of the Entomological Society of Canada

Bulletin

Vol. 2, No. 2, June, 1970

THIS ISSUE

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Cover Design: M. A. Sydor, bio-Graphic Unit

Published by the
Entomological Society of Canada
K. W. Neatby Building, Ottawa

of the Entomological Society of Canada

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Editorial

The 20th Annual Meeting is to be held at Winnipeg, August 24, 25, and 26 jointly with the Entomological Society of Manitoba. Prairie hospitality is a special kind of hospitality and if you have not yet attended a meeting in Manitoba, by all means plan to be there. Manitobans have something special to shout about this year, which is the 100th anniversary of the entry of Manitoba into Confederation. An excellent and timely programme features two symposia, **Insecticides: Past, Present, and Future** and **Ionizing Radiations** in Entomology, abstracts of which are printed in this number.

It is to be hoped that contributions to the technical side of the Winnipeg programme, particularly the submitted papers, improve over previous years, both in the preparation of the material and the manner of presentation. This number of the Bulletin contains an article on the Art of Oral Communication which was requested because contributors often give too little attention to this important method of publishing results. The author, Dr. J. MacBain Cameron, was President of the Entomological Society of Ontario when they were hosts to the 1969 Annual Meeting at Guelph. He is freshly aware of the difficulties in planning a national meeting and obtaining excellence in all the contributions. We hope that reports of good research are not unappreciated because they are much too detailed, badly illustrated, prepared in literary style, poorly delivered or read.

CONTRIBUTORS

The many contributions of regular correspondents and others are appreciated. A few short personal items were not used because items of professional significance are preferred, such as higher degrees, appointments, transfers, honours and invitation papers, but not undergraduate degrees, births, marriages, and seminars.

Copy didn't exactly come gushing in this quarter: illustrations are wanting, and nobody had a "feature photograph" to display. Regional societies are urged to use the Bulletin to publiciz th ir activities. Committees of this Society can use the Bulletin to their advantage, as has the Committee on Gift Subscriptions in this number.

The next number will feature reports from the Annual Meeting. The deadline will be August 28, but send material at any time because things are easier if it does not all arrive at once.

Contributions and correspondence should be sent to: D. C. Eidt, Editor, Bulletin of the Entomological Society of Canada, P.O. Box 4000, Fredericton, New Brunswick.

THE ENTOMOLOGICAL SOCIETY
OF CANADA - OF MANITOBA

20th Annual Meeting
Fort Garry Hotel, Winnipeg

Abstracts of Invitation Papers

The Impact of Insect Outbreaks in Manitoba

W. A. Reeks
Canadian Forestry Service, Ottawa

Manitoba's greater understanding of soil management after the dry years of the 1930's led to development of a sound policy of land use for agriculture. Ultimately, land use planning was based on the land's capability for agriculture, forestry, recreation, and other activities. Changes in land use, especially replacement of native plants with agricultural crops, were accompanied by changes in the complex and abundance of insect pests. Outbreaks of agricultural insects have been more serious than forest insects from both the economic and sociological points of view, and grasshoppers have dominated all destructive species since establishment of this Province's first permanent settlement in 1812. In addition to economic losses, insect outbreaks have been partly responsible for migration of people f om pest-prone communities to other ural and urban areas, and many migrants have experienced social difficulties after resettlement.

Symposium

Insecticides: Past, Present, and Future

Monday Afternoon, August 24

1345-1400	C. R. Harris, Chairman, Introduction
1400-1440	G. S. Cooper, Manager Technical Service, Cyanamid of Canada, Rexdale, Ontario "The Industry Viewpoint"
1440-1520	F. A. Gunther, Department of Entomology, Univ. of California, Riverside "The University Viewpoint"
1520-1540	Recess
1540-1620	Henry Hurtig, Research Coordinator (Pesticides), Canada Department of Agriculture, Ottawa "The Government Viewpoint"
1620-	Discussion

INTRODUCTION

C. R. Harris

In recent years, the widespread use of chemical insecticides for control of insect pests has become a question of vital concern. Because of their persistence and mobility, some insecticides are causing serious environmental side effects. In some areas, fish and wildlife are contaminated with insecticide residues far above acceptable levels and in areas where insecticides have been used extensively populations of predatory birds are declining. Needless to say, there has been a strong public outcry to ban these persistent pesticides, and in a number of countries, states, and provinces such bans have been put into effect. There is strong pressure to restrict drastically or even to ban all pesticides and to rely completely on "biological control". Knowledgeable scientists, however, concede that with the majority of pest control problems, biological control at present is impractical if not impossible. More hopefully, it is or soon will be possible in a number of instances to use pesticides more sparingly, by adopting integrated control techniques involving the use of narrow-spectrum chemicals combined with natural biological controls or commercially available biological control agents. However, even with integrated control the possibilities are limited. Consequently, for at least the next 10-20 years, chemical insecticides will continue to be the first line of defence in controlling insect pests.

The development of new less hazardous pesticides will not occur overnight. Consequently, we will have to develop much more effective techniques of insect control, relying largely on materials now in use, which insure a minimum of environmental contamination. Perhaps more stringent regulation of pesticide use is required. If we are to develop narrow spectrum pesticides, whether they happen to be chemical or biological control agents, there is an immediate need for a vastly expanded research program. These problems can be solved only through a cooperative approach involving Industry, Universities, and Government.

THE INDUSTRY VIEWPOINT

G. S. Cooper

The mere banning of a pesticide or a group of pesticides is not a stimulus to the chemical industry to produce newer and safer compounds. Nor does industry have a reservoir of newer and safer compounds being held ready, waiting for the older compounds to be banned. At all times, the agricultural chemical industry is searching for newer and better compounds, and needs only to be fortunate in the discovery of one compound, and it will be marketed as soon as time permits. Competition assures this action — no other stimulus is necessary.

The present method of producing new chemical structures and then screening them is rather empirical, and thus any success is largely by chance rather than by design. If a specific product exhibits a broad spectrum of control, its development and marketing is assured, but if it exhibits only a narrow spectrum of control, its future depends upon the specific use and the potential market for such a product. A chemical must have a potential sales market of at least 5 to 10 million dollars because it has to support its own costs, help return the cost of discovery and screening, and that part of research and development spent on other compounds that are rejected. There is little chance of developing a specific chemical for a specific use under the empirical approach, and no company at this time can afford to pursue this approach alone.

The cost of developing an insecticide has almost doubled in the past 5 years. The test requirements are ever-expanding and as each new requirement is added, the costs increase. Already the increased testing costs have caused many companies to suspend their screening programs, and to depend on other companies who have retained their screening programs. In such cases, the company producing the compound can only hope to obtain a small royalty for any successful compound. There is little doubt that as the testing requirements expand, more and more companies will withdraw their insecticide research programs. The costs are rising so rapidly that the remaining companies in pesticide research must obtain more for their successful pesticides. Thus, as we face the future, unless some major change occurs, the cost of insecticides will increase.

In the past, industry has been required to supply all the methodology, toxicology, residues, persistence, and many other requirements. The requirements should not be extended, but rather those necessary for complete acceptance of an insecticide should be shared by government and university, as well as by industry.

Industry feels that integration is desirable between chemicals and biological control, although it does not feel that strict biological control will ever be the complete answer. Industry is interested in developing other approaches such as the varied biological-chemical approaches. It is interested, and is carrying out research designed to produce chemicals which hopefully, will change the physiology of the plant so that it is insect resistant. There is a definite change towards new approaches to chemicals for agriculture, and insect and disease control. There is an awareness of the need to stop the ever-increasing cost of insect control, for as the new requirements continue to be added, there is a grave danger of pricing pesticides out of the market, and making it impossible for the user to achieve a fair return from their use. Such increases will also have grave impact on the future development of new chemicals. Many companies have already indicated that they would prefer to put their research money into areas of greater return and stability.

THE UNIVERSITY VIEWPOINT

F. A. Gunther

As intermediaries between industry, the developers and producers of insecticides, and government, the arbiter of their regulated application, university research units should independently acquire supplemental detailed information to help guide both initial and revised decisions on usefulness and on safety. Typical university research interests should include extensive and continuing evaluations of field performance and merit; establishment of realistic measures of fate and persistence of all residues introduced into the environment; long-term studies of effects of these residues on any organism that would normally be in or near the target area; and the continuing scrutiny, development, and exploitation of analytical methods adequate to these tasks. Whether universities can efficiently search for new insecticidal compounds is a moot point, although mode-of-action evaluations are almost exclusively university activities and can conceivably point the way to new insecticides.

Traditionally, university agricultural laboratories have been regarded as unbiased testing centers, as critics, and as training centers for research workers. Being largely responsible for the orderly development and recommendation of practical and practicable advances in agricultural production in their geographic areas and interests, they must remain impartial for maximum effectiveness in assisting both industry and government. Past and present history in the field of insect control abundantly demonstrates that universities have played major roles in establishing the present insecticide panoply; it is to be hoped that these contributions will be expanded.

THE GOVERNMENT VIEWPOINT

Henry Hurtig

Abstract not available.

Symposium

Ionizing Radiation In Entomology

Tuesday Morning, August 25

0900-0910	W. F. Baldwin, Chairman, Introduction
0910-0950	A. J. Mooradian, Vice President, Whiteshell Nuclear Establishment, Pinawa, Man. "Whither Canadian Science or wither Canadian Science – a choice".
0950-1030	David E. Reichle, Radioecology Section, Oak Ridge National Laboratory, Oak Ridge, Tennessee "Recent advances in the study of insect food chains".
1030-1050	Recess
1050-1130	J. E. Guthrie, Whiteshell Nuclear Research Establishment, Pinawa, Man. "Radioecology of insects in aquatic environments"
1130-1210	M. D. Proverbs, Canada Department of Agriculture, Summerland, B.C. "Orchard assessment of the sterile male technique for codling moth control".
1210-1400	Lunch
1400-1440	David T. North, Metabolism and Radiation Research Laboratory, Fargo, N. Dak. "Population control of Lepidoptera: the genetic and physiological basis".
1440-1520	J. C. Gomez-Nunez, Division Endemias Rurales Malariologia. Maracay, Venezuela. "Ionizing radiation and vectors of Chagas disease"
1520-1540	Recess
1540-1620	W. F. Baldwin, Biology and Health Physics Division, AECL, Chalk River, Ont. "Radiation induced mutations in insects".
1620-	Discussion

RADIATION INDUCED MUTATIONS IN INSECTS

W. F. Baldwin

Ionizing radiation is usually employed as a tool in entomology, either for tracer or tagging studies or for the sterilization of males and females for control. On the other hand insects themselves have long been employed as experimental animals in quantitative research on the mutagenic effects of radiation. These studies established several classical principles in radiogenetics that have now been applied to man. One of these is that the induced mutation frequency varies linearly with dose and is independent of the intensity at which a given dose is administered. Recently an intensity effect has been found in studies with mice, indicating that a proportion of pre-mutational changes are capable of repair during chronic irradiations. The present paper describes how the chalcid *Dahlbominus* has been employed in studies of mutation frequency, with particular reference to the relative effects of acute and chronic exposures on eye colour mutation frequency, and to the presence or absence of a threshold effect at lower does (i.e. some level below which no mutations are induced). The implications of the results with reference to radiation protection ar discussed.

IONIZING RADIATION AND VECTORS OF CHAGAS DISEASE

J. C. Gomez-Nunez

Chagas disease, caused by the protozoan *Trypanosoma cruzi*, constitutes a major health problem throughout most of South America. In Venezuela, *Rhodnius prolixus* is one of the important vectors of the disease, and our approach to the problem has involved both studies on the feasibility of the sterile male technique and work on the field ecology of the insect, using radioactive tracers.

In *Rhodnius*, complete sterility is achieved only by radiation doses of more than 17000 R, a level of exposure which seriously interferes with behaviour. Thus, these insects were unable to compete with normal males. Further tests with males exposed to only 5000 R showed, however, that although only 75% sterility was achieved at this dose, the males were much more active than untreated males, and mortality among progeny from normal females mated with the irradiated males was significantly higher than in normal nymphs. Males irradiated at 5000 R were tested at varying ratios to normal males in established laboratory populations, and in all cases an initial density reduction was followed by a recovery in numbers, even in populations where all normal males had been replaced by treated individuals. The probable reasons for the recovery will be discussed.

Ionizing radiation was also utilized in ecological studies with *R. prolixus* and *Triatoma maculata*. Field tests with adults of these two species were designed to evalnate dispersal, resting-place preferences and survival. Various tagging procedures were tested, and it was found that a practical method consisted of injecting radioactive platinum-iridium (Ir^{192}) wires into the abdomens of the insects. The results of field experiments indicate that dispersal was mainly motivated by starvation. Preferred habitats are certain species of trees and thatched houses. The average survival expectancy related to predation pressure, migration rate, and dispersal, limits the probability of house infestation by wild specimens.

RADIOECOLOGY OF INSECTS IN AQUATIC ENVIRONMENTS

J. E. Guthrie

Radioecology is the study of the relationship of radioactive substances and ionizing radiation with the environment. One aspect of this study pertinent to entomology is the uptake and distribution of radionuclides by insects.

The accumulation of radio-isotopes by aquatic insects is reviewed with emphasis on the uptake of radiocesium, a biologically important nuclear fission product, by insects living in an experimental pond contaminated with ^{137}Cs. The relationship between the distribution of the nuclide in the pond and the levels of radioactivity accumulated by chironomid larvae and free-swimming (nektonic) insects, is examined. A pyramid of specific activities (DPM/g wet wt.) is shown to be a useful method for summarizing the results, and it suggests the primary food sources of the major insect species living in the pond.

Radiotracer techniques have been used by several workers studying the feeding and assimilation rates of terrestrial phytophagous insects. The uptake and elimination of ^{137}Cs by *Lethocerus americanus* and *Aedes aegypti* larvae has been investigated in the laboratory, to assess the feasibility of using this nuclide to measure food consumption in aquatic habitats.

WHITHER CANADIAN SCIENCE or WITHER CANADIAN SCIENCE – A CHOICE

A. J. Mooradian

Intuitively, most of us are aware that we have not yet produced a viable scientific community in Canada. To do so, we will have to encroach considerably more on the resources of the country. These are apt to be denied unless it becomes apparent to the public that the scientific community is not only interested in its own progress, but also the progress of the country as a whole. While it is now generally acknowledged that science is a necessary ingredient of a progressive society, it is equally true that a simple inoculation with science is not sufficient to produce progress.

These and other homely bits of wisdom are the subject of this paper. The author attempts to analyze the confused environment in which the Canadian scientific community finds itself and to indicate what might be done to spur the required future development.

POPULATION CONTROL OF LEPIDOPTERA: THE GENETIC AND PHYSIOLOGICAL BASIS

David T. North and Gerald G. Holt

Lepidopterous species are highly resistant to radiation when induced sterility is the criterion. Radiation-induced male sterility in the cabbage looper, *Trichoplusia ni*, is attributable to two distinctly different phenomena. Part of the sterility is due to induced genetic damage yielding dominant lethal mutations which are expressed as death of the F_1 embryos. The second contributing factor to sterility is a physiological disturbance induced in the irradiated male which hinders his ability to incorporate sperm properly into the spermatophore at the time of mating. Both the genetic and physiological damage incurred are dose-dependent. Population suppression of control achieved through the release of sterile males into a natural environment, particularly in polygamous species, requires equal competition between irradiated and unirradiated sperm. In some Lepidoptera, including the cabbage looper, there appears to be a definite relationship between successful sperm transfer and the induction of a normal ovipositional response in the female. Lepidopteran males normally produce two types of sperm, (1) eupyrene (nucleate sperm capable of fertilization) and (2) apyrene sperm (anucleate sperm incapable of fertilization), which further complicates the competitiveness of irradiated males. This is because eupyrene sperm do not become motile until reaching the spermathecae. A large percentage of radiosterilized males fail to properly incorporate sperm into the spermatophore and thus the eupyrene sperm fail to reach the spermathecae. This phenomenon, which has been studied in both the cabbage looper and the corn earworm, *Heliothis zea*, will be demonstrated with a motion picture showing the placement of the spermatophore and incorporation of sperm by both irradiated and unirradiated males.

The widely accepted reason why Lepidopteran species are radioresistant to the induction of dominant lethal mutations is that their chromosomes are holokinetic. Chromosome fragmentation will therefore not lead to acentric fragments and thus dominant lethals, as in species with monokinetic chromosomes, such as in the Diptera. The dose-response curve for the induction of dominant lethals in Lepidoptera is two-hit in nature rather than one-hit, or linear, as in species having monokinetic chromosomes. This further substantiates the difference in the origin of dominant lethals in species having the two types of chromosomes. Since dominant lethals are not readily induced in Lepidoptera, they do not limit the number of chromosome translocations recovered. Sterile progeny are produced when males that received a substerilizing dose of radiation are mated to unirradiated females. The sterility inherited by the progeny is due to chromosome aberrations. A single release of partially sterile males into both laboratory and field-cage populations has proved to give 94% control over two generations. The progeny of irradiated females are more fertile than those of irradiated males. To counteract this and to eliminate the need to sex the irradiated released moths, a system of releasing inseminated females irradiated after mating as well as irradiated males will be presented. The advantages of releasing partially sterile males are (1) the released males are competitive, (2) fewer moths need to be released, (3) other types of biological control programs can be utilized concurrently with no effect on the efficiency of the released moths, and (4) it affords a method of obtaining population control without the use of pesticides. These results are for both the cabbage looper and the corn earworm.

ORCHARD ASSESSMENT OF THE STERILE MALE TECHNIQUE FOR CODLING MOTH CONTROL

M. D. Proverbs

Procedures for radiosterilization, marking, and release of the codling moth, *Carpocapsa pomonella* (L.), are described. Methods of estimating the native population, the ratio of native to sterile moths, and the fitness of the sterile males in the field are discussed.

Good codling moth control was achieved in 2 abandoned apple orchards where the released insects were (a) males only, and sterilized as pupae, or (b) males plus females, and sterilized as adults. A ratio of about 10 or 15 sterile males to 1 native male was required to prevent the native codling moth population from increasing. In 2 commercially operated apple orchards, release of sterilized moths (reared on apples or on an artificial diet) gave better control than in neighbouring orchards where the pest was controlled by chemical sprays. In the release orcards the usually injurious phytophagous mites were of little or no economic importance, but within 2 years the fruit tree leafroller had increased to injurious numbers.

RECENT ADVANCES IN THE STUDY OF INSECT FOOD CHAINS*

David E. Reichle

Many of the structural attributes and dynamics of food chains can be elucidated and quantified through the experimental use of radionuclide tracers; and, as such, this technique offers great potential in ecological research. Knowledge of food chain dynamics is a prerequisite to understanding the roles of energy and nutrients in ecosystem metabolism. Food chains also are the primary biological mechanism for the dispersal and concentration of radionuclide contaminants in the environment. The dynamics of material transport along insect food chains has received considerable attention in recent years. From these studies it is now possible to begin to synthesize mathematical models describing the variables affecting the environmental behavior of radionuclides in food chains. Food chain uptake, assimilation and metabolic turnover of radionuclides has been quantified for some elements and shown to be functions of diet, trophic level position, and temperature. These parameters, in turn, lead to predictable models of transient behavior of materials along food chains, resultant trophic level concentrations, and efficiencies of trophic level exchange.

*Research sponsored by the U. S. Atomic Energy Commission under contract with the Union Carbide Corporation.

THE ART OF ORAL COMMUNICATION

It is always a mystery why scientists will spend long hours, days and even years completing a research project, paying the most meticulous attention to detail lest they be found by their peers to have made an error or arrived at an incorrect conclusion, yet apparently will devote only minimum time and effort to the presentation of their results, especially when that presentation is in the form of an oral paper. At the annual meeting of the Ontario Entomological Society held in Sault Ste. Marie, Ontario, October 4, 1968, some members drew attention to this human failing, and presented the following resolution to the meeting:

"WHEREAS the standard of illustrations accompanying the papers presented at this meeting has varied from excellent to mediocre, BE IT RESOLVED that the Directors of this Society undertake measures to bring about improvements in the visual presentation of scientific data at future meetings."

The resolution was passed unanimously, and as a result when preparations were being made for the annual meeting for 1969, held jointly with the Entomological Society of Canada, a short mimeographed list of suggestions was circulated to those who indicated that they wished to present a paper in the program. There was of course no control, so it is not possible to say whether the suggestions had any real effect. But, whatever cause, the illustrations were generally better than those used at many previous meetings, and perhaps this should be adopted as a standard procedure to be followed by program committees.

Unfortunately the improvement did not carry over to the spoken presentations in a great many cases. The Directors were not given any instructions, however, so presumably there will be no comparable action. Therefore, on this aspect, at the invitation of the editor of the Bulletin and with some trepidation, I make bold to make some comments and to plead for more effort to be expended in this direction.

Just as the first step in the recipe for chicken stew is "catch one chicken", so in presenting a paper in a meeting the instructions should begin "Prepare your material". Many people overlook the fact that oral presentation in public is a form of publication, although the format should not necessarily be that of a text for printing. This being the case, the preparation deserves, but frequently it obviously does not get, the same attention to detail that is given a manuscript intended for a journal. There are few writers whose product could not be improved by the scrutiny and comments of colleagues. This is done with printed papers – if not voluntarily by the author, then by the journal editor who submits the manuscript to referees, and the same should apply to oral presentations. It should be remembered that there is a limit to the amount of information that the average person can absorb from an oral presentation. If it is printed, he can refer back, but the spoken word cannot be checked. Therefore only the necessary detail should be given both verbally and by means of slides, and all extraneous and unimportant items should be eliminated.

For the actual presentation, one of the first things a speaker must learn is to judge the acoustics of the room in which he is speaking. Even some modern lecture theatres leave much to be desired in this regard. The speaker should always remember that people are inherently selfish – they do not come to make him feel good but to hear what he has to say. They cannot

all be within five or ten feet, and the ones at the back are presumably as anxious to hear as those at the front. To speak in a mumbling monotone is a discourtesy that the audience does not easily overlook or forgive; unfortunately some of our most eminent as well as younger members are guilty of the practice.

Many halls now are equipped with public address systems, but these do not necessarily solve the problem. Unless they are of top quality — unusual in most classrooms and lecture amphitheatres — they tend to be metallic and harsh. Moreover, the volume is almost invariably turned too high, frequently resulting in feedback to the microphone and a disconcerting screech. Any amplifier should be so adjusted and used that it reinforces the speaker rather than competes with him. Unless he is seated close to a loud speaker that is obviously placed well away from the lecturer, the listener should be able to have the illusion that he is hearing the sounds directly from their source. If this is not the case, it is of course a reflection on the organizers and operators, and not the speaker.

Amplifying systems may be a drawback rather than a benefit, especially if the speaker, either for emphasis or because of nervousness, moves about. The sudden change in volume is bothersome to the audience as the speaker turns away from a desk microphone; the problem is less if a chest microphone is available. Therefore, if an amplifier with fixed microphone is used, it should be accepted that platform mobility must be eliminated. This is particularly difficult if slides or charts are being used, because of course it is necessary to turn toward the illustration while speaking — but not to deliver the entire paper with the back toward the audience! For this reason I personally advocate practising the art of voice projection so that the amplifier is unnecesary except in most unusual situations or very large halls.

One must remember that speaking is simply a matter of generating and propagating wave motion — sound waves — in a fluid medium — the air. These waves behave exactly as a ripple on the surface of water when a stone is dropped in — they spread outward, somewhat directionally (because the mouth is usually on only one side of the head!), but in ever widening arcs and with diminishing amplitude and velocity. They become absorbed by soft surfaces, and distorted or reflected by hard and irregular ones. Therefore it is necessary that they be generated at the maximum quality level. This cannot be done by the vocal cords alone — the entire mouth, and especially the lips, must be involved. Speech must be slower than in ordinary conversation, and enunciation must be precise. Words must not be run together, and the lips must be separated so the waves can escape from the mouth clearly and undistorted. If it is necessary to follow the text closely, it should be placed on a lectern — or held in the hand if necessary — so that the head can be up, full face to the audience; it will be necessary to practise looking down with the eyes only, rather than bending the neck. The text for reading should be prepared in advance with landmarks so that one can look away from it, yet return without losing one's place. A standard double-spaced page of typescript requires about 3 1/2 to 4 minutes for reading aloud if the audience is to comprehend what it contains. Four to five pages is sufficient text for a usual program paper, and one should practise so that the delivery approaches closely to the allotted time, especially where there are concurrent sessions.

In today's specialized world a speaker must remember that, even though all our members are nominally entomologists, many in the audience will be specialists in a different area and will be unfamiliar with the jargon.

Therefore it is particularly necessary that technical terms be enunciated clearly – to the uninitiated some sound surprisingly similar – and they should be defined in the beginning if there is any chance of ambiguity. Watch for such things as "significant difference" – is it intended to refer to statistical or to common sense significance, which do not necessarily have the same limits.

Clear enunciation is probably the most important single factor in delivering a good paper. Ordinary words often present the greatest problems simply because of their familiarity and repeated use. This is well illustrated in the conversation attributed to some comic strip characters; some political speakers also are good examples – one, who is frequently heard, consistently speaks of the "gummint". Let us all try to avoid such pitfalls.

In concluding this dissertation, may I point a finger. In my opinion, while we are all to blame to some extent, simply by failing to offer constructive criticism, the prime responsibility for our over-abundance of poor public speakers lies with our educators. It is still true that "as the twig is bent, so is the tree inclined." Only in a small way can we influence the very early training, in high school for instance. But it is our own members who are the instructors and advisers to university students. In my opinion, before one can be called a professional entomologist it is important that he should be able to speak intelligibly from the public platform, because there will be a continuing responsibility to communicate. It is definitely a part of professorial responsibility to ensure that all students are coached in oral presentation and that they are given adequate opportunity for practice with constructive criticism. During the past several years in the Ontario Entomological Society we have listened to papers presented by students in competition for the President's Prize, and I could not help wondering in many cases why the counsellor permitted the candidate to take part. Generally the material has been good, and apparently well organized, but this is of little value if the audience cannot understand the words. In my opinion – and I was not a judge so I may well be wrong – a potential winner of the prize in 1963 lost largely because his presentation was completely unintelligible. I plead, therefore, with those who have an opportunity to give guidance that they impress on the coming generation that good public speaking is not an inborn gift but an art that can be acquired and mastered if one really wishes to do so. You will have to bear with us older ones – to use another cliche "You can't teach an old dog new tricks". But let us all strive to improve the standards for the future so that asking our colleagues to listen to us is not imposing on them but providing them opportunity for acquiring, without an accompanying sense of annoyance or frustration, new and interesting information about a subject in which they are interested or they would not be in the audience.

J. MacBain Cameron

CANADIAN ENTOMOLOGIST 100 YEARS AGO

At a recent meeting of the Council of the Agricultural and Arts Association of Ontario, the following resolution was adopted:

"That the Secretary notify the Entomological Society that their Report will not be required until about the 1st of October; also that the grant will be paid at the same time as the County Societies; also that they will be furnished with room for their cabinet in the Agricultural Hall."

BOOK REVIEW

Population Dynamics, by Maurice E. Solomon. Edward Arnold (Publishers) Ltd., London, November 1969. Canadian distributor The Macmillan Co. of Canada Ltd., 60 pp. 14s. ($2.50 Can.) boards, 8s. 6d. ($1.50 Can.) paper.

An explosion of public interest, apparently triggered by Rachael Carson, has propelled the word "ecology" from the obscurity of scientific literature on to the front pages of the newspapers. It has become fashionable to deplore the effects of technology on the biosphere and talk about the population problem.

This is all to the good, but fashions come and go, especially in North America. Whether or not this one continues and has any worthwhile effect on political and economic practice remains to be seen. It will depend in part on the ability of biologists to present the ecological facts of life and show that they know what they are talking about. Ecology has to be seen as a reputable branch of science, not a band waggon.

From a biological point of view, the problems that disturb us are basically problems in population ecology. They call for an understanding of the dynamics of populations of all living organisms, including man.

Entomologists who search for methods of controlling insects come to recognize this – sooner or later. If they are to come up with anything more than temporary solutions they have to know how insect numbers are determined in nature. They find that the question cannot be dodged, in spite of its complexity. Those who have had the foresight to concentrate their research on this fundamental aspect of entomology have made considerable contributions to understanding of the principles that permit the coexistence of species and govern the ecosystems on which man depends. They are in a good position to promote their incorporation in the teaching of science.

This is the purpose of a new booklet by M. E. Solomon. It is No. 18 of the series "Studies in Biology", sponsored by the Royal Society and the Institute of Biology, designed for students in schools and first year of university.

Dr. Solomon is well known to entomologists for his contributions to the theory of insect populations. The book is written with the same clarity and freedom from jargon that has distinguished his scientific papers; his ability to simplify the complex is put to good use. In fifty-six pages, he succeeds in defining the problem, indicating current approaches in research, and presenting a balanced account of our knowledge of the processes by which populations are determined. He uses examples from entomology, including work in Canada by Holling, Morris, and Burnett.

His treatment of Fluctuation and Regulation is of particular interest. Ignoring the unnecessary controversy that at one time confused this subject, he gives a comprehensible summary of populations and environment as a working unit, in which density relationships are emphasized but put in proper perspective.

The final section, on human populations, is a calm statement of man's necessity to reduce his rate of reproduction.

> The population dynamics of a species can be understood only in relation to its way of life, its behaviour, its environment, the way it goes about getting food and other necessities, and, in the case of man, in relation to the way he feels and thinks.

Entomologists, as well as freshman, will read it with interest and profit.

R. E. Balch

JOSEPH A. LETOURNEAU 1886-1970

On Friday, April 17, 1970, Joseph A. Letourneau died in Ottawa at the age of 84. With Mr. Letourneau's passing we have lost a link with the beginning of organized entomology in Canada.

With the establishment of the Experimental Farms Service of the Dominion Department of Agriculture in 1887, James Fletcher, as the first Dominion Entomologist, initiated studies of insects destructive to crops in Canada. Fletcher worked alone until 1892 when he was given an assistant, J. A. Guignard. In 1899, Arthur Gibson was appointed to the Division of Entomology and Botany, and in 1907 Joseph A. Letourneau was employed as a clerk-typist. In 1908 Fletcher died, having laid, with this small staff, the foundation of one of the most important entomological services in the British Empire. When he retired in 1950, J. A. Letourneau had served under all succeeding Dominion Entomologists including C. Gordon Hewitt 1909-20, Arthur Gibson 1920-42, L. S. McLaine 1942-43, and H. G. Crawford 1943-50, when the title of Dominion Entomologist was changed.

Although nominally a clerk-typist, duties in the early days of entomology were not strictly defined and Mr. Letourneau assisted in many activities. He drove an ancient car when few had one, and occasionally took collectors on field trips, especially to the Mer Bleue, a favorite collecting place in the Ottawa area. He also assisted in collecting and preparing insects, many of which are still in the National Collection. He was in charge of accounts, and at a major conference of field officers in Ottawa in 1933, and after many speeches, legitimate charges on field trips were being discussed. When asked if charges for laundry might be included, Mr. Letourneau replied, "Put it in anyway, you'd be surprised what you can get away with." (Shades of Bonaventure!).

Mr. Letourneau had a most congenial, friendly and obliging disposition that endeared him to all with whom he came in contact. He practised biculturalism long before it became elevated to the field of politics. Culminating an intimate and rewarding acquaintance dating back to 1933, the writer feels fortunate to have had him as a most congenial assistant for several years.

Joseph Letourneau is survived by his wife, Berthe Dorval of Laurier Manor, three sons (Dorval, Jean-Paul, and André), four daughters (Cécile, Pauline, Annette, and Jacqueline), fifteen grandchildren, and two great-grandchildren. Also surviving are two brothers and four sisters.

C. Graham MacNay

OBITUARY

Nelson A. Patterson, a Regional Director of the Entomological Society of Canada and a Past President of the Acadian Entomological Society, died 8 June 1970 at Kentville, N.S. He retired from the Canada Agriculture Research Station, Kentville, in July 1966. A short biographical note appeared in **Entomology Newsletter** 44(10).

POSTDOCTORAL, GEMBLOUX, BELGIUM

The period September 1968 to September 1969 was spent on postdoctoral transfer of work at the Laboratoire de Zoologie Générale et Faunistique, Faculté des Sciences Agronomiques de l'Etat, Gembloux, Belgium. The university is built on the site of a Benedictine abbey first established in 922. Few traces of the original abbey remain, for it was destroyed and rebuilt several times. Some of the buildings now in use, however, do date from the late eighteenth century. Others were built during a period of expansion in 1935. Still others are under construction at the present time.

Agricultural education at the university level has been provided here continuously since January 1861. The Faculté enjoys an international reputation and its teaching staff are invited as visiting professors to many foreign universities, including those of Canada. The student body is equally international in constitution, representing 38 countries last year. Visiting scientists are welcomed for various periods of time to perform research at the Faculté. Workers from Brazil and Australia were working at the Faculté during the period I spent there. Strong ties are still maintained with the Congo and with other developing countries in Africa. Students are welcomed from these countries and much research is directed towards improving conditions in them.

The Department of Zoology is lodged in one of the older buildings, which boasts of burial crypts and underground tunnels, through which the monks escaped when the abbey was beseiged. As is the case in every institution, this department is also experiencing a shortage of space. As a result, the general student laboratory, together with office space for teaching assistants and research workers, was located in the attic of this building. The hand-hewn rafters contrasted with the arborite bench-tops and up-to-date microscopes. The offices were also completely modern, with contemporary metal office furniture of good design, padded chairs, and stainless steel sinks. Such contrasts were common, so that the sight of an amino acid analyzer in a room off the old cloister finally failed to evoke any surprise at all. The buildings were provided with central heating and I managed to survive the winter by supplementing the radiator heat with the constant help of an electric fan-heater — and on occasion, two pullovers.

The research program of the Department of Zoology covers many fields: taxonomy of Hymenoptera; ethology and ecology of ants; population dynamics of Lepidoptera; nutritional values of proteins; and role of animals in the forest ecosystem. Work was also begun last year, in cooperation with the Biological Records Centre, Monks Wood Experimental Station, U.K., to map the occurrence of insect fauna in 10-kilometre square areas, for the whole of Belgium. The data were being prepared for computer use, so that information can be retrieved concerning any insect and so that computer-drawn distribution maps can be produced.

Life appears to move much slower in Europe than in Canada — and in some instances this is really so. In other cases, the realistic outlook and acceptance of circumstances by Europeans merely make it appear so. Since returning to Canada, I have found many of the same things to be just as slow here, but we cover these with a cloak of bureaucracy and pretend that they are rolling right along. My technician was a highly organized and intelligent girl, who kept the nutrition experiments moving at a good pace. By spring, the results of her work kept me very busy organizing, analyzing, and summar-

izing data. It was as much by her devotion to the project as to my own effort, that the work yielded seven creditable papers dealing with nutrition of *Tenebrio molitor*.

Laboratories in general were fairly well equipped, although those in France were equal to anything on the North American continent. In Belgium, anything that may have been lacking from an equipment standpoint was more than compensated for by the strong interdisciplinary cooperation that was evident everywhere.

My associations at Gembloux were pleasant and friendly. I learned from them what they mean when they accuse North Americans of warm, but superficial friendships. The familiarity, the use of first names and the superficial interest that we seem to take in each other were absent. However, when friendship was offered in Belgium, it was from the heart and it seems to be eternal. It was therefore with reat regret that I left such associations behind in August of last year.

Gembloux, with its population of 10,000, had no housing available for us. We were limited first by requiring furnished quarters and second by having four children. (The Belgian norm is one or two and one or two dogs.) We therefore had to live in Brussels, although it was the last place on our list of preferences. Train service between Brussels and Gembloux was excellent, however, with at least one good train every hour. This train covered the 25-mile distance in 24 minutes, when running on schedule and under optimal conditions. In this short distance, it also spanned two worlds.

Brussels! How hard it is to be just in assessing this city of contrasts and contradictions! Little time is needed by the stranger before the open hatred between Flemish and Walloon is felt in the capital of Belgium. Despite legislation regarding bilingualism, one quickly realizes that the few bilingual people have only a single advantage: to insult one another in two languages rather than one. Smiles are rare on the faces of the inhabitants of this city and a sense of humor is almost totally unknown. And everybody is a specialist! The cashier cannot serve you by taking an item off the shelf behind her, but has to call a clerk from the back of the store for this transaction. The woman who specializes in ironing lace curtains would have a nervous breakdown were she asked to iron shirts. The man who connects the telephone is incapable of running a length of wire to connect it in a new location. The rest of society, you can imagine for yourself.

Brussels is a violent city, as is Belgium in general. Violence is as bad or worse than that of North America, which has won the title of "The Violent Society". Our newspapers were so filled with murder, abduction, rape, homicide, and robbery with violence, that the international news was squeezed right out of them. With this void in current events, we felt quite lost for several months after our return.

The physical structure of Brussels underlines the mood of contrast found in this country. Ultra-modern and ancient buildings elbow each other throughout the city. Many old buildings exist merely because they are old and not for any aesthetic reason. This may not be strange in a country where the average age of the inhabitants is 56 years. The cobble streets and sidewalks were dreadfully dirty and also ruined our shoes, our backs, and our dispositions. The only breath-taking scene in the whole city is the sight of the old guild houses sparkling in their gold-leaf trim around the edges of the Grande Place. Yet, this is the city which is making its voice heard loudly, in an effort to become the capital of Europe!

Schooling for the children was excellent – once we had located a school with a contemporary outlook for the girls. Our son and the two of our daughters of school age adapted readily to the new schools. The school day was long, beginning at 8:20 a.m. every day including Saturday. Wednesday and Saturday afternoons were school holidays and little could be done on either. The children used them for their extracurricular education – music, art, ballet. As for the curriculum, mathematics is much more advanced than in comparable grades in Canada. Some other subjects are slightly more advanced t an here. However, physical education seemed to be the poor step-sister of the school family, with little time and less equipment allotted to it. The children worked harder at school, partly because they had to bring their written French up to standard and partly because emphasis is placed on learning, rather than on understanding. In the latter case, the hope is that understanding will natural y arise as the child matures.

The cost of living is two to two and a half times that in Canada. We became so conditioned to this that, on return to Canada, we could not understand the complaints we heard in connection with prices. In Belgium, we spent all our salary and part of our savings in an attempt to keep body and soul together. At that, the slices of bread and roast were all counted and certain items of food were reserved for the two youngest children, only. Even an ice-cream cone became a real treat! Only automobiles are cheap by our standards, but gas, oil, and insurance are almost prohibitively priced. In practice, the European Common Market has brought prices up in all countries to the highest level encountered in any one of the six. Dutch Edam cheese, for example, was as expensive in Brussels as it is in Saskatoon. Another factor contributing to high cost is the expense of duplicating all levels of government from Deputy Minister down, to comply with regulations concerning bilingualism. This is passed on in the form of indirect as well as direct taxation. With salaries about half the level of corresponding positions in Canada, with high cost of living, and with high taxes, it is little wonder that smiles are rare and senses of humor lacking.

Postdoctoral transfers of work are designed primarily to bring the recipient into contact with new ideas and thus to benefit his research work. I do not know how better equipped I may be in this regard, but I am infinitely wiser in many spheres than I was prior to the transfer. Far from being ecstatic towards our Canadian way of life and blind to many questionable situations, I find that I have a greater awareness of all situations. All was not bad in Belgium! All is not good in Canada!

C. R. F. Davis, Saskatoon

CANADIAN ENTOMOLOGIST 100 YEARS AGO

An attack of ague – for although that depressing complaint is happily of infrequent occurrence in our village, it was exceedingly prevalent last year – and a subsequent lengthened absence from home for the recuperation of health, prevented me from devoting much tim , last summer, to the capture of entomological specimens for my cabinet.

ARACHNOLOGIST DONDALE IN FRANCE

In the month of May we arrive in Montpellier by Caravelle jet and take up rental in a new 115-villa subdivision called Les Terres Blanches. The Mediterranean sparkles invitingly only ten kilometres away, its beaches clean and warm. Inland, young grapes have just formed in the magnificent vineyards, but already primeurs, or early fruits and vegetables, are in abundance at the open markets and sidewalk stalls. We begin to explore the shops, parks, museums, and teeming scientific community of this city of nearly 200,000 inhabitants. There are field trips with the students to the cork-oak, chestnut, and beech forests of the Pyrenées, to the littoral, and to the mountain valleys of the Cévennes. And there are the speech and customs of the people of old Languedoc-Rousillon.

High summer arrives. The merciless sun beats down on the drowsy Midi of France. Cicadas clack in the evergreen oaks and Aleppo pines. The sea becomes a vital ally in the effort to tolerate heat. The Faculté is now deserted, students and staff having gone to the beaches or the mountains, their research set aside until fall. France is on holiday.

October brings back the students, their supplemental exams written (who wants to cram in June?) and their invertebrate cultures renewed from the streams and étangs. It is the time of wine harvest, when the byways are clogged with carts and trucks laden with grapes trundling to the cooperative presses in the villages. The village air smells of fermentation, and *Drosophila* experiences a population explosion. I roam the garrigue for scorpions and strange four-lunged spiders and announce "Des Fourmis!" to Monsieur Bonaric whenever a nest of ants is found. It will take him ten years to gather his data. His thesis will be the required 400-page minimum, and his jury will judge and approve it in the traditional way.

Now it is winter. No snow falls, but there is night frost. My neighbours in Les Terres Blanches prune and plant, water their tiny grass plots, and wheel precious soil from one flower bed to another. Some rain falls, gentler than the torrents of October, and the sun has lost its power. Vineyards and orchards are bare, but olives and oaks and ornamental citrus keep the countryside green. Spiders and insects are active on sunny days in the tiny meadow near the Faculté des Sciences, but *Pisaura* goes into deep diapause as shown by the respirometer. Curiously, the animal continues gaining weight. To my dismay a long-photoperiod culture in the laboratory diapauses like those in the meadow. But even while I am puzzling over this, precocious spring arrives and winter sleep is swept away. At the end of January, forsythia comes into bloom, followed by almond, iris, apricot, and plum. Houseflies resume their patrol of the kitchen. Vignerons make the country fragrant again, this time by burning heaps of prunings. Bees gather pollen. Mimosa bursts simultaneously into leaf and flower. The mistral blows again. The first campers are noticed in a roadside park. By the time spring officially arrives, peaches are in bloom, butterflies are flitting about, and swallows are soaring in the air. The cry of a long-haired organizer, announcing with loudhailer the rights of the students, confirms that spring had indeed come again, and our year in France is over.

C. D. Dondale

Dr. Dondale returned to the Research Institute, Belleville, in April, 1970, having participated in the National Research Council's cultural exchange of scientists between Canada and France — Ed.

Report of a conference
CONCEPTS OF PEST MANAGEMENT
Raleigh, North Carolina, 25-27 March, 1970

The conference addressed the problem of improved, ecologically sound methods of pest control in the face of the twin specters, population growth and pollution. The means of increasing food prod ction must be compatible with good antipollution practices. Most entomologists agree that such an approach lies in more effective application of ecological prinelples in managing pest populations.

The Institute of Biological Sciences of North Carolina State University and the Entomological Society of America co-sponsored the conference through grants provided by the Rockefeller and National Science Foundations. Approximately 300 persons attended from universities, governments, and industries from 24 countries.

Objectives were outlined by R. L. Rabb (N. C. State Univ.): (a) synthesis of the fundamental concepts of the pest management method, (b) determination of the practicality and limitations of the method, and (c) delineation of training programs for a more sophisticated approach to the problems of the entomologist.

The opening paper by T. R. E. Southwood (Imperial College, London) emphasized the need for the ecosystem concept and pointed to need for maintenance of species diversity. The req irement of a thorough analysis of the economics of pest control, including the cost of pollution, was discussed by A. H. Strickland (Ministry of Agriculture, England). L. R. Clark (CSIRO, Australia) and R. F. Smith (Univ. of California, Berkeley) addressed the practical aspects of the pesticide weapon, urging more specific insecticides as well as greater "use selectivity" in the existing ones. Overkills and lack of attention to economic thresholds were cited as practices which can no longer be tolerated. None of the speakers recommended that any insecticide be banned and most spoke against such bans in informal discussions.

Both Clark and K. E. F. Watt (Univ. of California, Davis) felt that use of models and systems analysis should receive greater emphasis in future programs. The solutions which seem "most apparent" were suggested to be a possible main cause of the continuing pest problem, for without adequate analysis and a predetermined solution, a lack of innovative techniques is certain to prevail. A somewhat opposite viewpoint was expressed in a discussion on life tables by G. C. Varley (Oxford, England), who felt that present data were inadequato for trial by black boxes and model systems. P. S. Messenger (Univ. of California, Berkeley) discussed bioclimatic studies of natural enemy-pest complexes, both in the laboratory and field, and suggested that such studies would expedite the development of workable management systems. Natural enemy establishment and dispersal, biological control success, and integrated control effectiveness may vary critically within the distribution range of a pest due to variation in specific climatic factors.

B. P. Beirne (Simon Fraser Univ., British Columbia) suggested that slight modification of irrigation and other cultural practices often result in practical management programs. The need for a master plan to encompass all possibilities within pest situations was stressed by P. W. Geier (CSIRO, Australia), who argued that the empirical approach of the past few decades no longer has practical applicability.

M. D. Pathak (Rice Research Inst., Manila) spoke on the incorporation of insect-resistant varieties of plants into pest management programs. He stressed the need of continued surveillance of new cropping practices and new varieties to determine their effects on pest adaptation. This concern was seconded by a conferee from West Pakistan, A. S. K. Chouri, who was concerned about the effect that the "green revolution" might have on new pest problems in Southeast Asia. Genetic manipulations of insect populations was the subject of a fascinating discussion presented by Max Whitten (CSIRO, Australia; Visiting Professor, Univ. of Chicago). His concept included the possibility of reversing insecticide-resistant populations for better management programs, thereby extending use of the chemical weapon where its use is environmentally justified.

A highlight of the meeting was the analysis of pest problems by P. S. Corbet (Canada Dept. of Agriculture), who proposed that man, the "earth pest," was our greatest [illegible]m. He considered all other pest problems as merely academic if man could not solve the population problem within the next two decades, particularly in the developing areas of the world. With respect to insect problems, he included the cost of environmental damage among the most important items in a cost benefit analysis.

A discussion of the broad training [illegible]sary for implementation of a new type of pest program and the need for a new breed of entomologist was led by D. Pimentel (Cornell Univ.). The program was summarized by C. B. Huffaker (Univ. of California, Berkeley), who also provided some examples of successful pest management programs.

The conference provided many examples in which ecological principles were utilized in pest management and proposed that future pest situations must be met with more complex and expensive operations than in the past. Although the rewards will be great in terms of more permanent controls and decreased pollution, the application will require greater expertise in breadth and depth than is presently available. H. Y. Kayumbo, a conferee from Tanzania, pointed out that whereas these goals are difficult in the developed countries, they are almost unattainable in the developing countries of the world. The political implications of managing pest problems which do not recognize county, state, or international boundaries were also recognized.

The conference successfully outlined the fundamental aspects of an ecological basis for pest control. Limitations to the use of pesticides and the incorporation of genetic methods of control (both plant and animal) were well covered. The necessity of master plans needed for incorporation of the systems approach was adequately presented. The conference failed, however, to establish the limitations of the pest management concept. It seems apparent that the pest management concept has much merit, but a drastic reversal of present methods will be necessary, including re-education of entomologists. If ecologically sound and environmentally attuned programs are to become a reality, an awareness of the awesome problems to be attacked is needed among administrators and politicians. The public must realize that a pest-free environment may be a sick environment.

A proceedings of the conference, which will include the discussion that followed each paper, is being printed and should soon be available for distribution.

F. E. Guthrie
North Carolina State University
Raleigh

ANNOUNCEMENT:

1ST NATIONAL BIOLOGICAL CONGRESS

The American Institute of Biological Sciences and the Federation of American Societies for Experimental Biology are sponsors for the 1st National Biological Congress, scheduled for November, 1970, in Detroit, Michigan.

In announcing the Congress, AIBS and FASEB state that "The National Biological Congresses represent the first practical step by biologists to marshall their skills for the common good and, at the same time, to communicate a sense of mission and involvement with the public. Many of the unprecedented threats which confront the nation and the world will require the expert knowledge of biologists if solutions are to be found. If solutions are not found and applied now to the problems of pollution, food supply, urban crises and many others, future generations shall be condemned. Biologists have the skills and the know-how to attack these problems in an effective manner, but they cannot do the job alone; they must have the encouragement and the cooperation of the nation.

"We seek the cooperation of all biologists in this endeavour. So far the response has been most enthusiastic, and we look forward to a full commitment by our colleagues as our plans progress."

The program will include the following symposia:

BASIC SCIENCE SYMPOSIA
Genetics and Molecular Biology
Metabolic Transformations
Cellular and Subcellular Structure and Function
Developmental Biology
Function of Tissue and Organs
Behavioral Biology
Ecology
Evolution and Population Biology

MAN AND HIS ENVIRONMENT
Ecology
Disease
Chemicals

For additional information, direct correspondence to: Dr. Max Ben, Secretary, National Biological Congress, American Institute of Biological Sciences, 3900 Wisconsin Avenue, N.W., Washington, D. C. 20016.

ANNUAL MEETING
ACADIAN ENTOMOLOGICAL SOCIETY

The annual meeting of the Acadian Entomological Society will be held on the University of New Brunswick Campus, Sept. 1-3. The keynote of the meeting will be a symposium: *Integrated* Resource Management — The Entomologist's Role. Eight invited speakers will discuss integrated resource management under titles: The Meaning of the Concept; Pest Management; Ecological Stability; Pesticides; Pollution; Consumer Demands; Political Implications; Economic Stability. Submitted papers on regional problems and social events will round out the program.

(Acadians submit papers on everything! — Ed.)

GIFT SUBSCRIPTIONS

Dr. E. J. LeRoux, President, has appointed Mr. Herbert J. Teskey Chairman of the new Committee on Gift Subscriptions.

The need for such a committee became apparent when the Governing Board learned of foreign colleagues, particularly in developing countries, who because of currency restrictions and other reasons were prevented from obtaining subscriptions to The Canadian Entomologist and the Memoirs. The Board is of the opinion that there are members who would be willing to donate their subscriptions to help m et this demand. Others might be willing to donate their accumulated series.

YOUR CANADIAN ENTOMOLOGIST IN AID

The library exchange system of this Society does not meet the needs of some entomologists abroad who are unable to me t the cost of a subscription to The Canadian Entomologist and who cannot arrange an exchange. The Committee on Gift Subscriptions therefore wishes to (1) determine where such need for the journal lies, (2) determine the numb r and identity of members who would be willing to donate their copies of the journal to meet these needs, and (3) to coordinate a gift program, if established.

The success of this program is obviously dependent on the response from the membership not only in giving their copies of the journal but also for assistance in determining the extent of the need. Many of you undoubtedly have information of persons or institutions who would profit by a subscription to The Canadian Entomologist but cannot afford one. We would like to hear of these along with an expression of support from potential donors. The Society is prepared to expedite the matt r by readdressing future issues of the journal, paying shipping costs on back numbers, etc.

Your favorable response to this very worthwhile endeavor is urged. There must be many of us, located with ready access to library facilities where current and past issues of The Canadian Entomologist can be read, who would suffer no inconvenience from not having our own copies. Be generous for the need is there.

We will soon be contacting each member for their assistance in this new endeavour.

H. J. Teskey, Ottawa
Chairman, Committee on Gift Subscriptions

PERSONALIA

Dr. Milton Campbell, Entomology Research Institute, Ottawa, has just returned from a six-month trip to Brazil. This trip was part of the scientific exchange program conducted by the National Research Council of Canada and Brazil.

While in Brazil, Dr. Campbell visited most of the major entomological museums and universities of the country. These included the Museum of Zoology of the University of Sao Paulo; the National Museum and the Instituto Oswaldo Cruz, Rio de Janeiro; the Federal University of Parana, Curitiba; the University of Brasilia; and the Museo Emilio Goeldi, Belem. In addition to these visits, Dr. Campbell was able to conduct extensive field studies on beetles of the family Staphylinidae.

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Dr. Charles D. Dondale, C.D.A. Research Institute, Belleville, was awarded a National Research Council Senior Research Fellowship for 1969-70 to study with arachnologist Professor R. Legendre, a specialist in spider anatomy and chemoreception, at the University of Montpellier, Montpellier, France.

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Dr. Stephen M. Smith joined the staff of the Research Institute, Belleville, as a National Research Council Post-doctorate Fellow in May 1970 to work on parasitic nematodes infecting biting flies and on reproductive patterns in mosquitoes. Dr. Smith did his graduate work in entomology at the University of Manitoba under the supervision of Dr. R. A. Brust. His thesis research dealt mainly with the taxonomy and ecology of sub-arctic black flies and mosquitoes.

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Miss J. E. M. H. van Bronswijk, Biol. Drs. (University of Nijmegen, The Netherlands), through the Canada-Netherlands Cultural Exchange Program and sponsored by the Canada Council for 1969-70 is doing research with Dr. R. N. Sinha at the C.D.A. Research Station, Winnipeg, Manitoba on the multivariate analysis of grain-bulk ecosystems.

POST GRADUATE DEGREES

Stephen M. Smith Ph.D. University of Manitoba, January 1970. Dissertation: The Biting Flies of the Baker Lake Region, Northwest Territories (Diptera: Culicidae and Simuliidae). Dr. Smith will continue his research under a National Research Council Postdoctorate Fellowship, at the Entomology Research Institute, Belleville.

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Addresses are omitted if correct in the latest (1969) membership list of the Entomological Society of Canada.

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