Robinson
A J Robinson

P R O C E E D I N G S

of the

ENTOMOLOGICAL SOCIETY OF MANITOBA

DECEMBER 1950

Volume 6 Number 1

Proceedings of the

ENTOMOLOGICAL SOCIETY OF MANITOBA

Vol. 6 December, 1950 No. 1

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LIST OF MEMBERS

Executive

President	-- Lt. Col. C. A. S. Smith, Plant Inspection Division, - Winnipeg.
Vice-President	-- W. R. Allen, Dominion Entomological Laboratory, - Brandon.
Secretary	-- B. N. Smallman, Stored Products Insect Laboratory, - Winnipeg.
Treasurer	-- F. L. Watters, Stored Products Insect Laboratory, - Winnipeg.
Editor-Librarian	-- R. R. Lejeune, Forest Insect Laboratory, - Winnipeg.

Members

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W. F. Black, Forest Insect Laboratory, Fort Garry, Manitoba.

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W. F. Hanna, Dominion Laboratory of Plant Pathology, Fort Garry, Manitoba.

R. J. Heron, Forest Insect Laboratory, Fort Garry, Manitoba.

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R. R. Lejeune, Forest Insect Laboratory, Fort Garry, Manitoba.

H. A. McKinnon, Forest Insect Laboratory, Fort Garry, Manitoba.

J. A. McLeod, Department of Zoology, University of Manitoba, Fort Garry, Manitoba.

W. S. McLeod, Department of Agriculture, Fruit Insect Investigations, Science Service Building, Ottawa, Ontario.

J. McLintock, Dominion Entomological Laboratory, Lethbridge, Alberta.

A. V. Mitchener, Department of Entomology, University of Manitoba, Fort Garry, Manitoba.

J. Muldrew, Forest Insect Laboratory, Fort Garry, Manitoba.

J. A. Munro, North Dakota Agricultural College, Fargo, North Dakota.

L. O. T. Peterson, Dominion Entomological Laboratory, Indian Head, Saskatchewan.

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D. S. Smith, Dominion Entomological Laboratory, Lethbridge, Alberta.

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H. R. Wong, Forest Insect Laboratory, Fort Garry, Manitoba.

Proceedings of the

ENTOMOLOGICAL SOCIETY OF MANITOBA

Vol. 6 December, 1950 No. 1

THE APRIL GENERAL MEETING

The Business Session

The meeting was convened at 9:30 A. M. on April 21, 1950, in the Entomology Building, University of Manitoba. Fifteen members attended the Business Session in the morning and twenty-five members and visitors were present at the Scientific Session in the afternoon.

Minutes of the last meeting were read and adopted.

On a notice of motion Article I of the Constitution was amended to read: "This Society shall be known as the Entomological Society of Manitoba in affiliation with the Entomological Society of Ontario." Moved by R. R. Lejeune. Seconded by A. J. Thorsteinson.

CARRIED

Professor A. V. Mitchener proposed a motion that the Society congratulate its executive on the successful arrangement made for the meeting of the Entomological Society of Ontario in November 1949. Seconded by R. D. Bird.

CARRIED

The Secretary's report was presented by B. N. Smallman and seconded by R. R. Lejeune.

ADOPTED

The Editor-Librarian's report was presented by R. R. Lejeune and seconded by W. R. Allen.

ADOPTED

The Treasurer's report was presented by F. L. Watters and seconded by H. R. Wong.

ADOPTED

The meeting then discussed certain proposals for the early formation of a national society. C. A. S. Smith proposed that the Manitoba Society should increase its levy to $4.00, $3.00 of which would go to the Ontario Society as demonstration of our support for a national society. W. R. Allen spoke in favour of the President's proposal and suggested that we should solicit members for the Manitoba Society from outside the province. R. R. Lejeune favoured the President's proposal only if it included some device for preventing students and junior men from being forced out of our Society by the $4.00 fee. The discussion was finalized by a motion from W. R. Allen: "That the executive be instructed to poll the Society regarding the increase in fee to $4.00 for the support of the Ontario Society in its present capacity as the interim national society and that the poll should seek the members' opinion on student memberships."

The meeting then discussed a proposal for a provincial entomologist. C. A. S. Smith introduced the proposal and suggested a resolution in support of this proposal should be forwarded to the Government of Manitoba. R. D. Bird spoke in favour of the proposal and suggested that a provincial entomologist should be in closest possible connection with Dominion Government Research Laboratories. A. V. Mitchener also supported the proposal and considered that a provincial entomologist should be associated with the University. The President finalized the discussion by appointing the Resolutions Committee, comprised of A. V. Mitchener, R. D. Bird and H. R. Wong. The committee later brought in a resolution which was unanimously approved by the membership. The resolution addressed to the Minister of Agriculture, Government of Manitoba read as follows:

"WHEREAS, Insect problems are becoming more numerous and more complicated in Manitoba, with new species occurring in injurious numbers almost every year, and

WHEREAS, New methods of control and added information on the biology of insects are being made available continuously by research being done by both the Department of Entomology, University of Manitoba, and the Dominion Entomological Laboratories at Brandon and Winnipeg, and

WHEREAS, It is highly desirable that this new information be made available to agriculturists, insecticide manufacturers and others concerned, be it

RESOLVED, That the Entomological Society of Manitoba recommends the appointment by the Government of Manitoba, of a Provincial Entomologist who will work in close cooperation with the above research departments, to facilitate the control of insects in Manitoba, and that this resolution be forwarded to the Minister of Agriculture for the Province of Manitoba."

The executive presented a proposal that Professor A. V. Mitchener be nominated as the first life member of the Manitoba Society in recognition of his services in founding the Society and throughout its existence. C. A. S. Smith, B. N. Smallman and R. D. Bird spoke to the proposal recalling Professor Mitchener's work and enthusiasm for the Society and particularly his organization of the original meetings out of which the Society finally grew. The Secretary was instructed to formally inform Professor Mitchener of his nomination as a life member in the Society.

During the Scientific Session in the afternoon the members discussed, at length, the need for better co-ordination between the insecticide industry and entomologists regarding recommendations for the chemical control of insects. As a result of the discussion the following motion was proposed by S. Pugh and seconded by Mr. W. R. Allen:

"That a committee consisting of representatives of the insecticide industry, university and government entomological laboratories, and the Plant Products Office in Manitoba be formed to co-ordinate the recommendations for chemical control of insects with the supply of insecticides."

CARRIED

With A. V. Mitchener in the chair the following slate of officers for the years 1950 - 1951 was elected:-

President	-	C. A. S. Smith
Vice-President	-	W. R. Allen
Secretary	-	B. N. Smallman
Treasurer	-	F. L. Watters
Editor-Librarian	-	R. R. Lejeune

The meeting adjourned at 12:00 A. M.

Scientific Business

During the afternoon session members presented reports on their current entomological work. Only written accounts submitted to the Editor by participants are included in these Proceedings.

Field Crop Insects:- The following reports were contributed by officers of the Dominion Entomological Laboratory, Brandon.

Summary of Sunflower Insect Investigations 1949

P. H. Westdal

A study of the life history and biology of an insect attacking sunflowers was begun last year. The insect is a microlepidoptera of the family Phaloniidae. On the basis of a small series of specimens forwarded to the Systematic Division, Ottawa, it was identified as Phalonia (sp. near lavana). Another series of specimens has recently been forwarded and we hope to receive a more definite determination shortly.

The damage to the sunflower crop by this insect is caused by the larvae feeding on the developing seeds. Each larva may destroy several seeds before it is fully developed and there may be up to 100 larvae per head.

Considerable information has been obtained on the life history of the insect, and the work during the coming season will be to verify the present findings and to obtain further details. Briefly, the life history of the insect, as determined to date, is as follows. There is one generation each year. The moths begin to emerge from hibernation about July 1 and egg laying begins about July 15. Oviposition continues for a period of about six weeks. The eggs are laid on the bracts of the sunflower head and when the larvae emerge they immediately migrate to the florets of the head where they feed on pollen until they reach the third instar. During this stadium they burrow into the seed. Feeding continues until early September, at which time the larvae enter the soil and spin a cocoon. The winter is passed in the larval stage in the cocoon and pupation occurs towards the end of June.

Chemical Control

W. R. Allen

We expect to carry on onion maggot control tests again this season. Last year our experimental lay-out was unfortunately avoided by this Anthomyiid and we found very little damage in our untreated plots. This year we intend to encourage an onion maggot infestation by interplanting our experimental blocks with multiplier onions. Several insecticides, as wettable formulations, will be applied to the plants and soil. These treatments will be compared with the calomel seed treatment. In addition, several insecticides will be tested against the root maggot Hylemya crucifera Huckett, which has made the growing of marketable turnips impossible in the Dauphin area.

The chemical control work with the sweetclover weevil will be continued. Early in the season we want to study the effectiveness of parathion and DDT in protection of crops of seedling clover. It is necessary to know whether or not one or two applications of these insecticides will be effective in minimizing damage to crops which are becoming established. Weevil populations at this season of the year are low and widespread but unfortunately the crop in the early stage will not stand a great deal of defoliation.

In August when new generation weevils begin to mass along the edges of clover crops, several of the newer insecticides will be compared with the materials which were found effective last season. It was found that ten days after spraying, parathion (0.5 lb. active ingredient per acre) and DDT (1.0 lb. per acre) gave kills of 72 and 28 per cent, while chlordane and toxaphene (1.0 lb. per acre) gave about 10 per cent control. However, when DDT and chlordane were increased to a rate of 2.0 lb. per acre, controls increased to 67 and 58 per cent, respectively. Thus at this increased rate, DDT and chlordane approached parathion (0.5 lb. per acre) in effectiveness.

With information now available on the life history of the sunflower Phalonid, we are in a better position to study the chemical control of this species. From preliminary experiments last season it appears that insecticide applications may have to be applied after the

flowers are open. We had hoped that pre-bloom application might be effective, so that the hazard to insect pollinators would be minimized. Further investigations will be carried out along this line.

The work started last year on the control of potato insects, as it may affect the spread of early mosaic and leafroll, is to be continued. Aphids were few in 1949 but leafhoppers were exceptionally abundant. Seven DDT dusts throughout the season (1.25 lb. of DDT per acre) gave better control (80%) of the potato leafhopper than two DDT dusts followed by two, four or five parathion dusts (0.24 lb. per acre). No control of Macrosteles divisus was obtained by any of these treatments.

Material from all plots was indexed for disease by the Dominion Rust Laboratory. There was no marked increase in the spread of virus diseases in the untreated plots as compared with treated plots.

Sweetclover Weevil

R. D. Bird and J. S. Kelleher

This project was continued in 1949 with emphasis on the ecology of the weevil.

A spring survey of second-year sweet clover was made. It was found that damage ranged from light to severe, with the greatest damage on the heavier soils and populations up to 16 per square foot. Dead weevils were found indicating mortalities from zero to 50 per cent. Up to 80 per cent of these weevils had died of Beauvaria bassiana, the most important disease organism.

Seasonal life history studies on sandy and heavy clay loam soils showed that larval survival and per cent increase in population were much greater on the clay loam. Two plots on clay loam registered 1900 and 450 per cent increases of the new generation over the spring population as compared to 63 per cent decrease and 79 per cent increase on two plots on sand.

Alfalfa Insect Survey in Manitoba 1949

D. F. McLean

Alfalfa seed growers in Manitoba are apparently not faced with a serious plant bug problem. However, a shortage of good tripping bees which bring about fertilization of the alfalfa plant, is definitely of major importance, and it appears that unless populations of these bees can be increased the alfalfa yield will continue to be poor.

The wild bee population was much lower in 1949 than in 1948.

Artificial nesting sites for Anthophora showed promise, but faulty technique prevented their utilization.

Summary of Fruit Insect Investigations in Manitoba, 1949

H. P. Richardson

The fruit insect investigations in Manitoba last year were conducted by Grant Robinson stationed at Brandon and myself at Morden. This paper is a brief summary of that work.

One of the more important insects that a backyard fruit grower has to contend with is the currant fruit fly, Epochra canadensis Loew. Experiments are being carried out to control the adult fly on the bushes and in its various stages in the soil. The stages in the soil are (1) the larva as it enters the soil (2) the pupa which overwinters in the soil and (3) the adult as it emerges from the soil in the spring. Of three insecticides tested on the larva as it entered the soil BHC proved about 45% effective; the other two materials, DDT and chlordane, were of no value.

Ethylene dibromide, DDT, and BHC were used against the emerging adult. The ethylene dibromide and BHC gave good control but the DDT was less effective. The DDT gave control for about 12 days. Following this period the material apparently became dissipated as the surviving flies commenced to emerge.

A rather serious outbreak of the strawberry weevil, Anthonomus signatus Say, occurred on strawberries

last year. It was the first time that this weevil had been officially recorded in Manitoba. The weevil was readily controlled with DDT.

Another problem of strawberries was accidently solved through the use of DDT to control the strawberry weevil. It was the problem of malformed fruit, commonly known as "nubbins" by the trade. Horticulturists have generally considered this to be due to poor pollination caused by adverse weather conditions. It is now known, however, that the fruit malformation was caused by the feeding of the tarnished plant bug, Lygus oblineatus (Say). The application of DDT to control the strawberry weevil effectively controlled the plant bug.

An outbreak of the four-spotted tree cricket occurred on a raspberry plantation last year. The insect was quite susceptible to chlordane. On the basis of the results obtained chlordane would appear more effective than the recommended lead arsenate and hydrated lime formula.

Experiments conducted last year showed that DDT is effective for the control of the apple seed chalcid, Torymus druparum Boh. After one application of DDT during the preoviposition period the sprayed plots showed an infestation of from 2.1 to 8.7 per cent as compared with 92.5% on the check plot.

Each year a rather informal fruit insect survey is conducted in an effort to determine the fruit insects present in the province and their potentiality as problems of cultivated fruits. In the last two years several interesting observations have been made. Three of these were in connection with the aforementioned strawberry weevil, tarnished plant bug, and four-spotted tree cricket. In addition the mite that has been commonly referred to as the red spider, infestations of which were rather severe in places last year, has been correctly identified as the Pacific mite, Tetranychus pacificus McG. This mite is common to the Pacific Coast.

Other insects of possible future importance identified were the apple maggot, Rhogoletis pomonella (Walsh), black cherry fruit fly, R. fausta (O.S.), and the dark currant fruit fly, R. ribicola Doane.

Department of Entomology, University of Manitoba:-

Review of Research

A. V. Mitchener and A. J. Thorsteinson

Research on the toxicity of aldrin, calcium arsenate, chlordane, DDT, dieldrin and toxaphene on insects attacking potatoes was continued at Winnipeg during the summer of 1949 on an area consisting of forty-eight plots. Aldrin and dieldrin each when used at the rate of two ounces to 40 imperial gallons of water gave excellent control of Colorado potato beetle larvae. Dieldrin when used at either one or two ounces to 40 gallons of water gave similar control of Colorado potato beetle adults. DDT when used at the rate of eight ounces to 40 gallons of water controlled Colorado potato beetle, potato flea beetle and potato leafhopper and was the only insecticide used that did so. The highest yield of potatoes per acre resulted from the above treatment and is recommended. This is the second year that experiments on insect control have been undertaken on potatoes.

Aldrin and dieldrin when sprayed on grass under field conditions, where the clear-winged grasshopper occurred in outbreak form, at the rate of two ounces of chemical per acre gave almost complete control in one set of experiments. The same was true of chlordane and toxaphene when these were used in the same experiment at much higher rates of application.

The toxicities of several new insecticides were tested on grasshoppers in cage experiments. In the form of emulsion spray, chlordane at a concentration of 1:75 (3/4 lbs. per acre), toxaphene at 1:37.5 (1 1/2 lbs. per acre), aldrin at 1:400 (1/8 lbs. per acre) and dieldrin at 1:400 (1/8 lbs. per acre) all gave kills of grasshoppers of 90% or more. When tested in baits, aldrin and dieldrin at a concentration of 1:100 and chlordane at a concentration of 1:50 gave kills of grasshoppers of over 90%, while toxaphene and sodium arsenite at a concentration of 1:50 gave kills of grasshoppers of only 65%.

Experiments were begun with different insecticides in baits used to control cutworms.

Dieldrin in the form of a 0.5% emulsion spray was applied to one end of a large swine barn highly infested

with house flies on August 15, 1949. Almost complete mortality of flies resulted and the entire barn remained practically free of flies during the remainder of the season.

Some of the new household detergents were used in sprays applied to the waxy leaves of cabbage. Of those tried 'Surf' seemed as good as any. The addition of a similar detergent might be useful in sprays applied to foliage less waxy.

In 1949 for the twenty-seventh successive year data were compiled on the Manitoba Honey Flow. The nectar flow occurred from the beginning of the fourth week in June until about the third week in August. Western and northern Manitoba recorded good yields of honey but the eastern part of the province experienced a poor season. There is some increased interest developing in the use of honey bees for pollinating crops of various kinds.

Forest Insects:-

Forest Insect Survey, 1949

J. D. Smith

The section of the Dominion Forest Insect Survey which covers the accessible forested regions of Manitoba and Saskatchewan received about 3,000 insect collections in 1949. This is almost twice the number that were obtained in 1948. Approximately 2/3 of the collections came from Manitoba with the remainder from Saskatchewan.

At the present time, the insects causing the greatest damage to trees in this area are, the larch sawfly, Pristiphora erichsonii (Htg.), the jack-pine budworm, Choristoneura sp., and the spruce budworm, Choristoneura fumiferana (Clem.).

Tamarack stands in Manitoba and Saskatchewan were severely attacked by the larch sawfly. In Manitoba the outbreak appears to have passed its peak except for the northwestern area, in the vicinity of The Pas and Cranberry Portage. Defoliation has become more severe and widespread in the eastern and central areas of Saskatchewan but it is still slight in the western part of this Province.

The decline in the Manitoba outbreak may be largely due to parasites and to small mammals which eat the cocooned sawfly larvae.

Jack-pine budworm was active on both sides of Lake Winnipeg. Severe defoliation was noticed north of Stead in the Interlake Area and a moderate infestation was recorded on the eastern side of Lake Winnipeg between Berens River and Lac du Bonnet.

Spruce budworm was abundant in the Spruce Woods Forest Reserve near Brandon. However, the infestation appears to be on the decline and defoliation was moderate. There were no budworm collections from Saskatchewan in 1949.

The large aspen tortrix, Archips conflictana (Wlk.), a leaf roller which feeds on poplar, was on the increase in The Pas area in Manitoba and around Glaslyn in western Saskatchewan. Some trees in these regions were completely defoliated.

Poplar trees on an island in the Whiteshell Forest Reserve were stripped of leaves by the forest tent caterpillar, Malacosoma disstria Hbn. This insect was also believed to have been responsible for serious poplar defoliation in some remote areas between Lake Winnipeg and the Ontario boundary.

Rearing Methods

H. R. Wong

The time required to incubate immature overwintered forest insects at the Winnipeg Laboratory varied from 10-65 days, when subjected to an incubating temperature of 65-70° F and a relative humidity of 80-85%. Prior to incubating, the material was stored in a root cellar at 35-40° F and a relative humidity of about 96%.

Plans have been formulated to reduce the time required for incubating insects, by finding the optimum incubating and storing temperature and humidity to which most Lepidoptera and Hymenoptera will respond.

During the past winter certain pertinent information has already been obtained. Sawfly cocoons apparently showed better response if placed on dry rather than moist cotton in the incubator. Lepidopterous pupae, on

the other hand, appear to favor moist cotton. It was observed that a pinch of salt in each rearing jar was more effective in reducing microorganisms than a solution of copper sulphate. A reduction in mould was also apparent when pupae or cocoons were incubated on dry cotton in rearing jars.

Stored Product Insects:-

Pyrenone vs DDT for the Control of Spider Beetles

B. N. Smallman

Flour stored in warehouses may effectively be protected from the depradations of spider beetles by spraying a 5% DDT oil emulsion on the floor and lower half of the walls. Although there is little toxic hazard when applied properly several milling companies restrict its use near cereal products intended for human and animal consumption. Since no such restrictions are placed on pyrenone* when used as a warehouse spray it seemed appropriate to compare its effectiveness with DDT.

In a field experiment involving 18 flour warehouses the protection given by one and two applications of DDT and Pyrenone was assessed. The floor of each warehouse was divided into three equal areas; one section was treated with DDT, one section was treated with Pyrenone, and the other section was left untreated. The treatment applied to each floor area was assigned on a random basis. Both the DDT and the Pyrenone were diluted with deodorized kerosene to give a concentration of 2 1/2%. The floor areas were treated with a tank pressure sprayer. Deposits of 100 mg. DDT per sq. ft. and 100 mg. piperonyl butoxide per sq. ft. were aimed at by calculating the areas of the area to be sprayed and weighing the tank before and during the application. Six weeks after the first treatment, 9 of the 18 warehouses were retreated to determine if two treatments were more effective than a single treatment.

The effectiveness of each treatment was assessed by the number of spider beetles recovered from seven pound sacks of flour placed in the warehouses after treatment. The results showed that one treatment of DDT

* 10 mg. piperonyl butoxide, 1 mg. pyrethrins per ml.

gave better protection than one treatment of pyrenone but was not significantly better than a pyrenone retreatment. DDT retreatment was slightly better than either a single treatment of DDT or a retreatment of pyrenone.

Radio Frequency Sterilization of Cereal Products

F. L. Watters

Sterilization of foodstuffs by dielectric heating has certain advantages over other kinds of heating. The most striking is that the heat is generated uniformly throughout the foodstuff; the most attractive is that the infesting organisms may be sterilized or inactivated selectively. The selective heating of insects in cereal products depends on their differential absorption of electrical energy compared with the foodstuff. This absorption of electrical energy in a high frequency field is determined by the dielectric loss factor.

Loss factor measurements of mealworm larvae and whole wheat flour were made using a low power radio frequency oscillator. The results show that the loss factor of mealworm larvae ranged from 2 to 7 times that of the flour and was directly related to temperature and moisture content. If these results are indicative of the loss factor values at sterilization frequencies it is probable that selective heating may occur. Determination of the loss factor of insects and cereals is now being undertaken at higher frequencies. It is anticipated that the findings will indicate the optimum frequency at which selective heating will take place.

Chemical Determination of DDT Residues

B. Berck

A variety of problems involving chemical determination of DDT residues was undertaken at this laboratory during 1949. This report deals briefly with some of the results obtained. Additionally, we will outline a few aspects of a problem that we intend to investigate shortly.

1. In collaboration with the Forest Insect Laboratory, Winnipeg, chemical analyses were made on the outer bark of elm trees that had been experimentally treated 3 years previously with varying amounts of DDT xylene emulsion. The samples of bark were from 1/16 to 3/16" in thickness and were taken from the south side. The results obtained by the Schechter-Haller spectrophotometric method showed very appreciable amounts of DDT (from 3 to 6 gms. DDT/sq. ft.) still available in the bark. Using S. granarius adults as test insects, pronounced biological effectiveness of the DDT was shown, with 100% mortality obtained in every test, and 0% mortality with the control samples. These findings underline the remarkable persistence of DDT under the wide range and intensity of light, temperature, humidity, etc. to which trees in our climate are exposed. It was decided to take further samples next year in order to determine if the DDT residue was approaching, or had passed, a sub-lethal level.

2. In collaboration with the Brandon Entomological Laboratory, analyses were made on DDT residues of red currants in experiments designed to control the currant fruit fly. Among other facts established in the analyses, it was found that pre-bloom sprays had little influence on final DDT residue of the harvested fruit, whereas post-bloom sprays contributed very significantly in this regard. A paper dealing with DDT residues of currants (Allen et al), and another with DDT residues on celery (Allen and Berck) have been submitted for publication in Scientific Agriculture.

3. In collaboration with the Saskatoon Entomological Laboratory, work was continued on microdetermination of DDT in river water. During May, 1949, a certain area of the N. Saskatchewan River was treated with DDT to control black fly larvae. Samples were taken at various points 3 miles downstream from point of application. Using the methods of measurement as developed here, small amounts of DDT were found, some samples registering as low as 1 part DDT in 235,000,000 parts of water. The exploratory work entailed in this assignment, and study of the sub-problems involved, showed a number of ways by which sensitivity of measuring DDT in river water could be increased. The methods and results are recorded in a laboratory report.

After application of DDT to the river in the above field experiment, some fish were found dead. From DDT analyses that were made on the tissues of various fish so found, it was shown that the stomach contents contained substantial amounts of DDT; lesser amounts were found in the gills, liver, and edible flesh. Assuming that DDT was the cause of death of the fish (an assumption supported by certain field observations) it appears that the route of intake was from ingestion. Details of methods used and results obtained are in a laboratory report. (In reply to a question, it was stated that the type of DDT formulation used, and not so much the DDT itself, was apparently responsible for the observed toxic effects on the fish.)

4. One of the projects to be undertaken by our laboratory is the study of DDT residues on a number of structural surfaces such as glass, wood, galvanized iron, paper, concrete, plaster, etc. Bioassay investigations of structural materials such as the foregoing has already been reported by a number of investigators. As early as February 1945, in a pilot laboratory project (unpublished) the writer found that DDT residues on unpainted wood were much more toxic to Tribolium adults than DDT residues on painted wood. The lesser insecticidal effectiveness of painted surfaces is intriguing. In the latter regard certain exploratory tests recently conducted have given us some ideas. In any event, we plan to execute this assignment using both chemical and biological assay; we feel that certain refinements in our chemical methods will promote increased sensitivity of measurements.

(Replying to a question by Mr. W.L. Silversides regarding how much of the tree bark that had been analysed was outer surface, Mr. Berck said that the uneven nature of elm tree bark made it difficult to maintain a fixed depth in sampling. As a result, bark was removed with a sharp knife to approximately 1/16 inch below the level of the "valley" in the bark. The probability of slow efflorescence or migration of DDT from subsurface to surface locations was discussed, and referred to earlier findings of Berck and Smallman with DDT in box car surfaces. With smooth surfaces, definite thicknesses, such as 0.001 inch may be removed, and a study of distribution and depth of penetration is then possible.)

FALL MEETING OF THE ENTOMOLOGICAL SOCIETY OF MANITOBA

The Business Session

The meeting was held on December 12, 1950, in the Entomology Building, University of Manitoba. Twenty-seven members were present.

The minutes of the last meeting were read and adopted.

An Insecticide Committee was formed and held a brief meeting during the day. No report was presented by the committee. It is composed of the following members.

Chairman - S. Pugh
Prof. A. V. Mitchener
Dr. R. D. Bird
Mr. R. Coleman

No reply was received to the letter which had been sent to the Manitoba Government regarding the appointment of a Provincial Entomologist.

A letter was read from the secretary of the Entomological Society of Canada requesting payment of dues to give the new society a start.

C. A. S. Smith presented a report on the founding of the Entomological Society of Canada at the annual meeting of the Entomological Society of Ontario held at Guelph, November 1-3, 1950.

Discussion on fees and meetings. Prof. Mitchener suggested that the fall meeting should be held earlier to accommodate students writing examinations in December. Dr. Smallman pointed out the necessity for holding the fall meeting before the November meeting of the national organization.

Prof. Mitchener moved "that a student membership be established at a fee of one half the local regional fee." Seconded by R. R. Lejeune.

CARRIED

Prof. Mitchener moved "that the representative of the Entomological Society of Manitoba to the Entomological Society of Canada be appointed at the fall meeting prior to the annual meeting of the Entomological Society of Canada." Seconded by Dr. A.J. Thorsteinson.

CARRIED

It was moved by R.R. Lejeune "that the executive call the spring meeting of the Society during the first half of March." Seconded by F. Birt.

CARRIED

Moved by F. Watters "that the annual levy for membership in the Entomological Society of Manitoba be waived for 1951 to encourage membership in the Entomological Society of Canada." Seconded by B. Berck.

CARRIED

Moved by R. D. Bird "that the fiscal year of the Society should coincide with the calendar year." Seconded by R. R. Lejeune.

CARRIED

Moved by C. A. S. Smith "that the Society express its appreciation to Prof. Mitchener for the facilities offered by the University for meetings." Seconded by B. N. Smallman.

CARRIED

The meeting adjourned at 2:00 p.m.

Scientific Business

The members convened during the day for a brief scientific session. This constituted the reporting on a few of the more important papers which had been presented at the annual meeting of the Entomological Society of Ontario, held at Guelph in November. The reporters were B. N. Smallman and R. R. Lejeune, two officers of the society who had attended the Guelph meeting.