acceptability for feeding and oviposition with the index of plant relationship show that only plant species closely related phylogenetically to the natural host-plant were acceptable for feeding and oviposition. In order to test the ability of larvae to use various plants as food, the first instar larvae were transferred from natural host-plant to various test plants. These experiments show that plants widely removed phylogenetically were nutritionally adequate for completion of larval development, if they lacked substances which are toxic or otherwise inhibitory.

A review of instrumentation for determining the
 structure of an organic compound

D. C. Struble

The bioassay technique used for the detection of insect sex pheromones and some of the physical-chemical methods used for determining the structure of such a compound were discussed. The interpretations of the data obtained from nuclear magnetic resonance, infrared and mass spectrometry were considered.

Contra-reception

G. E. Swailes

The mating behaviour of the cabbage maggot, *Hyalemya brassicae* (Bouche) is detailed. Mating occurs in the morning. Males will mate several times and females only once. Oviposition is induced by mating. Through injections of male accessory gland materials it was demonstrated that this gland functions in inducing oviposition and in inhibiting mating.

Edmonton City night skyline from Saskatchewan Drive		View of City from Faculty Club		Mixer: hatching a plot.		
Hurry I'm dry!		Treasurer and his victims W. Matthey H. Goulet		Insect Collection Judges HARD at work D.A. Craig G. Pritchard		A sample of Insects
Conference Room, O.S. Longman Building B. Heming to the fore				Panel discussion: Topic: Entomology and the Cost-Benefit Concept		
W.G. Evans Chairman		J.W. Clarke	N.D. Holmes	S.B. Smith	E.E. Daniels	G.R. Whenham
J.B. Gurba "The Pres."		Business Meeting ?		"That was a good one, tell us another one, do" (It Stinks - R. Leng)		
G.E. Swailes G.E. Ball J.K. Ryan D.N. Rosenberg				The Forestry Contingent		K. Ball R.Salt
Was it really that bad ?				Grubs up		Solving the world's problems. B. Heming G.E. Ball ? efuaH .O.W



EIGHTEENTH ANNUAL MEETING EDMONTON - 1970

D.M. Rosenberg	A.M. Harper	D.F.J. Hilton	H. Goulet	A. Carter	D. Pforr	And here is your bog A. Carter		
B. Hocking talking about his favorite subject: CURVES			A.B. Ewen	H.F. Cerezke	D.L. Struble	Ain't love grand.		
S. McDonald	A.C. Schaaf	Joe Shemanchuk	It'll never get off the ground			G.C.D. Griffiths	D.A. Craig	
G. Pritchard & friends		W.G. Evans & friend		G.E. Swales	Wilkie & Martin	A. Borkent		
L.K. Peterson	R.D. Dixon	A. Harper	L.A. Jacobson	E. Lin	A. Cheung	R. Lee	R. Gooding	L. Burgess
Cocktails		"Put a ring around that!"		Saskatchewan Room and Edmonton City Skyline			Khan & Shemanchuk	
L.K. Peterson & wife		The Chances and the Pres.			J.J. Bond & wife			Big Pritch the new Pres.



ENTOMOLOGICAL SOCIETY OF ALBERTA

Minutes of Executive Meeting

November 5, 1970, 8:35 P.M.

Held in the Patton room of the Faculty Club, University of Alberta, Edmonton.

PRESENT: J. B. Gurba (President), Mary Chance, D. A. Craig, G. E. Ball,
S. McDonald, W. G. Evans, W. O. Haufe, G. Pritchard, B. S. Heming,
R. Dixon, B. Hocking.

1. Reading of minutes

Minutes were read of the Executive Meeting of October 9, 1970.

2. Items arising out of Minutes

B. Hocking reported that an account in the name of the Society had been established by the University of Alberta Conference Fund to help defray the costs of this year's Annual Meeting. The Executive expressed appreciation for this generous assistance.

3. Interim Financial Statement

The Treasurer, R. D. Dixon, reported that as of November 5, 1970 8:30 P.M., the total cash of the Society on hand was \$ 590.12.

4. Appointment by Executive of Committees for 18th Annual Meeting

(a) Resolutions Committee:

R. H. Gooding (Chairman)
G. E. Swailes

(b) Insect Collection Competition:

D. A. Craig (Chairman)
G. Pritchard

(c) Auditors

L. Safranyik
H. Cerezke

(d) Nominations Committee

S. McDonald (Chairman)
G. Pritchard
H. Cerezke

5. New business was discussed for inclusion in the agenda of this year's annual business meeting.
6. The meeting adjourned at 9:55 P.M.

Minutes of the 18th Annual Business Meeting - Part I.

November 6, 1970, 1:30 P.M.

The 18th Annual Business Meeting of the Entomological Society of Alberta was held in the 9th floor conference room of the O. S. Longman Building, Edmonton on November 6, 1970 at 1:30 P.M.

1. The minutes of the 17th Annual business meeting were presented as recorded in the Proceedings of the Society. President J. B. Gurba called for errors or omissions.

N. D. Holmes moved, G. E. Ball seconded the motion, that the minutes of the 17th Annual meeting be adopted as recorded.

CARRIED

2. W. G. Evans moved, L. A. Jacobson seconded the motion, that the membership approve the 1969 financial statement as recorded in the Proceedings.

CARRIED

3. The minutes of the Executive Meeting of November 5, 1970, were read for the information of the membership.
4. Composition of committees for the 18th Annual meeting were posted for the information of the membership.
5. The Treasurer, R. D. Dixon, reported that as of November 5, 1970, 8:30 P.M., the total cash of the Society on hand was \$ 590.12. He emphasized that all bills were not yet received and/or paid. A year-end Treasurer's Report will be prepared.

He recommended that a letter be sent to members at the beginning of each year reminding them of their failure to pay their dues.

6. The President reported that the \$ 10.00 contribution to the Zoological Record for 1969 had been paid.

J. A. Shemanchuk moved, D. A. Craig seconded, that the Entomological Society of Alberta contribution of \$ 10.00 for 1970 be forwarded to the Zoological Record.

D. M. Rosenberg's suggestion of increasing the contribution was discussed but no action was taken.

Original motion CARRIED

7. President J. B. Gurba reported that the Executive of the Society, in their meeting of June 19, had recommended that the Entomological Society of Canada collect their fees and we ours.

Members were in agreement.

8. President Gurba confirmed that last year's president, J. A. Shemanchuk had written a letter January 8, 1970 to the Secretary of the Entomological Society of Canada inviting them to hold their Annual Meeting jointly with the Entomological Society of Alberta in 1973.
9. President Gurba read a letter from E. J. Le Roux, President of the Entomological Society of Canada, announcing that availability of \$ 70.00 to each provincial society each year to be used in encouraging entomological persuits by high school students. A letter had been written by the Treasurer, R. D. Dixon requesting this support for Alberta's Society.
10. A letter from B. Hocking was read stating that there was no suitable candidate for the 1969-1970 Society Student Prize.
11. Secretary B. S. Heming read a letter that he had written to D.P. Pielou, Editor of the Canadian Entomologist, at the request of the membership, expressing dissatisfaction with the content and editorial policy of this journal. No response from Dr. Pielou had been received.
12. G. E. Ball moved, N. D. Holmes seconded, that Part I of the Business Meeting adjourn. 2:05 P.M.

Minutes of the 18th Annual Business Meeting - Part II

November 7, 1970, 8:40 A.M.

1. W. O. Haufe submitted the Report of the Regional Director to the Entomological Society of Canada and presented a summary of the report. W. O. Haufe moved, G. E. Ball seconded adoption of the report.

CARRIED

2. D. A. Craig presented the Report of the Insect Collection Competition Committee. Nine collections had been submitted but only one was in the junior category, two in the senior category; the remaining six being open challenge contributions. The very active group from Olds, as usual, dominated the competition.

D. A. Craig moved, M. A. C. Chance seconded, adoption of the report.

CARRIED

D. A. Craig has agreed to take over A. Raske's position on a more permanent basis.

3. S. McDonald, Chairman of the Nominations Committee, presented the following slate of officers for 1971:-

President	-	G. Pritchard
Vice-President	-	G. E. Swailes
Secretary	-	D. J. Larson
Treasurer	-	B. Burgess
Editor	-	R. C. B. Hartland-Rowe
Directors	-	L. Safranyik - Edmonton
		Buck Godwin (Olds) - Calgary
		D. L. Struble - Lethbridge.

Regional Director to Entomological Society of Canada - W. O. Haufe.

S. McDonald moved, J. A. Shemanchuk seconded, that the report be adopted as read.

CARRIED

R. H. Gooding moved, N. D. Holmes seconded, that nominations cease.

CARRIED

4. The Report of the Resolutions Committee was presented by R.H. Gooding.

Resolution: "Whereas the success of the 18th Annual Meeting of the Entomological Society of Alberta can, to a large extent, be attributed to the following, be it resolved that letters of thanks and appreciation be sent to:-

- (a) Drs. E. E. Daniel, N. D. Holmes, G. R. Whenham, S. B. Smith, and J. N. Clarke for their informed discussion of "Entomology and the Cost-Benefit Concept".
- (b) Dr. J. J. Bond for his very entertaining and stimulating address at the Annual Banquet.
- (c) The University of Alberta for its financial support.
- (d) Dr. E. E. Ballantyne, Deputy Minister of Agriculture for providing meeting facilities in the O.S. Longman Building.
- (e) The staff and management of the University of Alberta Faculty Club for their services during the reception and banquet.

Be it further resolved that a vote of thanks be tendered to all those involved in the preparation of the meeting and program".

R. H. Gooding moved, A. M. Harper seconded, that the Resolution Committee Report be adopted as read.

CARRIED

5. Items of New Business

- (a) The Executive of the Society recommended to the membership the award of a \$ 50.00 prize to the outstanding undergraduate student in Entomology in each of the Universities of Alberta and Calgary. It was emphasized that the awards are not necessarily to be awarded each year if no suitable candidates are available.

D. A. Craig moved, W. O. Haufe seconded, acceptance of the recommended by the membership.

CARRIED

- (b) The Executive of the Society recommended to the membership that several entomological texts of his choice to the value of \$ 15.00 - \$ 25.00 be awarded to B. Godwin of Olds in recognition of his efforts in stimulating participation by his students in the Insect Collection Competition.

N. D. Holmes moved, B. Hocking seconded, acceptance of the recommendation by the membership.

CARRIED

- (c) J. A. Shemanchuk suggested that an abituary for R. H. Painter be included in the 1970 Proceedings. Action will be taken by L. A. Jacobson.
- (d) B. Hocking mentioned that he was assembling 3 volumes of the Proceedings of the Society for inclusion in the Archives of the University of Alberta. He made appeals for copies of the proceedings of the following years: 1957 - 1 copy, 1959 - 2 copies, 1960 - 2 copies, 1968 - 2 copies, 1969 - 2 copies.
- (e) B. Hocking recalled to the membership that 10,000 copies of the Insect Collector's Guide had been printed at his and G. E. Ball's expense and that 1,000 of these had been sent to Lethbridge and 1,000 copies to Calgary for sale. He had heard no further news of these copies and was curious as to how many copies had been sold; how many copies were left; and of the fate of the currency, accruing through their sale.

H. Cerezke and J. A. Shemanchuk will try to find out.

- 6. Mary Chance moved, G. E. Ball seconded, that the business meeting be adjourned.

CARRIED

FINANCIAL STATEMENT 1970

Receipts

Balance transferred from Lethbridge, January 1, 1970 \$ 663.12
 Collector's Guide 4.00
 Fees:

ESA - 1969 - 1 @ \$ 2.00 \$ 2.00
 - 1970 - 29 @ 2.00 58.15*
 - 1971 - 50 @ 2.00 100.00 \$ 160.15

*15¢ added to 1 fee cheque for exchange

ESC - 1970 - 5 @ \$ 16.00 80.00 80.00 240.15

Annual Meeting:

Registration 207.00 207.00
 \$ 1,114.27

Disbursements

Fees to Ottawa 80.00
 Insect Collection Prizes 16.65
 Printing 1969 Proceedings 93.01
 Zoological Society 1969 & 1970 20.00
 Annual Meeting 77.85 287.51

Balance in Bank December 31, 1970 826.76 826.76

Balance as at December 31, 1970 \$ 1,114.27

Audited March 9, 1971.

 H. F. Cerezke

 L. Safranyik

 R. D. Dixon
 Treasurer

Report of the Committee on the Insect Collection Competition
1970

The Insect Collection Competition was advertised to some 1400 schools in Alberta both in June and September of this year. The response for the publications, "Tips on Making an Insect Collection" and "The Insect Collector's Guide" was almost overwhelming. This response was not evident in the number of collections entered in the competition which totaled nine. Seven of these were from Olds Agricultural and Vocational College.

After much deliberation the committee awarded prizes as follows:-

Junior - Best Collection - Hugh Godwin - Olds.

Senior - First - Jim Malyk, Airdrie
Second - Mark Pawluk, Edmonton

Adult - First equal - Mike Herrington, Olds
First equal - Donna Knott, Olds
Third - Trevor Gould, Olds.

The standard of the entries was high but suffered most from mis-identification of Orders of insects.

Dr. D. A. Craig
Chairman,
Insect Collection Competition.

REPORT OF THE REGIONAL DIRECTOR

August 1969-August 1970

Three business meetings were held in the Entomological Society of Canada as follows:-

Board of Governors, January 29-30, 1970, Ottawa
Board of Governors, August 23, 1970, Winnipeg
Annual Business Meeting, August 26, 1970, Winnipeg

The national society decided to publish all minutes of its meetings henceforth in the Bulletin. The minutes of the last two meetings as well as the reports of standing committees of members of the Managing Council (Treasurer, Secretary, and Editor) have been published almost in their entirety in the last issue of the Bulletin, Volume 2, No. 3, pages 54-69. The substance of this report, therefore, will draw attention only to those actions that are of direct concern to regional societies.

1. SCITEC

Resolved that a founding grant of \$ 500.00 be made to SCITEC. Society representatives to the Biological Council of Canada were directed to support the affiliation of the Council with SCITEC this year at the rate of approximately 10¢ per member. It was resolved that direct affiliation of the Society with SCITEC be the subject of review by the Governing Board for the next three years.

2. Collection of Dues

The treasurer of ESC was directed to collect all membership dues directly from members, and with agreement of an affiliated society, to collect the dues for the regional society for rebating to the regional society treasurer. All regional societies except Ontario and Alberta agreed with the centralized system of collection.

3. Editorial Board

The Editorial Board of the Canadian Entomologist was restructured so that the Editor would relinquish responsibility as Chairman of the Board but remain on the Board as an *ex officio* member. This action separates policy-making and editorial functions that were previously combined in one person. H. F. Madsen has been appointed Chairman of the Editorial Board.

4. Student Encouragement

Grants totalling \$ 1,000.00 will be available each year to affiliated societies for regional programs that might be instituted by these societies to encourage student interest in entomology, the general program being the responsibility of the Student Encouragement Committee in ESC.

5. Achievement Award

The selection of a recipient, if any, of the Award shall be made known to the Governing Board by the Achievement Award Committee in January. If a selection has been made it shall be announced in the Bulletin and also by press release. Dr. C. S. Holling was the 1970 recipient.

6. Pesticide Policy

A comprehensive statement on an objective professional entomological position on pesticides is being prepared for release by ESC. It is now in its final draft and will be published in the Bulletin with an additional 1000 reprints available for general distribution. A synopsis of the statement was released at the Annual Meeting of ESC in Winnipeg and is published in the Bulletin, Vol. 2(3): 70-71.

7. Employment

It was resolved that a committee on employment be established to maintain a list of job opportunities; to operate an employment desk at general meetings; and to invite employers to make use of these facilities. This action has been taken in response to the general situation of entomology in relation to government austerity. Correspondence on this situation between ESC and the Canadian government at Cabinet level has been published in full in the Bulletin, Vol. 2(3): 74-79. More recent communication with other Ministers will probably follow in future numbers of the Bulletin.

8. Future Annual Meetings

1971	-	Victoria, B.C., August
1972	-	Montreal, P.Q.
1973	-	Alberta
1974	-	Maritimes
1975	-	Saskatchewan

W. O. Haufe,
Regional Director, ESA,
November 2, 1970.

ENTOMOLOGICAL SOCIETY OF ALBERTA PRIZE WINNERS

1954	Roman P. Fodchuk	Associate Professor, University of Guelph.
1955	Ronald B. Madge	British Museum, London, England.
1956	Waldemar Klassen	Insect Geneticist, North Dakota, U.S.A.
1957	Ronald H. Gooding	Associate Professor, University of Alberta.
1958	Natalka Horeczko	Medicine, Edmonton.
1959	Herbert Cerezke	Forest Biology, Edmonton.
1960	Max W. McFadden	Post-doctoral, University of Washington.
1961	Gordon Pritchard	Department of Biology, University of Calgary.
1962	Malcolm J. Reddy	Victoria, B.C.
1963	Doreen E. Waldbauer	Edmonton, Alberta.
1964	Walter Jerry Awram	Provincial Apiarist, Government of Alberta
1965	David J. Larson	Department of Biology, University of Calgary.
1966	Mrs. Mary M. Chance David M. Rosenberg	Working for Ph.D., Edmonton Working for Ph.D., Edmonton
1967	Mrs. Jo Whitehead	Edmonton, Alberta.
1968	J. D. Shorthouse	Working for Ph.D. Saskatoon
1969	E. H. Miller	Working for Ph.D. Christchurch New Zealand.
1970	Not awarded	

INSECT COLLECTION COMPETITION

History of Awards

*Entomological Society of Alberta Prize Winners.

1954

First Prize, Senior - Norman Rollingson, 3309 Parkside Drive, Lethbridge.

Second Prize, Senior - Ronald Law, 1631 - 21 Avenue N.W., Calgary.

Third Prize, Senior - Fred Vincent, 2340 - 24 Avenue N.W., Calgary.

First Prize, Junior - Donna Mae Natrass, Manyberries.

Second Prize, Junior - Wayne Natrass, Manyberries.

Third Prize, Junior - Cam Huth, 2719 - 18 Street N.W., Calgary.

1955

First Prize, Senior - Donna Mae Natrass, Manyberries.

Second Prize, Senior - Joy Molyneux, 1124 - 9 Street E., Calgary.

Third Prize, Senior - Hilary Anderberg, 927 - 7 Avenue W., Calgary.

First Prize, Junior - Wayne Natrass, Manyberries.

Second Prize, Junior - Kenneth Beswick, Spring Coulee.

Third Prize, Junior - Clinton Walker, 11224 - 87 Avenue, Edmonton.

1956

First Prize, Senior - Doug Salt, c/o Dr. R.W. Salt, Research Station,
Canada Agriculture, Lethbridge.

Second Prize, Senior - Ron Popik, Glen Park, Calmar.

First Prize, Junior - Kenneth Beswick, Spring Coulee.

Second Prize, Junior - Brian Martin, 9107 - 117 Street, Edmonton.

1957

First Prize, Senior - Kenneth Beswick, Spring Coulee.

Second Prize, Senior - Doug Salt, c/o Research Station, Canada
Agriculture, Lethbridge.

Third Prize, Senior - Jane Moonen, Millet.

First Prize, Junior - Christine Marshall, Howsann School, RCAF Station
Claresholm.

Second Prize, Junior - Bruce Martin, 9107 - 117 Street, Edmonton.

Third Prize, Junior - Gary Brown, 42 Cambridge Road, Calgary.

1958

First Prize, Senior - Andrew and Myron Baziuk, Redwater.

Second Prize, Senior - David Larson, 1201 - 24 Street S., Lethbridge.*

Third Prize, Senior - Keith and Neil Redding, 648 - 14 Street S.,
Lethbridge.

Consolation, Senior - Jack Haberman, 3115 - 10 Avenue A S., Lethbridge.

First Prize, Junior - Joe Shorthouse, 2317 - 13 Avenue S., Lethbridge.*

1959

First Prize, Senior - David J. Larson, 1201 - 24 Street S., Lethbridge*.

Second Prize, Senior - Jack Haberman, 3115 - 10 Avenue A S., Lethbridge.

Third Prize, Senior - Joseph Shorthouse, 2317 - 13 Avenue S.,
Lethbridge.*

No Junior Prizes were awarded this year.

1960

First Prize, Senior - David J. Larson, 1201 - 24 Street S., Lethbridge.*

Second Prize, Senior - Joseph Shorthouse, 2317 - 13 Avenue S.,
Lethbridge.*

Third Prize, Senior - Kenneth Richards, 2209 - 10 Avenue S., Lethbridge.

Honorable Mention, Senior - M.S. Carleton, Banff.

Consolation, Junior - Lacombe School, Grade 8.

1961

First Prize, Senior - Joseph Shorthouse, 2317 - 13 Avenue S.,
Lethbridge.*

Second Prize, Senior - Kenneth Richards, 2209 - 10 Avenue S.,
Lethbridge.

Third Prize, Senior - M.S. Carleton, Lethbridge.

Challenge Competition - David J. Larson, 1201 - 24 Street S.,
Lethbridge.*

No Junior Prizes were awarded this year.

1962

General Collection, First Prize (one entry) - Kenneth Richards, 2209 -
10 Avenue S., Lethbridge.*

Challenge Competition (two entries) - Draw with two winners, David
Larson and Joseph Shorthouse (both of Lethbridge)*

1963

First Prize, Junior - Robert Iverson.

Second Prize, Junior - Gordon Bridgewater.

Third Prize, Junior - John Kloppenborg.

First Prize, Challenge Event - Joe Shorthouse.*

Second Prize, Challenge Event - Ken Richards

No Senior Prizes were awarded this year.

1964

First Prize, Senior - Robert Iverson, Edmonton.

First Prize, Junior - Beverly Ann Lambert, Edmonton.

No other prizes were awarded.

1965

No prizes awarded.

1966

First Prize, Senior - Norman Wood, 9135 - 142 Street, Edmonton.

Second Prize, Senior - Alan Mathieson, Box 695, Olds.

First Prize, Junior - Selma Scott, 140 Lamone Street, Calgary.

Second Prize, Junior (Draw) - Hugh Godwin, Olds, and Cecelia Williams, Taber.

C. Open - Gwen M. Walker, O.A.V.C., Olds.

1967

First Prize, Senior - Donald Wayne Chomyn, Box 977, Leduc.

First Prize, Junior - Selma Scott, 140 Lamone Street, Calgary.

Second Prize, Junior - Hugh Godwin, Box 760, Olds.

Third Prize, Junior - John Acorn, 14416 - 78 Avenue, Edmonton.

First Prize, Open - Sharon Erickson, O.A.V.C., Olds.

Second Prize, Open - Ross Hyatt, Box 128, Bowden.

Third Prize, Open - Joseph Hartwell, Box 125, Olds.

Honorable Mention (Open) - Norman Tensen, O.A.V.C., Olds, Alan and John Mathieson, Box 695, Olds.

1968

First Prize, Senior - Mr. N.G. Sperling, Olds Agricultural and Vocational College, Olds, Alberta.

Second Prize, Senior - Mr. A. Bouvier, Olds Agricultural and Vocational College, Olds, Alberta.

Third Prize, Senior - Mr. E. Leitert, Olds Agricultural and Vocational College, Olds, Alberta.

Honourable Mention - Mr. D. Kroeker, Olds Agricultural and Vocational College, Olds, Alberta.

First Prize, Junior - Mr. M. Pawluk, 7932 - 97 Avenue, Edmonton.

1969

First Prize, Senior - Richard Krahm, Olds Agricultural and Vocational College, Olds.

Second Prize, Senior - Herman Barthel, Olds Agricultural and Vocational College, Olds.

Third Prize, Senior - Wendy Groenveld, Olds Agricultural and Vocational College, Olds.

Honorable mention - Cherly Williams, Olds Agricultural and Vocational College, Olds.

First Prize, Junior - Hugh Godwin, Olds, Alberta.

1970

First equal, adult - Mike Herrington, Olds Agricultural and Vocational College, Olds.

First equal, adult - Donna Knott, Olds Agricultural and Vocational College, Olds.

Third, adult - Trevor Gould, Olds Agricultural and Vocational College, Olds.

First Prize, Senior - Jim Malyk, Airdrie, Alberta.

Second Prize, Senior - Mark Pawluk, Edmonton, Alberta.

Best Collection, Junior - Hugh Godwin, Olds Agricultural and Vocational College, Olds.

PRESIDENTS OF THE
ENTOMOLOGICAL SOCIETY OF ALBERTA

Strickland, E.H.....	1953*
Painter, R.H.	1954**
Hurtig, H.	1955
Hopping, G.R.	1956
Farstad, C.W.	1957
Ball, G.E.	1958
Brown, C.E.	1959
Jacobson, L.A.	1960
Edmunds, J.W.	1961**
Van Veen, N.W.	1962
Holmes, N.W.	1963
Evans, W.G.	1964
Hartland-Rowe, R.C.B.	1965
Salt, R.W.	1966
Hocking, B.	1967
Tripp, H.A.	1968
Shemanchuk, J.A.	1969
Pritchard, G.	1970

* deceased

** see obituaries



OBITUARY

RICHARD HAROLD PAINTER 1899 - 1970

Richard Harold Painter, widely known entomologist, was born at Jordan Station, Ontario, on November 18, 1899, and died at Lethbridge, Alberta, on July 10, 1970.

He graduated from the Ontario Agricultural College, Guelph, in 1922 and received the M.Sc. degree from Macdonald College in 1927.

Dick Painter began his entomological career in 1922, working out of Ottawa for the next ten years on European corn borer, the tarnished plant bug, and mushroom insects. In 1932 he moved west to conduct grasshopper research and surveys, first at Treesbank, Manitoba, with the late Norman Criddle, and later at Brandon and Lethbridge. Shortly after his move to Lethbridge he became interested in livestock insects and during the war was in charge of warble fly control for Canada. In 1947 he was appointed officer-in-charge of the Livestock Insect Laboratory, a unit of the Science Service Laboratories at Lethbridge. He was appointed Livestock Insect Liaison Officer in 1954 to interpret research findings to the livestock industry through provincial

departments of agriculture, regional fairs, and livestock associations. After 42 years' service with the Canada Department of Agriculture he retired on November 20, 1964. Dick was president of the Entomological Society of Alberta, in 1954.

Endowed with a personable character and the ability to speak easily and effectively he was in great demand to address groups on insect control. He was a perennial and popular speaker at field days and annual meetings sponsored by Experimental Farms and farmer associations. In addition, he became a proficient announcer at horse shows throughout Western Canada. Honours conferred on him include honorary presidency of the Canadian Hereford Association, election to Agricultural Hall of Fame of the Lethbridge Exhibition, honorary life membership in Lethbridge Chamber of Commerce, honorary citizenship of the City of Brandon, honorary directorship of the Manitoba Winter Fair, honorary membership in Brandon Chamber of Commerce, recognition for service in agriculture by Manitoba Department of Agriculture, honorary life membership in the Manitoba Stock Growers, Saskatchewan Stock Growers, Alberta Hereford Association, and Western Stock Growers Association, honorary membership in the Regina and Portage la Prairie Riding Clubs, and honorary life membership in the Entomological Society of Alberta.

Dick Painter was featured in the September 1964 edition of Canadian Cattleman and the following tribute at that time describes the man extremely well: "The amount of money that R.H. Painter saved and made for cattlemen cannot be estimated. But probably an even greater benefit - and certainly more lasting - is the effect that he, as a man, has had on stockmen and their associations. He demonstrated that technical knowledge need not be dry, stuffy, or pedantic, but in fact lively and intensively interesting".

Mr. Painter is survived by his wife, formerly Hannah Barlow of Brandon. He was predeceased by his first wife, Grace Evelyn.

L.A. Jacobson.

Adapted from Entomological Society of Canada, Bulletin. Vol. 2, No. 3.

OBITUARY

John Wesley (Jack) Edmunds died in Edmonton on Saturday, 20 March 1971. Jack Edmunds had been a member of the Entomological Society of Alberta since 1953. He served the society in several capacities; he gave papers at annual meetings and served on the committees that organized them. He served as Vice-president of the Society in 1960 and President in 1961. In the Proceedings of the 1956 meeting an obituary of his predecessor as Provincial Apiarist, W. G. LeMaistre appears over his signature.

Jack was a better friend to Alberta beekeepers for some fifteen years than most of them realised, seeking their best interests throughout the province and across the country. He also succeeded eventually in convincing both authorities in Ottawa and beekeepers themselves that more apicultural research should be done where most of Canada's honey is produced. Time may show that this success was greater than he lived to realise.

A graduate of Ontario Agricultural College at Guelph, Jack never lost interest in his *alma mater* and tributes of sympathy may be made to the J. W. Edmunds Memorial Scholarship at this institution. His fidelity to his assigned constituents, the beekeepers of Alberta, was equally and separately enduring.

The Entomological Society of Alberta extends its sympathy to his widow Lorraine and their two children Robert Clare and Laurie Jane.

B. Hocking

ENTOMOLOGICAL SOCIETY OF ALBERTA

MEMBERSHIP LIST

as of July 22, 1970

BALL, G.E.	Entomology Dept. U. of A.
BALL, Mrs. G.E. (Kay)	Entomology Dept. U. of A.
BARRON, John.	Research Institute, C.D.A., Ottawa.
BERG, C.O.	Dept. of Entomology & Limnology, Cornell Univ., Ithaca, N.Y. 14850
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CARR, J.L.	R.R. #4, Calgary, Alberta.
CEREZKE, H.F.	Department of the Environment, Canadian Forestry Service, 5320 - 122 St., Edmonton.
CHANCE, Martin A.	Entomology Dept., U. of A.
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CHARNETSKI, W.A.	Dept. of Entomology, Univ. of Wisconsin, Madison, Wisc. 53706
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GOODING, R.H.	Entomology Dept., U. of A.
GOULET, H.	Entomology Dept., U. of A.
GRIFFITHS, G.C.D.	Entomology Dept., U. of A.
GURBA, J.B.	A.D.A., Crop Prot. & Pest Control, Agric. Bldg., Edmonton, Alta.
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HOPPING, George.	HONARARY MEMBER
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	Principal Entomologist, Intermountain Forest & Range Exp. Station, Fed. Bldg., Missoula, Montana 59801.

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PEARSON, T.R.	Dept. of Animal Physiology, Univ. of California, Davis, California.
PETERSON, L.K.	A.D.A., Field Crops Branch, Agric. Bldg., Edmonton.

PETRUNA, Mr. D.	Biology Dept., University of Lethbridge.
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