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Saskatoon, Saskatchewan

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OCTOBER 23-25, 1980

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PROGRAM SYNOPSIS

THURSDAY, OCTOBER 23

1800 - 1930h	Executive Meeting	
1900 - 2200h	Mixer and registration, W.P. Thompson Building	

FRIDAY, OCTOBER 24 - Convocation Hall, Administration Building

0800 - 0900h	Registration	
0900 - 0920h	Opening remarks:	Pres. R. Hooper, E.S.S. Pres. W. Charnetski, E.S.A. Past Pres. W. Turnock, E.S.C.
0920 - 1030h	Keynote Speaker:	Dr. E.J. LeRoux
1100 - 1130h	Feature Film:	Dr. P. Harris
1300 - 1700h	Submitted papers	
1800 -	Mixer and banquet	
	Guest Speaker:	W.J. Davern

SATURDAY, OCTOBER 25 - W.P. Thompson Building

0900 - 1030h	Business Meeting
1015 - 1145h	Submitted papers
	Adjourn

Keynote Speaker

Dr. E.J. Le Roux,
Assistant Deputy Minister, Research Branch
Agriculture Canada, Ottawa, Ontario

Government Policies in Agricultural Research in the 1980's

I have been asked to speak to the matter of Government Policies in Agricultural Research and Development in Canada During the 1980's. I shall attempt to express my views on this subject and I would also like to follow-up with some projections as to the likely trends in entomological research and the future for graduate entomologists. In my presentation I will refer to the trends in Canadian agriculture in the 80's; current science policy; the roles of government, universities and industry; and finally the likely demand for agricultural researchers in the future.

TRENDS IN CANADIAN AGRICULTURE IN THE 1980's

Until recently the agricultural industry in Canada was fairly stable based on standard production procedures and systems for cereals, forage crops, beef and dairy products, and various special crops such as small fruits, vegetables, oilseed crops etc. The old systems are now being challenged by rapidly increasing production costs, increased mechanization, energy shortages, new concepts in the food system, and environmental concerns related to agricultural production. The stable state of agriculture is being further challenged by social concerns over land use and rural-urban relationships. We now find that our old ways and systems are inadequate to fully meet the demands of a rapidly changing industry and society. Nevertheless we can be extremely proud of our achievements over the past 2 or 3 decades.

Major advancement have been made in plant breeding and the rapeseed industry in Canada is a good example. This so called Cinderella crop planted on only 6,000 acres in 1951 today covers 6,000,000 acres in western Canada. Early maturing rust resistant wheat varieties are available to producers. Significant progress has been made to meet producers' needs for alternate crops such as corn, sorghum, lentils, colored beans and fababeans to name a few.

Research in the area of crop husbandry and cultural practices has provided the farmer with new machinery, efficient crop rotations and new methods of land tillage that conserve moisture and increase productivity. One only has to think or read of the 1930's when the land blew from one province or one country to another. Those days are gone forever because we now know how to manage the soil better and thereby insure that we will not have serious erosion problems.

Our knowledge of how to effectively fertilize crops to assure maximum production has been improved. We know the economic returns for the input of pounds of nitrogen, phosphorus and potassium and we understand requirements for a great number of crops under the wide range of growing conditions in Canada.

We know that insects, disease and weeds cause substantial and in some cases catastrophic losses to crop production. In the past, control of these pests emphasized chemicals and this was a necessity at that time. Two decades of major advances have been made in developing alternative methods of control through the integrated pest management approach. This features more effective monitoring and forecasting of outbreaks, better use of natural and biological control agents, and the timely and efficient use of chemicals only when required and in minimum quantities.

Although there have been major advances in the technology of crop production we still need research and development programs to ensure greater efficiency in production, and at the same time protect and conserve the resource base and the environment for future generations and sustained agricultural production. Analysis of future needs suggests that cereal crop production will probably increase by 35 per cent by 2000 AD; horticultural crops by 5 per cent and forage crops by 10 per cent.

These future needs can only be met by defining the optimum course of development through a combination of both biological and economic research. Two courses are open to us in the growth and development of agricultural production. One is expansion of specific commodities and regional shifts in their production, and the other is to increase the amount of potentially tillable land. Marginally arable unused land areas in Canada amount to approximately 48 million acres. The limitations to effective use of these lands include a short growing season, low rainfall, unfavorable topography and low soil fertility. Primary requirements to make use of these areas would include economic research to determine viable production units, soil and land improvement, and biological research to adapt the available crop and animals for production in these unfavorable environments. What will be our priorities in research and development to meet future needs?

Soils: In view of the limited amount of arable land in Canada high priority will be given to programs to assess the extent and nature of soil degradation. Such studies will not only examine the effects of erosion in Eastern Canada and salinization in Western Canada but will include deterioration of the soil itself due to cultural practices.

Plants: Accepting the importance of cereals, oilseeds, forages and horticultural crops in Canadian agricultural production it is difficult to foresee any lessening of support of research aimed at improving production, protection and utilization in these areas. It is recognized that productivity for some of these crops has plateaued and increased production can only be achieved in a major way by cropping more land. To this end more support will have to be given to the problem of developing plant species that can be grown on marginal lands and within limited environmental conditions.

Animals: Animal research will also be needed in the future. Among the major challenges, an increase in efficiency of the production of animal products will likely be important since feed represents a large part of the cost of animal production. This could be done through better assimilation of the feed input. Advances in reproductive physiology will be needed to produce two calves per breeding cow per year, for example.

Food Research: More emphasis will be placed on the food system itself and present goals of Agriculture Canada include; processing, distributing and retailing as well as marketing and consumer protection and services. In food research the demand for protein for human food will likely lead in importance. Many experts warn that the protein crunch will ravage in the coming 25 years, even more so than the current energy crisis.

Energy: Energy use is a vital concern to agriculture, although less than 6% of the total energy used in Canada is needed to produce food up to the farm gate. Research priorities will be given to seeking ways of reducing the dependence of farmers on fossil fuels through the use of solar energy in greenhouses, the use of windpower, and the conversion of crop and animal residues to useful energy.

Environmental Protection: The potential for pollution from agricultural practices will increase in the future due to more intensive production-methods. Systems will need to be developed that will, not eliminate, but substantially reduce producers dependence on chemical pesticides and nutrients. Substantial progress has already been made in this area. For example, the implementation of integrated pest management systems has already resulted in a 50 per cent reduction in the amounts of insecticides required in the production of orchard and vegetable crops. In the area of plant nutrients several strains of nitrogen fixing Rhizobium have been identified and are now available commercially. Seed inoculated with Rhizobium can produce yield increases comparable to crops treated with chemical nitrogen fertilizers. On the other hand, agricultural land will likely be used to prevent pollution of the environment by urban wastes. Land application of these wastes appears to be the only practical method of disposal. The application, however, of digested sludges containing heavy metals to soils could introduce levels of these elements toxic to plants or humans, and endanger the food chain. Research is the only realistic way to solve these problems.

SCIENCE POLICY

In the content of future demands in agricultural research I would like to talk briefly about science policy.

With the changing scene in agriculture and indeed other scientific fields, the government has recognized the need for a clearly defined science policy that will assure Canada's position in meeting future needs. In the early 1970's the government of Canada established a Ministry of State for Science and Technology (MOSST). Although the Ministry had early development problems it has gradually established its authority and is now an important authority in developing methodology and systems for looking at science policy and relating science services in agriculture and other sciences to economic

and social demands. MOSST is now charged with developing and formulating a national science policy that will be a guide to federal departments and other agencies and form a basis for assessing the direction of research expenditures. Agriculture Canada who is responsible for conducting roughly 50% of the agricultural research in Canada participates in the formulation of these policies. As a result of policy changes we in research now find ourselves in a new world of goals and objectives, cost/benefit analysis, mission-orientation, priority setting and long-term plans. We are being forced to look at our research in quite a different context than what we did say 10 or 15 years ago. I am not being critical of these changes and new policies on research. But it does point out the need for scientists to broaden their scope, relate their research to major problem areas, and establish priorities for their research efforts. Today's scientists must be prepared to anticipate and accept these changes and actively participate in their development. This will not be easy. The threats of limited funding, general lack of public appreciation of research, policy makers insistence on short-term payoffs and accountability must be dealt with and at the same time protect a fair share of fundamental, basic research to meet the demand of future problems.

Changes in science policy are not a reason for sounding pessimistic about the future. The government of Canada, recognizing that Research and Development is a vital component of the economic stability of the nation, has recently confirmed its support. The long-term goal for support of R&D has now been set at 2.5% of the Gross National Product. Today the level of support is just over 1% of the GNP. Accepting that the government of Canada is serious in expanding expenditures in R&D, the Planning and Evaluation Directorate of my Branch has recently submitted an R&D Profile on Food and Agriculture which projects a 3 per cent increase per year in staff over the next 5-year period and an overall budgetary increase of 25 per cent in constant dollars. I am confident that the government through its current science policy recognizes that a strong federal research and development program is essential for the full development and health of the future agricultural industry.

ROLES OF GOVERNMENT, UNIVERSITIES AND INDUSTRY

In considering the future trends in agricultural research I would like to focus briefly on the distribution of effort by research agencies in Canada.

Federal Research: At present Agriculture Canada with its widely dispersed research stations and institutes and approximately 950 research scientists (846 of which are in the Research Branch) carries out the major share of research and services in agriculture. The National Research Council is the other federal agency involved in R&D in the agricultural sector. The Prairie Regional Laboratory here in Saskatoon conducts a significant amount of research on nitrogen fixation, food and environmental quality as related to the prairie region.

Agriculture Canada also plays a strong role in the coordination of research with agricultural facilities in universities and industry and has close cooperative research ties with provincial agricultural departments.

Provincial and University Research: Although the B.N.A. Act provided for joint federal-provincial responsibilities, the provinces initially left the research component to the federal department while they concentrated on extension services and the development of universities and training facilities. Gradually the provincial role in research has increased mainly through their university faculties and they now conduct roughly one-third of the national agricultural research effort. Their level involvement varies by region. In the Atlantic Provinces most of the research is still carried out at federal stations; in Quebec the province maintains several research stations and university programs; in Ontario the OMAF conducts much of its own research program; most of the provincial research in Manitoba and Saskatchewan is funnelled through their universities. There is one provincial research station with further plans for expansion through their Farming for the Future Program; in British Columbia the research effort is mainly centred at federal stations.

Industry: Until recently industry in Canada has not been significantly involved in research in the agricultural sector. This can be attributed in part to the high degree of foreign ownership of companies operating in Canada. However, we are seeing a change here, with industry becoming more involved due in part to government sponsored incentive programs. Agriculture Canada's Contracting Out Program, the New Crop Development Fund, the Cooperative Program with Industry, the programs covering Food Processing and Delivery are all aimed at supporting agricultural enterprises and encouraging industry involvement. Industry is also taking advantage of other federal programs such as the Enterprise Development Program and the Industrial Research Assistance Program, although these are not aimed exclusively at industry in the agricultural sector. A recent survey showed that there are now 50 companies in Canada employing some 325 scientists with facilities to carry out research and development in Canada. Program areas now being covered in part include food processing, soil fertility, plant and animal breeding, pharmaceuticals, and crop protection. With the present government policy of "Make or Buy" the current trend towards an increased capability for research in the private sector can be expected to continue.

In summary, on the basis of the best available data, Agriculture Canada currently carries out about 50% of the research and development in agriculture; the provinces and universities about 34%; and industry about 16%.

Future Roles of Research Agencies: You will appreciate it is difficult to make long-term predictions on how the research role in the future will be shared by governments, universities and the private sectors. It will depend on the number of "buy" and contract programs versus in-house programs -- it will depend on growth of the research arm of our universities -- it will depend on a sustained federal effort to strengthen R&D in Canada.

My personal view is that Agriculture Canada, more specifically the Research Branch, will continue to be the major employer and contributor to scientific and technological resources in Canada. The federal component of agricultural research has for the last century been the major strength of the

Canadian effort and in my view this must be the essential element in any orderly attempt to increase the total national research in agriculture. The best way to advance the science of agriculture in all sectors of the research community, including industry, is by working through the ongoing research program of the federal department. Its effective role must not be sacrificed or lost through diversion of resources to other sectors at the expense of federal programs.

FUTURE REQUIREMENTS IN ENTOMOLOGY

In closing I would like to make a few predictions on what I see as the future needs for entomologists and entomological research and here my comments will apply mainly to the Research Branch.

The 1979 staff inventory for the Research Branch indicated that we had 820 scientists excluding management, most of them at the Ph.D. level. Of this total 164 are entomologists. The support for entomological research by the federal department has always been strong and has not changed significantly over the past 10 years despite concerns expressed by professional societies that support for entomology is decreasing. My personal view is that there will be no significant reduction in manpower requirements in entomology and, if the current government policy for support of R&D is implemented, I predict an increase. The losses in our production of agricultural commodities to insects is well recognized. These losses must be reduced if we want to meet our production objective over the next decade. Replacement requirements alone will mean an increase in demand for entomologists over the next ten years. A recent survey of age distribution of present professional staff indicates that over the next 5-year period 35 of our senior entomologists will be in a retirement position. I am sure university faculties and provincial departments find themselves in much the same position since the peak of employment in all agencies was in the early 50's. The increasing industry and private sector involvement can be expected to put additional demands on graduates.

A problem that is probably of equal concern to graduate students is the type of training required for future employment opportunities. We all recognize that the science of agricultural production, protection and utilization is changing. New crops are being produced in an attempt to make Canada more self-sufficient in food requirements -- insect pests not considered a problem 10 years ago are now causing losses -- the economics of pest control and the availability of chemical control materials is becoming critical -- we are being forced to abandon some of our old standards of control in view of environmental concerns. We must be aware of these problems in considering the future requirements for trained entomologists. These changes must be recognized in developing university curriculums otherwise we may never be in the position of having the right graduate at the right time for the right job. Speaking specifically to Research Branch needs I would place some priority on broad training in pest management principles including chemical control, biological control and systems modelling. We will need graduates who can bring these principles and systems together in developing pest management programs that are economically and environmentally acceptable. We hear a great deal about concept being developed and applied in the fruit growing areas in eastern and western Canada,

the vegetable growing areas in the muck soils of southern Ontario, and for cereal and oilseed crops on the prairies. These are highly visible and mission-orientated programs that are and will continue to be strongly supported.

Having said that I must add that I do not subscribe to the view held in some quarters that specialized training and basic research have no place in mission-orientated programs. Events have shown that when we attempt to develop integrated pest management for a given species we find major gaps in our basic knowledge of behaviors, taxonomy, physiology, etc. that must be explored in depth before meaningful control systems can be developed. This happens on our very common pest species such as grasshoppers on the prairies that have been studied for many years. Frankly I would like to see the terms basic and applied research struck from the books. We need both providing they can come together, communicate and develop economical and environmentally acceptable control systems.

SUMMARY

My remarks this evening have been somewhat philosophical and not always directed solely to government policy for research. However, I did wish to make you aware of the changing scene in agriculture and some of the trends that will no doubt affect the future course of research and development. The future will bring new trends, new ways of doing business and new opportunities for employment and careers. I am confident that the agricultural research community as a whole can meet the challenges of the future, continue to contribute to the production of an abundance of wholesome food for Canadians, and maintain Canada's position as a major exporter of food to a hungry world.

THANK YOU

Opening Remarks

R.R. Hooper, President,
Entomological Society of Saskatchewan
- not available

Dr. W.A. Charnetski, President,
Entomological Society of Alberta

On behalf of the members of the Entomological Society of Alberta, I would like to thank the Entomological Society of Saskatchewan for their kind invitation to come to Saskatoon and the opportunity to meet with your Society.

This coming together, if you will, is significant because 1980 is the 75th Anniversary of the two provinces. Although cooperative efforts between entomologists in the two provinces may not have been too common in 1905, the opportunity for social and professional interaction has increased significantly over the years. Generally, entomologists have taken advantage of these changing times; the cooperative efforts and spirit of comradery are in evidence between amateur and professional entomologists at all levels. These joint meetings provide another, yet special, opportunity for us to interact.

The large Alberta contingent, representative of our membership, is evidence of the class of meeting and genuine hospitality we have learned to expect from our Saskatchewan colleagues.

Once again, I thank you kindly, on behalf of the members of the Entomological Society of Alberta, for providing us with the opportunity of sharing this meeting with you.

"Dr. W. J. Turnock, Past President, represented the E.S.C. on behalf of the President, Dr. S. R. Loschiavo. Dr. Turnock presented greetings and best wishes from the E.S.C. and the personal regrets of Dr. Loschiavo that he was unable to attend."

ABSTRACTS OF SUBMITTED PAPERS

BIOLOGICAL CONTROL - A FILM BY R.J. LONG

P. Harris,
Agriculture Canada, Research Station
Regina

Biological control is the intentional reduction in numbers of a plant or animal pest through the use of its natural predators, parasites, diseases and competitors. "Biological Control" was produced as an educational aid, aimed at grades 7 to 12. It should find uses among agricultural, biological, and general audiences as well (from the leaflet accompanying the film).

THE IMPORTANCE OF SAMPLING TECHNIQUES IN DETERMINING THE LIFE-CYCLES OF FILIPALPIAN STONEFLIES.

R.A. Mutch,
Department of Biology
University of Calgary

Life cycles longer than one year have rarely been recorded for filipalpian stoneflies. This may have been due to the use of inadequate sampling techniques and erroneous assumptions on the part of some previous investigators. A reinvestigation of the life cycle of Zapada columbiana Classen is used to illustrate the importance of sampling techniques in determining life cycles.

BUTTERFLIES OF NORTHEASTERN ALBERTA

G.J. Hilchie
University of Alberta and,
Ryan & Hilchie Biological Consultants Ltd.
Edmonton

Recent oil sand development in northeastern Alberta prompted the governments of Canada and Alberta to investigate aspects of the environmental impact of these activities. One of the projects was a survey of the insects of the Alberta Oil Sands Environmental Research Program (AOSERP) study area. Adults of 51 species of butterflies were collected. Eleven additional butterfly species are recorded from northeastern Alberta and two additional species probably occur in the area. The total number of species is thus 64. Twenty-four species appear to be of a boreal origin. Two species may have originated from a northwestern or subarctic source region. Five species may have come east from the mountains. The remaining species can be traced to a southern origin. A few species of southern origin are prairie species which may represent relict populations left behind on the grassland and dune habitats, after range extensions, during the Hyspithermal.

IN VITRO SYNTHESIS OF JUVENILE HORMONE BY THE CORPORA ALLATA OF ADULT MALE MELANOPLUS SANGUINIPES

G. Couche,
Department of Biology
University of Saskatchewan
Saskatoon

The in vitro synthesis of juvenile hormone (J. H.) by isolated corpora allata (C.A.) of adult male Melanoplus sanguinipes, was examined using radiochemical assay based on [methyl-14C] -methionine incorporation at the ester function of the hormone molecule. Extraction and analysis of incubation medium hormone revealed that C16-J.H. is the only J.H. synthesized, and that it is released at a constant rate for at least 5 hours. When measured over a 3 hour incubation period, the rate of J.H. release from the C.A. remains constant over a wide range of intrinsic J.H. synthetic activity. In isolated males, J.H. is synthesized at low rates until 5 days post emergence, after which the synthetic rate increases rapidly to peak at 7 days. By 9 days however, the synthetic rate has returned to the level seen in 5 day old insects. In contrast, if 7 day old insects are allowed to mate at will, the C.A. continue to synthesize J.H. at high rates. A role for J.H. in the metabolic processes of male M. sanguinipes is suggested.

PLEISTOCENE DISPERSAL ROUTES IN WESTERN NORTH AMERICA AND CRENOBIOTIC AQUATIC INSECTS

D. Currie
Department of Entomology
University of Alberta
Edmonton

The term "crenobiotic" is used by aquatic biologists to describe organisms that 1) are restricted to headwaters of very cold streams, 2) have very limited dispersal capabilities, and 3) occur far outside the main geographic range for the species. A number of these organisms can be found inhabiting headwater regions in the Rocky Mountains. One example comes from the immature stages of the black fly genus Gymnopais. While most species of this group are restricted to permafrost areas of Alaska, the Yukon, and the North West Territories, larvae of one species (Gymnopais dichopticoides) are found inhabiting isolated glacier streams in Alberta's Rockies. Their occurence at these southerly latitudes poses an interesting zoogeographic problem. During the last ice age, Gymnopais were restricted to Beringia in central Alaska and the Yukon.. Since ice retreat (beginning about 14,000 years before present), they presumably dispersed south to where we find them today, in areas that were previously covered by ice. Like other crenobiotic organisms, it is difficult to envision how Gymnopais could have dispersed so far south in such a short period of time. Recent work by geologists has given evidence for the presence of an ice free corridor which extended from the northern refugium to southern Alberta during late Wisconsin times. It extended along the Rocky Mountain front ranges between the Cordilleran and Laurentide ice sheets. I hypothesized that conditions in this corridor would be suitable for rapid dispersal of Gymnopais;both in the larval and adult stages. So rather than post-glacial dispersal (when suitable habitat was rapidly disappearing) I am suggesting a special late glacial dispersal route in which conditions were ideal for rapid migration. If Gymnopais could only disperse along the Rocky Mountain front ranges then they shouldn't be expected to occur in suitable habitat west of the Rockies. Glacier streams in the Purcell, selkirk, stikine, and coastal mountains were searched for Gymnopais but none were found. This is evidence for but not necessarily proof of the proposed dispersal route. I suggest that the model could explain the occurrence of other crenobionts showing a Beringian-Cordilleran distribution.

PHORESIS OF A CHIRONOMID (DIPTERA) ON SASKATCHEWAN STONEFLIES (PLECOPTERA)

L.M. Dosdall and P.G. Mason
Department of Biology
University of Saskatchewan
Saskatoon

Larvae of the chironomid, Nanocladius (Plecopteracoluthus) branchicolus Saether, were found living in a phoretic association with nymphs of the stonefly, Acroneuria lycorias (Newman). Saskatchewan collection localities of both the stonefly and chironomid are presented. A. lycorias was the only chironomid host of six Saskatchewan Perlidae species. Phoretic Chironomidae most frequently inhabited a position beneath stonefly wing pads. Chironomid pupation lasted about two days with emergence occurring approximately two days prior to stonefly emergence in the laboratory.

VISIONS OF ENTOMOLOGY

T. Kveder
Olds College
Olds

Personal views of an amateur entomologist in the field so far, encompassing collecting, mounting, and the use of keying materials.

BIOGEOGRAPHY OF HEPTAGENIIDAE IN SASKATCHEWAN

E. Whiting
Department of Biology
University of Saskatchewan
Saskatoon

Fourteen species of mayflies belonging to the family Heptageniidae are currently known from Saskatchewan. This fauna contains a mixture of eastern and western North American elements. The distribution of each species within the province will be presented and discussed. Environmental factors, such as temperature, current velocity and substrate may have an important effect on distribution. Available dispersal routes are probably not important.

THE BIOLOGY OF GLYPHOPSYCHE IRRORATA, AN OVERWINTERING CADDISFLY FROM ALBERTA

S.B. Berté
Department of Biology
University of Calgary
Calgary

Previously, little was known of the biology of G. irrorata. In this study, emergence and flight dates, ovarian maturation and larval diet are detailed. The significance of the overwintering habit is briefly discussed.

ANALYSIS OF TWO PROBLEMATIC NORTH AMERICAN CADDISFLY SPECIES OECETIS AVARA (BANKS) AND OECETIS DISJUNCTA (BANKS) (TRICHOPTERA: LEPTOCERIDAE

D.H. Smith and D.M. Lehmkuhl
Department of Biology
University of Saskatchewan
Saskatoon

Discovery in Saskatchewan of two forms of Oecetis avara (Banks) clarified a species problem in the genus Oecetis. Overlap in morphology between the two forms is extensive but male aedeagus morphology supports recognition of two species. Males from other North American localities, and larval, pupal and life cycle differences support recognition of two species. Examination of types of O. avara and O. disjuncta (Banks) revealed that one form was conspecific with O. avara, the other with O. disjuncta, O. disjuncta not being a synonym of O. avara as has been suggested, previously, by certain trichopterists.

WHEAT BULB FLY (DELIA COARCTATA), AN UNWELCOME ADDITION TO THE CANADIAN FAUNA.

G.C.D. Griffiths
Department of Entomology
University of Alberta
Edmonton

Wheat bulb fly, D. coarctata (Fallén) was first discovered to have been introduced from the Old World into North America last winter, when I was working through unidentified material from the Canadian National Collection last winter collected in 1954 and 1971 in the Gaspé Peninsula and New Brunswick. On report of this information, personnel of the Plant Products and Quarantine Division of Agriculture Canada organized a survey during July and August to determine the distribution of the insect and its status in Canada. It is considered the most serious pest of winter wheat in Europe and can be responsible for complete crop failure.

Wheat bulb fly is remarkable for its practice of ovipositing in bare, freshly tilled earth. The eggs hatch at the end of winter as soon as the soil thaws and the larvae bore into the base of the stem of young host grasses. Winter wheat, winter rye, and couch grass (Agropyron) are favoured hosts. On completion of feeding, the larvae form puparia in the soil and emerge after 5-6 weeks - normally in June. Conduct of field surveys requires specialized knowledge of Delia, of which there are some 100 species in Canada. Some diagnostic characters of the male and female terminalia were described and illustrated.

ECOLOGY AND CONTROL OF THE BROME-GRASS SEED MIDGE (DIPTERA: CECIDOMYIIDAE) IN SASKATCHEWAN

P.S. Curry, R.P. Knowles, and J. Waddington
Agriculture Canada
Research Station, Melfort and Research Station, Saskatoon

Populations of the bromegrass seed midge, Contarinia bromicola, were sampled from bromegrass fields in Saskatchewan since the summer of 1973. Two generations of the midge occur, the first at heading time in early June and the second about three weeks later at flowering. Seed losses of 50% have occurred in some fields, based on both low levels of seed setting and excessive seed shattering. In certain years midge larvae can be heavily parasitized by a species of Chalcidoidea (Tetrastichus sp.). In 1978 and 1979 chemical treatments to kill the larvae of the midge were applied at two stages of bromegrass development. Carbofuran and dimethoate applied just prior to emergence of adult midges at flowering time reduced both the midge and parasite population. Insecticide screening trials aimed at reducing the toxicity to the chalcid parasite are discussed.

EUPHORINE PARASITISM IN LYGUS AND ALFALFA PLANT BUG POPULATIONS IN SASKATCHEWAN AND ALBERTA

C.H. Craig
Agriculture Canada
Research Station
Saskatoon

Lygus species collected from alfalfa in Saskatchewan and Alberta are parasitized by a single species of braconid, Peristenus pallipes. Parasitism occurs throughout the area, in both generations where 2 generations occur, and ranges from 3 to 49%. The alfalfa plant bug, Adelphocoris lineolatus, is only lightly parasitized by P. pallipes, from 0 to 3%, and no other euphorine parasite of A. lineolatus has been found. A parasite of European Lygus, Peristenus digoneutis, has been imported and released at 6 sites in Saskatchewan and Alberta during the period 1978 to date. Monitoring of the plant bug populations at the release sites to determine establishment of the introduced parasites was begun in 1980. The adult stages of these parasites necessary for species determination, are not readily obtained by collection, rearing, or dissection from cocoons.

ROLE OF ANTIBODY IN HOST RESISTANCE TO THE SHEEP KED.

R.W. Baron and W.A. Nelson
Agriculture Canada, Research Station
Lethbridge

Ked numbers, and antibody titers in the serum of 16 infested sheep were assessed over two years by the ELISA technique at two-week intervals throughout two ked cycles. It was found that titers rose as ked numbers rose, and fell off as numbers declined in host resistance. In the second year antibody titers were somewhat higher, while ked numbers were much lower than in the first year. It was concluded that circulating antibody is not directly involved in host resistance to keds. The question of its role in the localized resistance response within the skin is still unresolved.

NOTES ON THE SEASONAL DEVELOPMENT AND CHEMICAL CONTROL OF THE BIRCH LEAF-MINING SAWFLIES IN ALBERTA (HYMENOPTERA: TENTHRIDINIDAE)

J.A. Drouin
Environment Canada, Canadian Forestry Service
Edmonton

The birch leaf-mining sawfly F. pusilla has been well documented in eastern Canada. The heavy attacks in the Prairie Provinces by a complex of species necessitated the need for further studies on chemical controls. Field trials with chemical soil drenches having a systemic action were tested in 1977, 1978 and 1979 involving 26 separate tests. As well, 30 foliar sprays and 7 bark paints were evaluated. Plots, methods and techniques were outlined and discussed. Good results were obtained with dimethoate, metasystox - R + trichlorofon and acephate used in early June as a soil drench or as foliar sprays in early June and mid-July.

BUBBLESPEAK - OR, K.I.S.,S.

A. B. Ewen
Agriculture Canada, Research Station
Saskatoon

We have become a country in which millions of people are able to express themselves in only a rudimentary way, while many of those who can do better go to almost any length to avoid being generally understood.

MOUNTAIN PINE BEETLE (*DENDROCTONUS PONDEROSAE*) IN ALBERTA AND SASKATCHEWAN: AN OVERVIEW OF THE PROBLEM

H. Cerezke
Environment Canada, Canadian Forestry Service
Edmonton

The current infestation of the mountain pine beetle in southwestern Alberta and Cyprus Hills area is reviewed and illustrated with the aid of slides. Aspects of the life history, current distribution and spread, tree attack pattern, tree and forest damage implications, and control attempts will be high-lighted.

TWO NICE FLEA BEETLES

L. Burgess
Agriculture Canada, Research Station
Saskatoon

Although flea beetles are commonly known as pests, there are many species that do not have adverse effects on man's welfare. One such species is *Dibolia borealis* Chev.,; its host plant is the common plantain. Eggs are laid individually in feeding pits on the leaves and larvae are leaf miners. Usually neither larval or adult feeding causes death of the plant. *Disonycha latifrons* is a second such species. It is a beautiful beetle that feeds on goldenrod, and its larvae feed on the leaf surface. Aquaintance with such beetles can be both a source of useful knowledge, and a pleasure.

BLACK FLY PROBLEM ANALYSIS, A SURVEY OF BITING FLY PROBLEMS IN ATHABASCA COUNTY AND IMPROVEMENT DISTRICT NO. 18, ALBERTA

J. K. Ryan
Ryan and Hilchie Biological Consultants Ltd.
Edmonton

A questionaire survey and interviews with livestock producers and a literature review, were undertaken to assess the extent of black fly problems in this chronically infested area. Cattle producers in several districts reported losses of animals, weight gain reductions, and non-conceptions caused by black flies, which were estimated and converted to cash losses. The affected lands contain 0.22 - 0.44% of the provincial cattle population. Differences in farm management practices appear to be responsible for many losses. Practices identified for mitigating cattle problems include winter calving, protection with repellents and shelters, and perhaps use of new breeds. Insecticidal solutions pose environmental hazards but the degree of these is disputed. The livestock problem is considered to be explosive if "hundred year flood" conditions occur favorable to black flies.

PHYSICAL BASIS OF MATING ERRORS IN A WATER BUG - *PALMACORIXA NANA* (HETEROPTERA: CORIXIDAE)

R. Aiken
Department of Entomology
University of Alberta
Edmonton

Half of the mating attempts of *Palmacorixa nana* males are directed toward other males, even when sexually receptive females are present. Since females are larger than males, weight (an index of size) was investigated as a possible source of confusion to males. Weighing thirty homosexual pairs revealed that the mounted male was often heavier than the mounting male (in 25 of 30 pair). For heavy males, this is a more successful mating strategy since only females are heavier than these males.

OPILIONES (ARACHNIDA) OF WESTERN CANADA: A PROGRESS REPORT

R.G. Holmberg, P.D. Bragg and J. Belicek
Athabasca University, Edmonton; Vancouver, B.C.
and J.F. MacLaren Ltd., Edmonton.

Twenty-one species of Opiliones, or harvestmen, have been collected from the four western provinces and two territories. Taxonomically, they are grouped into two suborders, four or five families, and sixteen genera. The species list is as follows:-

LANIATORES - Triaenonychidae: Paranoychus brunneus, Sclerobunus nondimorphicus; PALPATORES - Ischyropsalidae: Hesperonomestoma modesta, Taracus sp.; Sabaconidae?: Sabacon occidentalis; Nemastomatidae: Dendrolasma mirabilis, Ortholasma pictipes; Phalangiidae: Homolophus biceps, Leiobunum calcar, L. exilipes, L. paessleri, L. vittatum, Leuronychus parvulus, L. pacificus, Liopilio glaber, Liopilio n. sp., Odiellus pictus, Opilio parietinus, Paroligolophus agrestis, Phalangium opilio and Rilaena triangularis. Published records for two other Leiobunum species are questionable.

Other species that have been recorded from adjacent states include another suborder, three other families, and nine more genera. These, along with additional species from the genera listed above, add about 20 more species that may be collected from Western Canada. It is predicted that about 33 species, most coming from British Columbia, will eventually be recorded from Western Canada.

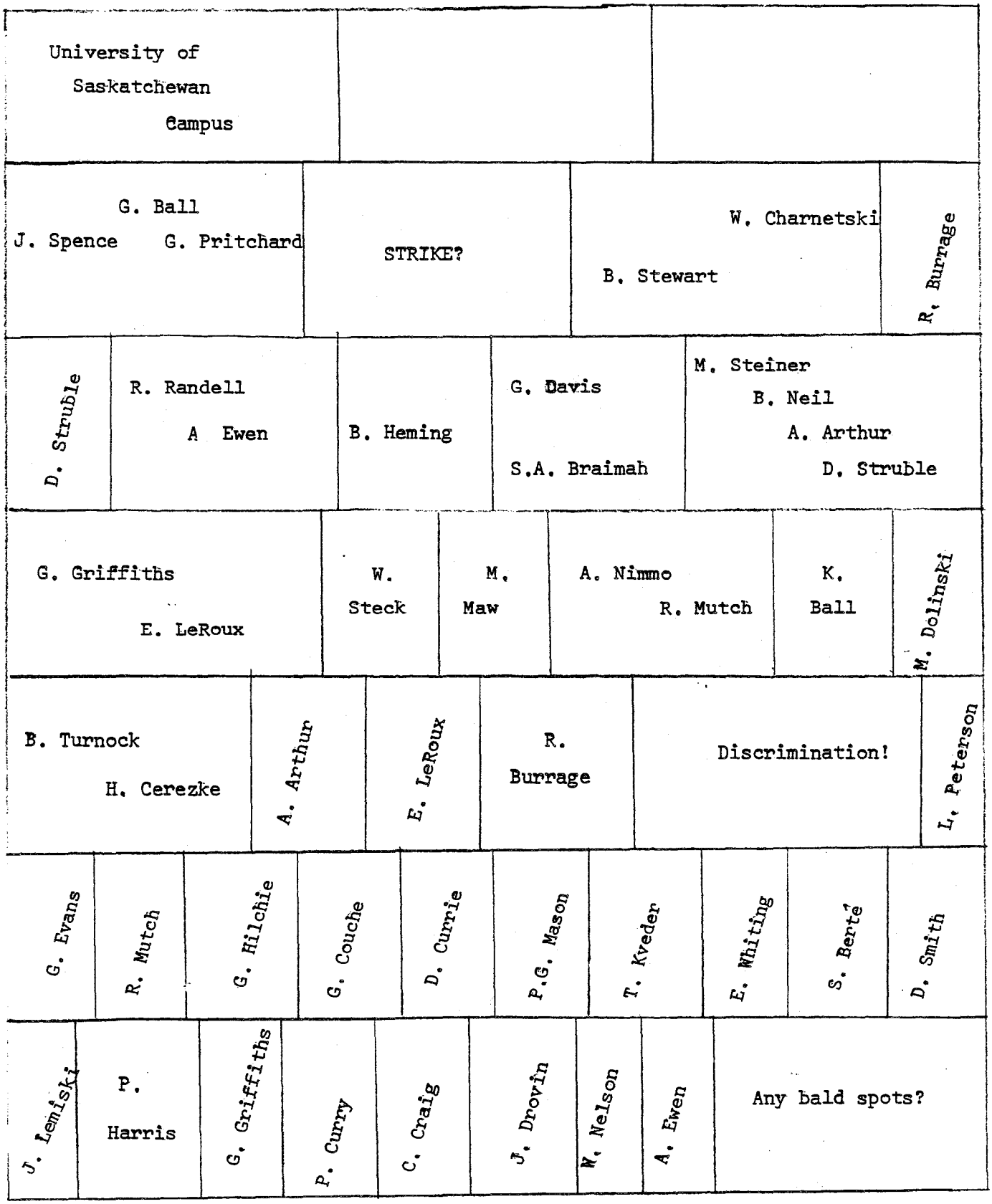
Some aspects of the range, habitat, and life history of five species were given. P. opilio, the most common opilionid in Canada, is associated with most human settlements in North America and is probably introduced. In Canada, it overwinters as eggs. H. biceps occurs in the central plains and in the valleys of the Rocky Mountains. It is often found under rocks near water. P. agrestis is also introduced and has been collected from both the west and east coasts. L. parvulus occurs along the west coast. It has been collected from the tops of 29 m cedar, fir and hemlock trees. L. paessleri occurs in the forests of the Rocky Mountains. The adults overwinter in aggregations in caves and mines.

HOW *NEBRIA* LARVAE (CARABIDAE: COLEOPTERA) FEED

J.R. Spence & J.F. Sutcliffe
Department of Entomology
University of Alberta
Edmonton

To determine the functional significance of the 'nasale' located on the anterior margin of the head capsule of nebriine larvae, a study of feeding behaviour in these insects was undertaken. Feeding is broken into three phases: 1). Prey capture and immobilization effected by sharp, pincer-like mandibles; 2). Prey processing in the form of preoral digestion by regurgitated proteolytic enzymes; 3). Active feeding consisting of sucking out the liquefied contents of the prey's body. The last step is facilitated by the precise prey-handling capabilities of the larval maxillary palpi allowing efficient shredding of the food item by the mandibles working in conjunction with a sclerotized 'shredding tooth' located on the nasale underside.

The nasale itself consists of four anteriorly projecting processes that, during feeding, are frequently struck by the prey item. Each process possesses a single articulated spine at its tip. These spines are probable mechanosensilla and may function by providing sensory feedback needed to keep the prey item centered over the preoral cavity. They may also function in stimulating a hypothesized mandibular 'snap-trap' on prey items situated within mandible range. Future work will test these hypotheses.


University of Saskatchewan Campus
G. Ball
J. Spence
G. Pritchard
STRIKE?
W. Charnetski
B. Stewart
R. Burrage
D. Struble
R. Randell
A Ewen
B. Heming
G. Davis
S.A. Braimah
M. Steiner
B. Neil
A. Arthur
D. Struble
G. Griffiths
E. LeRoux
W. Steck
M. Maw
A. Nimmo
R. Mutch
K. Ball
M. Dolinski
B. Turnock
H. Cerezke
A. Arthur
E. LeRoux
R. Burrage
Discrimination!
L. Peterson
G. Evans
R. Mutch
G. Hilchie
G. Couche
D. Currie
P.G. Mason
T. Kveder
E. Whiting
S. Berté
D. Smith
J. Lemiski
P. Harris
G. Griffiths
P. Curry
C. Craig
J. Drovin
W. Nelson
A. Ewen
Any bald spots?

JOINT ESA (28th) - ESS - SASKATOON - 1980

B. Reigert R. Larson P. Reigert P. Davis W. Turnock	L. Burgess W. Charnetski B. Burgess B. Brooks M. Doane J. Doane R. Hooper	B. Heming E. Maw R. Aiken D. Szelaby J. Richardson I. Askevold L. Soluk		Mike Phonn
B. Brooks L. Burgess B. Burgess Mrs. C. Gillot J. Drouin C. Gillot J. Sutcliffe F. Siddiqui J. Spence R. Wong D. Struble H. Cerezke	W. Nelson	A. Ewen	(Guest Speaker) W. Davern	B. Brooks
B. Lawrence	D. Smith L. Burgess	O. Olfert F. Sperling W. Turnock	G. Ball M. Taylor K. Ball	C. Gillot
A. Braimah J. Richardson L. Soluk D. Soluk	W. Charnetski M. Steiner	dissassembled multitude		C. Gillot & Son
R. Gooding	Pause that refreshes	M. Maw	H. Cerezke	L. Burgess J. Ryan	R. Aiken
C. Peters	R. Holmberg	J. Sutcliffe	"That's....possible"	S. & R. Gooding C. Gillot	U. Sonngen
"We're not convinced!"	Insect Collection Competition	M. Dolinski	Call Complete		

ENTOMOLOGY - ALBERTA - SASKATCHEWAN

MINUTES OF EXECUTIVE MEETING

10:00 a.m., Saturday, May 3, 1980

A meeting of the ESA executive and Committee chairmen for the forthcoming joint ESA/ESC meeting was held May 3, 1980 in the Entomology Department, University of Alberta. Present were B.S. Heming, W.A. Charnetski, R. Wong, B. Mitchell, J. Shemanchuk, M.J. Dolinski, H.G. Philip, K. Richards, B. Taylor and M.Y. Steiner.

1. Minutes of the previous executive meeting, held 26 November, 1979, were adopted as circulated, moved J. Shemanchuk, seconded M. Dolinski. Carried.

2. Business Arising From Minutes

W. Charnetski will write to R. Larson inviting her to attend the next annual meeting so that she may be presented with Honorary Membership in ESA.

3. Correspondence

The Secretary Treasurer reviewed correspondence received since the last executive meeting. A supply of memorial cards was received from E. Becker, E.S.C., for members wishing to contribute to the E.S.C. Scholarship Fund. W. Charnetski requested the secretary obtain more cards and send to every member of the ESA.

4. Interim financial report

M. Steiner reported a current bank balance of $2,136.44 and $4.42 cash on hand, making a total of $2,140.86. It was moved by M. Dolinski, seconded by B. Taylor, that a separate account should be established for the joint ESA/ESC meeting. Carried. As a follow up to this, it was moved by J. Shemanchuk, seconded by D. Wong 'that ESA request from ESC whatever funds are available for the joint meeting as soon as possible.' Carried. The secretary will send a letter to E. Becker, requesting some increase in the normally designated $1,500 to cover the cost of inflation.

5. Reports

5.1. The secretary reported that the current membership stands at 108 regular members and 5 Honorary.

5.2 H. Philip as editor reported that he is presently awaiting identification of some individuals in photographs and A. Harper's bibliography, otherwise the proceedings are ready for printing and will be distributed as soon as possible. The regular proceedings have been held up longer than necessary by the delay in receiving photographs. W. Charnetski will write a note of thanks to W. Nelson for his work in taking and producing the photographs. A suggestion was made that J. Scott could assist in putting together the photographs after the next meeting, and that an official photographer might be appointed for annual meetings.

5.3 M. Steiner will contact R. Leech, Chairman of the insect collection competition, about distributing collection notices to schools etc.

5.4 K. Richards reported on ESA awards given at recent science fairs. Of the science fairs contacted, Edmonton, Ft. McMurray and Peace River did not reply, Calgary wanted a minimum prize of $500, and Lethbridge and Medicine Hat were willing to accept any award offered. Six exhibits at Lethbridge were insect-oriented, none at Medicine Hat. Prizes of books were given to an exhibit on cutworms at Lethbridge and one on photozoology at Medicine Hat. K. Richards suggested he could send information to Science Fair Councils in order to reach the schools (agreed by exec.) and that a member from Edmonton should attend Science Fairs in the Northern half of the Province.

5.5 Discussion of suitable candidates for the ESC Gordon Hewitt award, Gold Medal award and Fellows of ESC should be put on the agenda for the annual meeting. Candidates for the Gold Medal were discussed. It was moved by H. Philip, seconded by B. Heming that an awards committee should be struck to nominate ESA members for awards. Carried. M. Dolinski, B. Mitchell and W. Nelson were appointed in the interim.

5.6 The ESC director had no report. J. Shemanchuk stated that ESC resubmitting a proposal for a grant from the Department of Supply and Services for a survey on the economic insects of Canada.

5.7 J. Shemanchuk as representative to the Environmental Council reported current considerations included assessing insects as indicators of environmental damage and hearings on the transport and disposal of hazardous wastes. Next hearings will be on noise pollution. The report on herbicides and insecticides is being reviewed.

6. ESC Scholarship Fund

Discussion included whether a donation to the scholarship fund should be included in the registration fee for the joint ESC/ESA meeting, or whether it should be decided after the meeting how much of the profit should go to the fund. This should be put up for discussion at the next annual meeting.

7. Joint ESA-ESS meeting, Saskatoon

This will be held at the University of Saskatoon 23, 24 and 25 October, 1980. W. Charnetski will check on procedures for registration and responsibility for proceedings. Since Saskatchewan has a small membership and does not put out proceedings, it was moved by B. Heming, seconded by D. Wong that 'ESA will absorb the cost of publications for ESS members of the proceedings.' Carried.

8. No funds were available to ESA from the provincial 75th Anniversary Funds, since all funds had already been committed. A suggestion by M. Dolinski that a special commemrative pin might be obtained for the joint ESS/ESA meeting was rejected. However, circulation of the Alberta 75th pins was approved.

The Executive meeting was adjourned on a motion by H. Philip, seconded by K. Richards.

JOINT ESA-ESC MEETING COMMITTEE

1. Review of Committees and Chairman

Lynne Richards and Bev. Mitchell are unable to participate as committee chairmen. Alternative suggestions for chairman of the Ladies Program committee were K. Ball, J. Hocking, R. Larson, F. Leggett and D. Giberson, and for accommodation and reception J. MacIntosh, P. Scofield, and G. Pritchard.

W. Charnetski will write to J. Scott requesting his assistance with the photography.

2. Location of Conference

There is a shortage of accommodation at the Banff Centre, however, the concensus was to stay with the Banff Centre. At present there are 26 twin, 46 single rooms (98 people). After mid September, 1981, the Centre will know if more rooms are available. Otherwise they will set up alternative accommodation in Banff and will provide all meals.

Transport from motels to the centre will have to be arranged.

3. Conference Theme

Theme should be finalized by July. A suggested theme was 'Economics in Entomology' to tie in with ESC report. The topic for the key-note speakers could then be "What are the economics of entomology?"

4. Keynote Speakers

With reference to above theme these should be economists from different disciplines, for example, Bill Varty, University of New Brunswick, Kurt Kleine, Agriculture Canada, Lethbridge, Bernie Sonntag, Agriculture Canada, Regional Office, Saskatoon.

5. Symposia

Photography in Entomology was suggested as a special interest group. Tom Webb, Bob Smith, Ray MacIntire, Mr. and Mrs. Hacket are possible speakers.

Other special interest or discussion group topics could centre around economics in entomology.

6. Photo Salon

Evan Gushul should be approached to help organize photographs. A photo salon would attract many non-society members from both U,S. and Canada. Winners of prizes can collect points towards star ratings in the Photographic Society of America. In the past, prizes have been $25 (1st), $15 (2nd), and $10 (3rd). Advertising for photo salon will be in Bulletin of Entomological Society of Canada and Entomology Society of America, and photographic magazines.

7. Finance Committee

A copy of the final budget statement for the 1973 joint meeting was circulated.

Mike Dolinski will contact chairmen for mini budgets so that a tentative budget for the joint meeting can be put together for the next meeting in July. He will also contact Industry representatives to request funds for the meeting and possible sponsoring of plastic folders etc. H. Philip reported that quotations by Edmonton suppliers for plastic folders were $2.25 a piece, canvas $4, canvas with plastic coatings $10, and decals $110/300. B. Taylor and M. Dolinski will check into alternative suppliers for canvas bags. W. Charnetski believed pins could be produced cheaply in Hong Kong.

8. Scientific Program

B. Taylor suggested speakers for the Scientific program could also serve as moderators.

9. Social Committee

Members approved a Wild Game and Wine Buffet in place of the traditional wine and cheese. W. Charnetski reported a license can be obtained and chefs at the Banff Centre are keen on putting on such an event.

Brewsters should be contacted to put on a barbeque similar to that at the previous joint meeting. Participants should be warned to bring warm clothing.

Costs of the banquet will be surcharged on the regular meal charge of the Banff Centre.

No after-dinner speaker was suggested.

10. Publicity

Main notices of the meeting should go out in the December, 1980 issue of ESC bulletin and ES of America Bulletin, with a oneline reminder under 'forthcoming meetings' in the June Bulletin (deadline May 15 for ESC Bulletin). Pre-labelled envelopes are provided by ESC. H. Philip is to contact Air Canada and Canadian Pacific for fares, schedules, complimentary flyers etc. and to select an official carrier.

11. Next Meeting

The next meeting will be held 9 a.m. Saturday, 12 July, 1980, at Lethbridge Research Station, Lethbridge.

Summary of Entomology Society of Canada Meetings

1980	Quebec City	Symp.	Winter Survival Strategies
1979	Vancouver	Symp. I	Decision-Making and Pest Management
		Symp. II	Insect Growth Regulators
1978	Ottawa	Symp. I	International Endeavors in Entomology
		Symp. II	Entomology in Review
		Symp. III	Temporal and Spatial Changes in Canadian Insect Fauna
1977	Winnipeg	Theme:	Insect Damage Assessment
		Symp. I	Damage Assessment in the Ago-ecosystem
		Symp. II	Insect Factors in Humans and Animal Health
1976	Toronto	Theme:	Pests, Policies, and Progress - Is Canada Going to the Insects?
1975	Saskatoon	Symp. I	Effects of Insects and Plant Diseases on the Distribution and Abundance of Plants
		Symp. II	Co-evolution of Insects, Plants, and Pathogens
		Symp. III	Plant Galls, Their Structure and Development and the Biology of Inhabitants
		Symp. IV	Insect Vectors and Plant Diseases
1974	Halifax	Theme:	Entomology and the Environment
1973	Banff	Theme:	Systems Approach to Pest Management
1972	Montreal	Symp.	Pest Control Strategies: Ten Years Hence
1971	Victoria	Symp.	Insect Systematics and Evolution
		Symp.	Chemical Attractants and Insect Control
1970	Winnipeg	Symp.	Insecticides, Past, Present and Future
		Symp.	Ionizing Radiations in Entomology

MINUTES OF EXECUTIVE MEETING

23 October 1980 6:00 p.m.

A meeting of the E.S.A. executive was held 23 October, 1980 in the Agriculture Canada Building, Saskatoon, Saskatchewan. Present were H.G. Philip, W.A. Charnetski, M.G. Dolinski, M.Y. Steiner and H.R. Wong.

1. Adoption of Minutes

The minutes of the previous executive meeting, held 12 July 1980 in Lethbridge, were adopted as circulated, moved M. Dolinski, seconded H. Philip. Carried.

2. Financial Report

M. Steiner presented an interim financial report. As of 18 October, 1980, the Society's bank balance was $1319.22 plus $7.42 cash on hand, giving a balance of $1326.64. M. Steiner moved adoption of the report, seconded D. Wong. Carried.

3. Correspondence

M. Steiner reviewed correspondence received during the previous year. Those items of interest to the society are discussed under following agenda topics.

4. ESA Prize

The ESA prize of $110 was awarded in May to Ingolf Askevold of the University of Alberta. No candidates were put forward by the Universities of Calgary or Lethbridge.

5. ESC Scholarship

No submissions were received by the Achievement Awards Committee. The committee was reminded that it is empowered to nominate individuals for the C. Gordon Hewitt award and the Gold Medal award, and can offer suggestions to ESC for the Fellowship Award.

6. ESA-ESC Joint Meeting - 1981

The committee set up by the executive for this meeting has met on three occasions and plans are well underway. W. Charnetski reported a total of 55 rooms have been reserved at the Banff Centre, site of the meeting, and tentative arrangements made for additional accommodation at two motels. Meals will be provided by the Centre. B. Heming, coordinator of the Scientific program, has finalized the theme for the meeting as 'The Economics of Entomological Effort'. M. Dolinski stated he would write to the Canadian Agricultural Chemicals Association and individual companies regarding rental of display space and contributions to the meeting. H. Philip had written to Air Canada and CP Air, and confirmed the selection of Air Canada as official carrier.

7. Collection boxes and Materials.

M. Steiner reported the cost of renewing the Society's supply of insects collection boxes was $1150.63. This figure did not include duty and sales tax in the amount of $259.33. The executive agreed the price of boxes should be raised to cover costs.

8. Nominating Committee.

The current nominating committee members present were H. Philip and D. Wong.

9. Resolutions Committee

G. Ball and G. Pritchard were appointed to the resolutions committee, subject to their acceptance.

9(a). Auditors

J. Gurba and B.A. Khan were appointed auditors for 1981.

10. Insect Collection Committee

A. Schaaf was appointed temporary Chairman of this committee, as R. Leech was unable to attend the annual meeting.

11. Regional Directors Report

W. Charnetski presented this report on behalf of J. Shemanchuk.
A copy of this report will be printed in the 1980 Proceedings.
W. Charnetski queried whether a prize should be considered for the best student paper presentation at the ESA-ESC joint meeting. All were in favor. The subject will be brought before the members for discussion.
The secretary was directed to write to ESC thanking them for their increased contribution to joint meetings, now $2500.

12. Environmental Council of Alberta.

There was no report available from J. Shemanchuk, ESA representative.

13. Entomological Priorities

There was no report from M. Dolinski

14. Alternative Methods of Entomological Encouragement

M. Dolinski reported no recent action had been taken.

15. Attendance at Executive Meetings

W. Charnetski will invite G. Ball, in his capacity as current 2nd vice-president of ESC, to attend ESA executive meetings ex-officio.

16. Other Business

16.1 The local awards committee (M. Dolinski, B. Mitchell and W. Nelson) was requested to consider nominations for the ESC Norman Criddle award for

excellence in amateur entomology, to be presented at the joint ESC-ESA meeting if a suitable candidate is found.

16.2. The members proposed a note of thanks to Dr. A. Harper for his fine work on compiling a bibliography of papers presented at ESA annual meetings.

16.3. The executive approved the offering of an honorarium to the official photographer appointed to the joint ESA-ESC meeting.

The meeting was adjourned at 7:30 p.m.

MINUTES OF THE 28th ANNUAL MEETING

OF THE ENTOMOLOGICAL SOCIETY OF ALBERTA

9:00 a.m., 25 October 1980.

The 28th Annual Meeting of the Entomological Society of Alberta was held jointly with the Entomological Society of Saskatchewan in Saskatoon, Saskatchewan, October 23-25, 1980. The following are the minutes of the ESA business meeting.

1. Adoption of 1979 Annual Meeting Minutes

Moved by B. Heming, seconded by J. Drouin, that the minutes be adopted as printed and circulated in the 1979 Proceedings. Carried

2. Treasurer's Statement

M. Steiner presented an interim financial statement. As of 18 October, 1980, the society's bank balance stood at $1319.22, plus $7.42 cash on hand, giving a balance of $1326.64. Major expenditures were $409.35 for printing and posting of the 1979 Proceedings and $1150.65 for the purchase of 300 insect collection boxes. M. Steiner moved adoption of this report, seconded D. Wong. Carried. To recover the cost of the new insect collection boxes, D. Wong moved, seconded B. Heming, that the charge per box be raised from $4.50 to $7.50. Carried.

3. Honorary Members

W. Charnetski stated there were currently no openings for new honorary members at the present membership level. The President called for a round of applause for one of the 1979 recipients, Dr. Ruby Larson, not present at the 1979 meeting. He acknowledged Dr. Larson's significant contributions to entomology, to which Dr. Larson responded with thanks to the members for the honorary membership.

4. ESC Scholarship

W. Charnetski called for nominations or suggestions to be forwarded to the Local Awards Committee (M. Dolinski, B. Mitchell, and W. Nelson) by 30 November 1980. Members were reminded of a relatively new award, the Norman Criddell Award for excellence in amateur entomology, which may be awarded at the joint ESA/ESC meeting if a suitable candidate is found. G. Pritchard pointed out that this award may be given to a professional entomologist for work in amateur entomology.

5. ESA Prizes

The recipient of the 1980 ESA prize was Ingolf Askevold from the University of Alberta. W. Charnetski presented him with a certificate and congratulations on behalf of the Society.

6. Zoological Record

W. Charnetski read correspondence from the Zoological Society of London, stating that responsibility for management and finance of the Zoological Record was now in the hands of BioSciences Information Service (BIOSIS) of Philadelphia, U.S.A., therefore no further donations from the ESA are needed.

7. 75th Anniversary Commission of Alberta

Submissions were made to the commission on behalf of the Society for funding of a History of Entomology in Alberta travelling display unit, however, all funds had been committed at the time of application so none was forthcoming.

8. Biological Survey of Canada

G. Ball stated he was no longer on the committee, but believed the survey was still active and now accepted as a function of the National Museum of Natural Sciences and that the next priority was to implement recommendations coming out of the pilot study.

G. Pritchard, of the Scientific Committee, outlined surveys currently in progress or on the drawing board. The projects sub-committee of the Biological Survey Project has recommended a comprehensive survey of the arthropod fauna of the Canadian Prairies be carried out. G. Pritchard as co-organizer of the Prairie project survey called for ideas on how best to proceed with the project.

9. Reports

9.1 Membership

M. Steiner reported that with three new members there are now 110 regular, 5 honorary and 3 library members, for a total membership of 118.

9.2 Regional Director

W. Charnetski presented this report on behalf of J. Shemanchuk, G. Ball moved acceptance of the report, seconded H. Philip, Carried. The report is published in the proceedings. W. Turnock on behalf of ESC requested notifications of annual meetings be placed in the ESC Bulletin. No proposals were forthcoming from the members of the Heritage Committee.

9.3 Environmental Conservation Authority

There was nothing to report from J. Shemanchuk.

9.4 Insect Collection Competition

A. Schaaf served as chairman of this committee in the absence of R. Leech. His report is published in these proceedings.

9.5 Entomological Priorities in Alberta

M. Dolinski reported that he is awaiting correspondence from J. McNeill and has no report at this time.

9.6 Alternative Methods of Encouraging Amateur Entomologists

M. Dolinski reported that nothing specific has been done since the last meeting but suggested that members would probably be better advised to act on an individual basis as opportunities arise. J. Ryan moved, that the Society contact the appropriate Alberta Education authority and recommend purchase and release to Alberta schools of the film 'Biological Control' presented at the meetings by P. Harris, Agriculture Canada, Regina. Seconded U. Soehugen and carried after an amendment by G. Griffiths that the recommendation to purchase include Alberta Environmental Council Advisory Committee.

9.7 Nomination

Report submitted by nominations committee, H. Philip, (Chairman) D. Wong, H. Cerezke.

President	H. Philip
Vice-President	M. Dolinski
Secretary/Treasurer	M. Steiner
Editor	B. Heming
Regional Director	J. Shemanchuk
Directors	R. Holmberg (1981-82)
	G. Pritchard (1980-82)
	K. Richards (1979-81)
	B.A. Khan
Auditors	J. Gurba

Moved by H. Philip, seconded G. Evans, that nominations cease. Carried.

10. New Business

10.1 1981 Meeting

W. Charnetski confirmed that the 1981 meeting will be held in Banff at the Banff Centre.

10.2 ESA-ESC Joint Meeting, October 5-9, 1981.

H. Philip on bahalf of B. Heming, put forward the meeting theme 'Economics of Entomological Effort' with B. Heming's interpretation.

of the scope of this theme. B. Heming asked for suggestions for speakers to the theme. W. Charnetski outlined program chairmen and suggested $1 of the 1981 membership fee be donated to the ESC Scholarship Fund.

Earnest discussion ensued on the merits of an award or prize for the best student paper presentation. R. Mutch did not feel money or recognition contributed to his input and queried if non-student papers would be included. Other students felt a critical review would be more helpful. After a number of amendments, G. Ball moved, seconded R. Butts, that the Society establish an award for the best student paper presentation at the ESA annual meeting, to be called 'The President's Prize'. Opposed G. Pritchard, R. Mutch. Carried. W. Charnetski will strike a committee to examine details. G. Pritchard suggested an 'opting-out' system should be included.

10.3 Others

The Quebec newspaper, Le Soleil, has requested contributions of scientific articles by members of the Society. W. Charnetski suggested that the secretary write to the newspaper requesting sample copies for further consideration.

D. Wong asked if an official photographer has been assigned to the joint meeting. B. Nelson and J. Scott were suggested possibilities. W. Charnetski reminded members that a supply of Memorial cards to the ESC Scholarship Fund were now on hand.

11. Resolutions

G. Ball reported.

Whereas the success of the 28th Annual Meeting of the Entomological Society of Alberta, held in conjunction with the Entomological Society of Saskatchewan, is due to a large extent to the contributions of the following, be it resolved that letters of appreciation be sent to:

a) The Entomological Society of Saskatchewan, through its President, R.R. Hooper, for hosting the joint meeting, and for the generous hospitality shown by the members who provided accommodation for the graduate students from Alberta;

b) The University of Saskatchewan, through its President, for providing facilities for the meeting;

c) The Faculty Club, University of Saskatchewan, through its President, for the excellent dinner and fine facilities for the associated social gathering.

d) Mr. William Davern, Office of the City Solicitor, Saskatoon, for his delightful insights on the legal profession revealed during his talk following the banquet;

e) Dr. W.J. Turnock, Past President, Entomological Society of Canada, for his participation at the meetings;

f) Dr. E.J. LeRoux, Assistant Deputy Minister, Research Branch, Agriculture Canada, for his words about policies in agricultural research in Canada during the 1980's;

g) Dr. William A. Nelson, for taking the candid photographs that are an integral part of the Proceedings of the Society

Be it further resolved that, herewith, thanks be rendered to the Executive and members who were involved in preparation of the meeting and of the program.

G. Ball moved adoption of this report, seconded J. Drouin.

The meeting was adjourned at 10:30 a.m. on a motion by H. Philip, seconded H. Cerezke.

Financial Statement for 1980

	Sub Totals	Totals
Receipts		
Bank balance held in Edmonton account Jan. 1, 1980	2119.98	
Petty cash, Jan. 1, 1980	4.42	
	$2124.40	$2124.40
Membership sales: (1979) 9@ $4.00 1@ $3.96	39.96	
(1980) 74@ $4.00 2@ $5.00 1@ $4.77 1@ $4.11	314.88	
(1981) 4@ $4.00 1@ $4.77	20.77	
	$ 375.61	$ 375.61
Bank interest: April 30, 1980	18.63	
Oct. 31, 1980	26.02	
	$ 44.65	$ 44.65
Sale of insect display box & leaflet		$ 4.75
Donation from Dept. of Ent., Uni. of Alta. for ESA prize		$ 40.00
Reimbursement of loan to Uni. of Alta. for insect boxes		$ 187.90
Sale of insect boxes through Uni. of Alta., 1980		$ 233.25
Donation to ESC Scholarship fund		$ 10.00
Donation from ESC for insect boxes (1980-84)		$ 400.00
Total receipts for 1980		$3420.56
Disbursements		
Entomological Society of Alberta Prize, Uni. of Alta.		$ 110.00
Printing and postage of 1979 Proceedings		$ 409.35
Filing fee, Alberta Consumer & Corporate Affairs		$ 10.00
Purchase of 300 insect display boxes		$1409.96
Purchase of books for Science Fair prizes		$ 17.50
Insect Collection Competition prizes		$ 80.00
Purchase of insect box and leaflet from Uni. of Alta.		$ 7.75
Telephone calls incurred on Society business		$ 23.55
Receipt book		$ 3.19
Stamps		$ 21.25
Total Disbursements for 1980		$2092.55

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Balance Summary

Total receipts	$3420.56
Total disbursements	$2092.55
	$1328.01
Petty cash on hand Dec. 31, 1980	$ 3.17
Bank balance Dec. 31, 1980	$1324.84
	$1328.01

Prepared by:

Secretary/Treasurer

Approved by ESA Auditors

Report of the Regional Director

As Regional Director, I attended the Entomological Society of Canada Governing Board meetings on October 4, 5 and 8, 1980, held at Chateau Frontenac, Quebec City.

Annual Meeting

The Annual Meeting of the Entomological Society held jointly with the Quebec Entomological Society was attended by about 200 entomologists. The banquet was attended by about 270 guests. I would consider the meeting a success. I would estimate that at least 25% of the people registered were students, which is very encouraging. This high attendance of students could be attributed to the higher concentration of universities in Eastern Canada. Many of the students presented excellent papers and took part in constructive discussions. The Quebec Entomological Society conducted a paper presentation competition in conjunction with this meeting.

Future Meetings

1981 - Entomological Society of Alberta and ESC - Banff Centre, October 5-9 - Theme - Economy of Entomological Effort (or E^3)

1982 - Entomological Society of Ontario, Entomological Society of Canada and Entomological Society of America - Toronto, Ontario - early December

1983 - Entomological Society of Saskatchewan and the Entomological Society of Canada - possibly Regina, Saskatchewan - October

1984 - Acadian Entomological Society and the Entomological Society of Canada - date and place to be announced.

Finances

a) There will be no increase in membership fees.

b) The ESC is in a favorable financial position even though the budget indicates a deficit.

c) ESC will continue to pay travel and living expenses for Regional Directors.

d) The governing board approved an increase in the grant to Regional Societies towards joint annual meetings. The total grant will be $2500, $1500 to be accountable and $1000 not accountable.

e) ESC Executive is negotiating a grant with NSERC for $25,000 to cover publishing of the Canadian Entomologist which, if received, will reduce the page charges.

f) A grant was received from NSERC to publish the "Bibliography of the Arctic Insects of the Nearctic Region."

g) $10,000 was transferred from General Revenue to the Scholarship Fund.

Publications

- 200 papers were received during the year
- 34 are currently under review
- 54 have been returned for revision
- 31 were rejected
- 81 were accepted of which 19 were published

The slow publication is due to reviewers taking a long time in reviewing manuscripts. Mail and publishers delays are also partly a cause for the delays.

Dr. D. M. Davies is now editor of the Bulletin and would appreciate information from the regions on:--

a) Executive

b) Meeting Dates

c) Activities and Programs

d) News of Members

Photo Salon

A photo salon was held this year which covered a wide range of subjects. Only three slides were received from ESC members and the Governing Board wonders if this project is worth the effort. The Entomological Society of Quebec had a display of insects and photographs from their amateur group.

Science Policy

The Science Policy Committee presented a brief on the need for permanent government supported research concerned with the role of insects in the development of Renewable Resources in Canada. This brief was discussed and returned to the Committee for further study.

Grant Proposal to DSS

The grant proposal on losses due to Destructive Insects prepared by Dr. F. McEwen has been submitted to DSS and there is a strong indication that this proposal will be funded.

Heritage Committee

Dr. P. W. Riegert was named Chairman and he will be contacting the Regions for names of people to serve on this Committee.

SCITEC

Dr. Rene Lesveque addressed the Governing Board outlining the function of SCITEC. The consensus of the Board was that SCITEC sphere of activity was too broad to be of effective use to entomology. The Board agreed to fund this organization at the rate of last year.

BCC

BCC is seeking an increase in fee from $5 to $7 per Canadian member. The Board instructed our BCC representative to bring in a report to the Executive after his next meeting with the BCC.

Awards

Gold Medal - Dr. G. E. Ball

C. Gordon Hewitt - Dr. H. Danks

Fellowships

Dr. D. C. Eidt
Dr. K. S. Hagen
Dr. J. S. Kelleher
Dr. B. J. R. Philogéne
Dr. R. M. Prentice
Dr. P. W. Riegert
Dr. A. C. Robinson
Dr. Wil Sippell

Officers

Past President - Dr. W. J. Turnock

President - Dr. S. Laschiavo

2nd Vice President - Dr. G. Wiggins

3rd Vice President - Dr. G. E. Ball

Directors At Large - Dr. B. Benoit
Dr. R. D. McMullen

Fellowship Committee - Dr. R. A. Brust
Dr. W. G. Wellington

Scholarships

Miss Kathryn Mae McGinnis - University of Manitoba

Mr. Felix Alexander Herman Sperling - University of Alberta

Submitted by
J. A. Shemanchuk
Regional Director

REPORT OF THE INSECT COLLECTION COMMITTEE

Committee Members: A. Schaaf
R. Holmberg
M. Maw
M. Taylor

There were six collections submitted to the open category and one to the Junior category of the Insect Collection Competition. The collections were of good quality and obviously considerable work and interest were contributed to the final results.

The collection of Joan Gregory Schreiber, Olds Agricultural and Vocational College, was selected for the first prize in the open category, with honorable mention to the collections of John McIntyre, Judy Walters, and Arthur Tellier. The only collection in the Junior category by R. Herrington, Nobleford (12 years of age) was excellent and deserves first prize. I might note that with the exception of pinning errors, this collection was as good as many of the open collections. I would hope that we can find a mechanism to encourage this young man and others like him.

A. Schaaf
Acting Chairman
Insect Collection Competition
October 1980

COMMITTEE INVOLVEMENT BY ESA MEMBERS - 1980

A) Entomological Society of Alberta

The following standing or ad hoc committees exist under the present framework of the ESA:-

1) Alternative Methods of Encouraging Amateur Entomology - M.G. Dolinski

2) Achievement Awards - to the ESC - Regional Director - J.A. Shemanchuk
ESA Executive Officers

3) Awards Committee - ESA Executive Officers

4) Entomological Priorities in Alberta - M.G. Dolinski

5) Environmental Conservation Authority - J.A. Shemanchuk (1981)

6) ESA-ESC Joint Meeting - 1981.

Chairman	W.A. Charnetski
Secretary/Treasurer	M.Y. Steiner
Scientific	B. Heming
Symposia	B. Taylor
Social	B.D. Schaber
Ladies Program	K. Ball
Accommodation and Reception	L. Shipp
Publicity	H.G. Philip
Finance	M.G. Dolinski
Photo Salon	E.T. Gushul
Photography	W.A. Nelson
Norman Criddle Award	M.G. Dolinski, B.K. Mitchell, W.A. Nelson

7) Insect Collection Competition - R. Leech

8) Nomination Committee - Past-President - H.R. Wong
- Vice-President - H.G. Philip
- ESA Member - H. Cerezke

9) Resolution Committee - 2 ESA Members - G. Ball & G. Pritchard

10) Science Fair Liaison - K.W. Richards

11) Student Presentation Award

B) Entomological Society of Canada (1981)

ESC standing or ad hoc committees where ESA members presently serve:-

1) Annual Meeting Committee - J.A. Shemanchuk

2) Biological Survey of the Canada (Terrestial Arthropods) Scientific Committee - G. Pritchard

3) Insect Common Names and Insect Cultures Committee - G.E. Ball

4) Cost of Destructive Insects in Canada Scientific Committee - J.A. Shemanchuk

5) Employment Committee

6) Heritage Committee

7) Membership Committee - J. Weintraub

8) Public Education - K.W. Richards

9) Student Encouragement Committee

10) Scholarship Committee - B. Heming

11) Science Policy Committee - G. Ball

November 21, 1980.

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