

Toronto Entomologists' Assoc.

SATURDAY
January 31, 1970

Royal Ontario Museum
Room 4 2 pm

Speakers: Mrs. H. Sutton and W. Plath

Topic: Butterflies (Slides)

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The ballots have all been tabulated and as you can see from the heading, we are now the Toronto Entomologists' Association. Unfortunately time does not permit us to make a full report for this mailing but a summary of the results and our proposed plans for the coming year will be mailed before our next meeting.

MEMBERSHIP DUES*

The 1970 Fees for the Toronto Entomologists' Assoc. are now due. We are enclosing a membership application form and ask that it be completed and returned with your remittance no later than FEBRUARY 12, 1970.

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We are asking for suggestions and ideas for future meetings. Please use the enclosed form for any suggestions you may have and return to Ron Michaels.



"As a scientist you'd make a great social butterfly."

TORONTO ENTOMOLOGICAL SOCIETY
WHAT WE SHOULD AND CAN EASILY DO TO MAKE OUR
COLLECTING SCIENTIFICALLY USEFUL

I suppose that everyone in our circles likes collecting insects, especially perhaps moths and butterflies, perhaps beetles and so on. This presupposes interest and knowledge. Interest alone will not do, and the knowledge has to be taken care of in a never ending effort on our part. Hence the following thoughts.

I do not think it is necessary to underline that collecting for the sake of collecting alone has no sense, at least when living beings are concerned. In the case that someone has an irresistible urge to collect, and only to collect, let him collect something else on which he can lay his hands, but not parts of nature. There are so many suitable things. However, if there is more involved than just the urge, let's talk about how to make our collecting so that it can be called scientifically useful.

This implies in the first place an absolutely trustworthy documentation of our collected specimens. One never should think that this fundamental rule can be violated unpunished. So in the first place, keep your records straight. This has to begin right on your field trip. You just have to have the time to put your notes on the envelopes where the butterflies are inside. When you know with certainty where you are going to collect this day, prepare your envelopes beforehand. This will pay off later. When you have moths in your killing jar, pin them while they are still fresh and put them away in a box with a detailed label at the beginning and at the end of a row belonging together. Do not forget to pin these labels to the specimens, i.e. the first and the last of a group. And then, do not disturb the

rows of specimens until you are going to spread them or whatever else is the final disposal of them. Avoid anything which might tend to mix them up. This is easier done than you can imagine. I would say when you are ready to spread the specimens the final label should be available. Never work with numbers and gadgets like this. It is dangerous. How many specimens are absolutely worthless because the documentation is worthless. What do you do later with a specimen having only a number, the meaning of which you have forgotten. And the person you gave the specimen with the number is writing you again and again asking what the number means, and finally to get rid of him you just answer "something" (do not laugh, this has actually happened). This way of handling things is scientifically worthless and not the way a serious collector should choose. He thinks in the first place of his labels, whence a joker said that in the old days they collected specimens but nowadays we are collecting labels.

Let this be as it may, what has a good label to show? There has to be, of course, some consistency in the label, some acknowledged form in its make up. Do not make up your labels just according to your momentary "intuition"; make them in the same way as big institutions and public collections of research institutes make them up: COUNTRY (or Province) Locality, name of County, Date (Day, Month-with three letters in capitals, EG. JAN APR. MAY JUL OCT, Year), name of collector, the addition "uv. light" in the case of moths, or butterflies, which came to your lights. This kind of label can be pre-printed so that one has only to write in the date. With this kind of label the specimen can be said to be sufficiently documented. Of course, similar arrangements have to be made also for caterpillars, pupae etc., and especially for photographs and slides.

The latter belong nowadays without any doubt to the things which make our collecting scientifically useful. We not only wish to see the specimen with its correct label but as much as possible of its surroundings, behavior, early stages, etc. Photography is the best way to ascertain this. But how? What camera gives the best results?

Although you will be able to get good and useful pictures of habitats with any camera, it has some bearing on the subject to remember that before all in this case: the most expensive is always still the cheapest. You begin small, we all did, but this eats your money because very soon you will see that it was not enough. You will not be satisfied with the pictures. Then comes the next one and so on until you are finally fed up and buy the expensive one which you thought previously was just not necessary for you and your aims. I know how it goes, believe me . . . so buy any of the mirror-reflex cameras on the market with a wide angle lens for habitat photos; this would be the minimum the appetite comes during eating . . . In any way you have the utmost satisfaction of your collection and the accompanying slides, you have something to show to your friends , to school classes, and also the expert and professional will like to use your material for his purposes. And this high standard to reach should be the aim of every entomological collector whatever his special field.

Also, in this sector it is true that nothing is without pains, but what pain conceived in the right way may very well be sweet !

Toronto Entomologists' Assoc.

MARCH 4, 1970

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MARCH MEETING

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Saturday March 21, 1970 2 pm

Royal Ontario Museum Room 4

SPEAKER: Prof. Carl Atwood

TOPIC: Some Aspects of Natural Control of
Insect Populations.

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MEMBERSHIP DUES

There are still a number of members who have not paid their 1970 Membership dues. We ask that all membership dues are paid no later than March 27th, 1970.

* * * * *

We are looking for items of interest that can be used in our newsletters. If you have publication, cartoon or a news worthy item that can be used, please send them to:

Toronto Entomologists' Assoc.
c/o 53 Duncan Drive,
Georgetown, Ontario.



March 12, 1970

Book Service

One of the objectives of the Toronto Entomologists' Association is to try and provide various services to its members which can be to their advantage. One such service will be our Book Section. Arrangements have been made with one of the leading publishing companies in Toronto, whereby our members can purchase books at a savings. We realize that all books are not related to Entomology, but as new books are published, our members will have the opportunity to receive advance notice and purchase these books at a savings of approximately fifteen per cent. All the books are excellent for your own library or as a gift.

We hope in time to be able to offer other services for our members and will welcome any suggestions.

To purchase any book that is listed, please read the following instructions:

1. All orders must be accompanied by a cheque or money order, payable to The Toronto Entomologists' Association.
2. As the book will be mailed direct to you from the publishing company, allow four to five weeks for delivery.

We will also list publications that are available from various organizations by writing to the address that is listed. It would be appreciated if our members would send us a list of the publications that they have and the address where they can be obtained.

EM/fe

March 17, 1970

TORONTO ENTOMOLOGISTS' ASSOCIATION BOOK SERVICE

<u>Title</u>	<u>Author</u>	<u>Retail Price</u>	<u>T.E.A. Price</u>
Born Free	- Joy Adamson	- \$ 6.50	\$ 5.50
Living Free	- Joy Adamson	- 6.50	5.50
Butterflies	- E.B. Ford	- 9.50	8.00
Insect migration	- C.B. Williams	- 6.50	5.50
Last of the Wild	- E.Schuhmacher	- 17.75	15.10
Secrets of Plant Life	- Marcel Sire	- 27.00	22.95
Pesticides & Pollution	- K. Mellanby	- 1.95	1.75
The Peregrins	- J.A.Baker	- 4.50	3.85
Birds in the Balance	- P. Brown	- 5.50	4.65
Wildlife in Danger	- J.Fisher, N.Simon, J.Vince	- 17.50	15.00
Born in the Zoo	- H.Hediger & J.Klages	- 11.00	9.35

*The Butterflies of Trinidad and Tobago by Malcolm Barcant, member of the Lepidopterists' Society and authority on the Butterflies of that country for more than 40 years. The first comprehensive book on Butterflies for any single country within the American Tropics. More than six years in production, it is informative and well written and superbly illustrated in colour. Includes every species known to Trinidad and Tobago up to 1969, and is indispensable to anyone wishing to complete regional studies within the American Neotropics. Toronto Entomologists' Association price will be \$11.00.

Reserve your copy now. As soon as the book is available, advance orders will be filled first.

Publications

We will endeavor to list publications from various organizations which you can obtain for your library. All that is required is for you to write to the address listed for the publication to receive your copy.

1. Ontario Weeds - Publication #505

Ontario Department of Agriculture & Food,
Parliament Buildings,
Toronto, Ontario.

2. Guide to the Geometridae of Canada - Publication #50

The Entomological Society of Canada,
Ottawa, Ontario.

Toronto Entomologists' Association

Saturday,
May 9, 1970

Royal Ontario Museum
Room 4, 2:00 P.M.

Agenda

1. Speaker: Q.F. Hess
Topic : Collecting in Trinidad (Movie)
2. One of the suggestions that we received was to have another "Swap Session" at one of our meetings. As this will be the last meeting until next fall and most of us have had a chance to sort the specimens that were caught last year, we are having another "Swap Session". Please bring in anything you have that are duplicates, surplus or otherwise not part of your active collection. Any orders or families will be welcome - pinned or papered - Al or tattered. Make sure you have sufficient boxes with you for transporting the specimens.
3. To assist you with your collecting this coming summer, please bring maps of the areas you plan to visit so that others can point out good localities or request material from particular areas.

Many collectors are content to take only a pair or short series of specimens from any locality. Entomologists should learn to be opportunists. If any species is abundant, your collecting of a large series will not affect the breeding population in the slightest. However, it will mean that you can return with a good series for inclusion in your collection as well as assist others who are working on specialized collections and are more than willing to exchange in order to obtain the specimens they require.

The check list of Ontario Skippers and Butterflies, as well as the 1969 "Seasonal Summary" is completed. A copy will be mailed to our members shortly. Anyone requiring additional copies may purchase same at a price of \$1.50 (\$1.25 plus 25¢ postage).

Toronto Entomologists' Association

Field Trips

Three field trips have been planned for this summer in areas that will be of interest to our members.

Saturday,
June 6, 1970

St. Williams, Ontario. Leader: W. Plath Jr

Time: 9:00 - 10:00 a.m. - Meet at the headquarters of Department of Lands and Forests. (Nursery Division - 2 - 3 miles north of St. Williams).

Saturday,
July 11, 1970

Pinery Provincial Park Leader: Paul Catling
Grand Bend

Time: 9:00 - 10:00 a.m. - Meet at the Nature Museum inside the park.

Both areas are in the Carolinian Zone and characterized by a more southern type of fauna. In both areas, the soil is sandy and the vegetation is of the semi prairie type. Among the Butterflies that we can expect are P. Protodice, P. Troilus and L. Samolis. Also rare and local Hesperoidea should be found at Grand Bend.

RM/fe

Friday Evening
June 19th
8:00 p.m. till
Saturday a.m.

Campbelleville - Moths
Leaders - Ron Michaels, plus members
of the Toronto Entomologists' Association.

This is an outing for anyone interested in seeing how moths are collected at night using black lights (U.V.). Although scheduled to begin at 8:00 p.m., some time will be required to set up the equipment etc. This will give anyone arriving on time an opportunity to wander about this most interesting area before dark. The actual collecting of moths will not begin until dusk, and will continue as long as the results warrant and the interest is sustained, which usually is well past midnight.

The equipment will be set along the Bell Telephone Company's right of way which leads into the area. Through the efforts of one of the members of the T.F.N.C., Mr Trevor Hamilton, the telephone company has kindly consented to have the right of way open for our use on this particular evening.

To those not familiar with the area, go west from Toronto on highway 401 to interchange #38. This is the Guelph line or the Campbellville Mohawk Race Track road. Go north on this road past the race track to the first road on the right. There is a small church on the north east corner, turn right (east) and about a mile along look for a road on the right which is usually closed with a gate. This is the Telephone Company's right of way. If possible, the road will be marked with a sign indicating the outing.

Members of the Toronto Field Naturalists Club and Georgetown Naturalists Club will be present.

Toronto Entomologists' Assoc.

FALL MEETINGS

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1. Saturday, October 10, 1970
Royal Ontario Museum,
2:00 p.m. Room 4.

Speaker: J.C.E. Riotte

2. Saturday, November 7, 1970
Royal Ontario Museum,
2:00 p.m. Room 4.

Speaker: W. Plath

*This is our first meeting for the Fall Season - Don't forget to bring any specimens that require identification or are for exchange.

Mr. Plath has devoted most of his time this past Summer photographing insects instead of collecting. He has many new slides that will be shown which will be of interest to our members.

IMPORTANT : There will be no News Letter mailed for the month of November. Mark these dates on your calendar.

1970 Seasonal Summary

Your recap must be submitted no later than October 6, 1970. We have set an early deadline and with everyone's cooperation, we will be able to have the 1970 seasonal summary completed for our January meeting. If you know of other Entomologists who have been collecting in Ontario this past summer, we hope that you will contact them and obtain a recap of their collecting in Ontario for our summary.

Don't Forget - - Deadline October 6, 1970

Send your recap to: Ron Michaels,
53 Duncan Drive,
Georgetown, Ontario.

MR. ABERNATHY



Books

A Field Guide to the Insects by D.J.Borror and R.E. White.

Here is the most comprehensive authoritative and up-to-date pocket guide to North American insects ever published. This Field Guide covers 579 families of insects and includes descriptions of other Arthropods as well, more than 1,300 drawings, of which 142 are in colour, illustrate the book, and most of the families have one or more illustrations; only the rarely encountered or obscure families are not illustrated.

T.E.A. Price - \$5.50 Each

The Moth Book by W.J.Holland.

A popular guide to a knowledge of the Moths of North America. 1903 reprint 1968. XIV + 179P; 48 Col. PLS; 263FIGS, new forward by A.E. Brower.

T.E.A. Price - \$4.75 Each

* Does not include postage

Treasurer's Report

Balance as of September 30, 1969. \$2.33

Receipts

Memberships	\$101.50	
Donations	10.00	
Books, Check List	<u>12.20</u>	
	\$123.70	<u>\$123.70</u>
		\$126.03

Expenditures

Postage	53.53	
Envelopes	7.76	
Paper	35.05	
Stencils, Ditto	14.70	
Typing	10.00	
Plates, Negatives	16.00	
Cover	15.00	
Printing	15.00	
Miscellaneous	<u>17.43</u>	
	\$184.65	<u>\$184.65</u>

Balance as of Sept. 1, 1970 - 58.62

Toronto Entomologists' Association

October 28, 1970

Dear Member:

At our October meeting, the plans for the 1970 season of the Toronto Entomologists' Association were discussed. As you are aware, our bank balance at the end of August was -\$58.62, with four months left in the current year to operate.

The reason for the deficit is not hard to explain. Last year, with the approval of our membership, we undertook to publish a check list of the Ontario Skippers and Butterflies, and a 1969 Seasonal Summary. Unfortunately, the membership dues collected could not cover our normal operating cost as well as the costs involved in producing our first publication.

We are entering a new season, and the problem we have to face is, what do we do in 1971. Scheduled for 1971, are two more publications for the Toronto Entomologists' Association. The first will be the 1970 Seasonal Summary, which we hope will be completed by March 1971. The second publication is a complete check list of Ontario Skippers, Butterflies and Moths. The costs involved to produce these two publications will create a greater deficit in our bank balance than we have encountered in the past.

The first solution to this problem, would be to increase the membership dues for the coming year, but your executive feels that this is not the answer to our problem. Our aim is to increase our present membership and not become stagnant. Any increase in membership dues at this time could be a deterring factor to new applicants.

As a possible solution to our present problem, you will find attached, two proposals which were made at the October meeting.

We ask that you give every consideration to these two proposals and return your ballot no later than November 7, 1970.



R. Michaels,
President.

RM/fe

BALLOT

Toronto Entomologists' Association

- (1) It was proposed by Mr. D. Scovell and seconded by Dr. G. Edmund that rather than increase the membership dues for the coming year, a price is to be established on future publications and sold to the members of the Toronto Entomologists' Association.

Yes _____ No. _____

Return no later than November 7, 1970

BALLOT

Toronto Entomologists' Association

- (2) Also proposed by Mr. D. Sovelli and seconded by Dr. G. Edmund that the cost of the publications will be less for members of the Toronto Entomologists' Association than for non-members.

Yes _____ No. _____

Return no later than November 7, 1970

TORONTO ENTOMOLOGISTS' ASSOCIATION

OF MORPHO BUTTERFLIES AND THINGS IN A TROPICAL
RAIN FOREST OF GUYANA, SOUTH AMERICA

I had left the Canadian winter at Toronto on February 2nd, 1971 at 9:45 a.m. Snow on the big jet's wings flew off as we headed out, down the runway and up. Later, after landing at Barbados and changing aircraft at Trinidad, I arrived at Georgetown, Guyana that evening at 7:30 p.m. As I stepped off the plane the moist soft tropical air wafted over me. It was dark and after the interminable line-ups at the Timehri airport I was on my way to my hotel in Georgetown, 25 miles to the north.

Next morning after a good breakfast I stepped into a Georgetown street in the city's centre, to meet an already warm humid day. Across the street purple martins were raising a fuss around a favourite roosting place. I wondered if they summered in Ontario.

After I changed some money at a bank, my forester friend came up and we went to his office to make further arrangements for the study trip to the rain forest area we had selected - the Bartica Forest Reserve. This Reserve is virgin high rain forest and is located off the Potaro road 24 miles south from Bartica, a town at the confluence of the Essequibo and Cuyuni Rivers.

A red-barred black long-winged heliconid (Heliconius melpomene) flutters down in front of me and a swing of the net captures it. A bluish skipper (Pythonides jovianus) settles across the road on a leaf. I take it. In the meantime Moses catches a brown-barred heliconid (Heliconius ethilla) and a hairstreak (Thecla species).

We are on our way, the Landrover and us labouring over the sections of the road which are overlain with large chunks of broken rock to prevent washouts. The sun has been out for three-quarters of an hour but now another cloud bank moves in and a new downpour begins. We close the air vents and the humidity and heat suddenly closes over us. Moses gives an exclamation, the Landrover stops. He has sighted a Morpho clinging to a branch. We get out, grab our nets and walk cautiously towards the place. My net has the longest handle and the Morpho is spotted just within it's reach. Cautiously I move the net towards the insect. A swing and I have it. It is a Morpho menelaus and the first I have ever collected. The brilliant blue of its upper wing surfaces contrasts with the warm brown of the under surfaces and explains why it seems to disappear into the vegetation when resting.

The road is now on a long down slope. Blue morphos appear to our rear and ahead. We are out with our nets and swinging. I catch one as it flies past. It is my second Morpho achilles since my arrival in Guyana. Then I get another. There is another. It settles on a leaf. It is added to my collection. We are close to a bridge. There is a small river not far below flowing strongly past the luxuriant vegetation. It seems to be a magnet for the big Morpho achilles, a butterfly with darkish wings with a broad blue bar running transversely across the upper side of the fore and hind wings.

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And so it went as species after species is added to the collection. Wineperu is just ahead now. The forest drops away from the road and becomes brush land. The first building appears and then a large ball field to the left surrounded by a single tier of small weather-stained houses. The field is full of butterflies common in open area in the tropics. Included are the following species most of which were feeding on the white flowers of a low plant or resting on the ground: - Anartia jatrophae (very common), Precis lavinia (very common), Papilio polydamas (two observed, one captured), Papilio thoas (four observed, three captured), and several species of the Pieridae family, including Phoebis sennae, P. philea, P. agarithe and P. statira. We leave to return to our camp in the Bartica Forest Reserve, arriving just before dark.

People who are not used to the tropics will notice the sudden transition from day to night. There is little afterglow once the sun sets. Our camp is in a hole, 120 feet deep in the rain forest and as a result the transition from light to dark is abrupt.

Our camp is sited on an easy slope just above the bank of a small stream which provides the necessary water. To get to the camp the Amerindians had cut a Landrover-wide track through the forest for 1-1/2 miles off the Bartica-Potaro Road. The Arawak Indian crew from Bartica had set-up two camps separated by a pile of slash. They sleep and rest in hammocks under a big green tarpaulin stretched over the necessary pole structure. The ground is covered by a second green tarp and a drainage ditch on each side drains away the water. They cook and eat under a second tarpaulin nearby where a cook fire, Indian-style, smolders or flames. My set-up on the other side of the pile of slash is a tent for sleeping and equipment and a tarpaulin roof nearby over a cooking and dining area. Mike Chan, a Chinese-Indian, does my cooking and camp chores. By the third day the canned meat we depended on for protein intake has already panned. That was when we started on a bush meat diet supplied by one of the Arawaks who found and shot a young deer, (Dama virginianus) and later an agouti.

On the fourth day at camp I wake up as usual to the terrifying roar of the howling monkey (Alouatta sp.) troupe whose territory came to within maybe a half mile of our camp. The natives call them baboons. Sun-up is at a quarter to seven and the local cicadas, or 6 o'clock flies as they are called by the Indians, have commenced their shrill crying. By 7:10 a.m. I have been down to the creek and back and the cicadas are silent. Mike has been rattling dishes for a half hour and breakfast is ready. As we eat, the nearby bird population can be heard as usual but not seen. Toucans bark in the distance, parrots caucus, and a pair of flycatchers call monotonously.

Moses comes over with his net and jar and we start out on the day's collecting. This time we decide to walk a trail through the forest to a clearing further down the creek about a mile. It is dim under the heavy canopy but even here there are butterflies.

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We collect ghost-like Pierella and Callitaera and other smaller species. There is a snorting and crashing nearby as an agouti takes flight.

We work fast. A lull and I look across the valley. Over it, a moist blue sky flecked with white puffy clouds arches. Down near where I think the creek should be, a great blue Morpho butterfly flies out of the greenery and circles erratically back into the protective cover. My eyes catch a yellow brown flash high up on my right. As I turn a great sun-coloured butterfly glides down from the trees into the clearing and on down the valley until it is below me. It is the huge Sun Morpho (Morpho hecuba). As it is borne on the air currents the huge wings seem motionless yet the insect makes jerky up and down movements. Later we capture one which lands in our camp clearing. It dropped down from the trees possibly to get clear of the annoyance of a darting dragonfly or a bird.

Next morning we prepare to set out as many baited traps and baits as our materials permit. Alec Boyan, the head Arawak, and I take machetes, bait and traps, nets and jars and start off on a freshly cut trail leading to a flat bottomland beside the creek. The virgin rain forest closes over us. The huge flaring butts of the Morabukea (Mora) trees are the most prominent feature of the area we have selected. They obviously favour a bottomland site. Where the creek makes a U-turn we commence clearing away the underbrush. We watch for snakes. The day before the Arawaks out cutting trail had just missed stepping on a fer-de-lance, a very poisonous snake. There are more about but luckily they are of a retiring nature in daylight. The brushing-out completed, I hang up the traps with the special banana bait and Alec ties up pieces of ripe banana about 30 feet apart. Later, I place more along the trail. Within two days the baits are attracting Caligo sp. (Owl Butterflies), Morpho achilles and deidamia, Opsiphanes sp., Bia sp., Euptychia sp., Trepona sp., Catonephele sp., Nessaea sp., as well as several species of moths and even beetles.

The results anticipated when I was planning the trip to the Bartica Forest Reserve met expectations in some respects but also held surprises. During the 18 day stay in Guyana, the apparent scarcity of swallowtail butterflies (Papilio sp.) was a surprise. Other than Papilio thoas (4), polydamas (2), Parides neophilus parianus (3) and a Papilio androgeus, observed at Wineperu, no others were seen. This included Georgetown, Bartica, Wineperu and the Bartica Forest Reserve. A second surprise was the absence of moths around lights at Georgetown, at Bartica, and at our camp. A few were observed in daylight near night lights at Wineperu. These included a Geometrid and a Saturnid (Automeris sp.) One of my bait traps captured several species of the Noctuidae. Other than collecting some day-flying moths, that was the extent of the observed moth population. Another surprise was the beautiful day-flying moth - Urania leilus. During the whole stay, only three were seen of which one came to light at Bartica and was collected.

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In the vicinity of our camp small whitish butterflies, such as Nymphidium sp. and Leucidia brephos were in fair numbers as well as various Heliconiinae, Hesperiidae (Skippers), Dismorphia and Theclinae (Hairstreaks). Several blue Anaea of one species were observed in one place around a tree. One was collected. Only one Megalura sp., i.e. peleus - was collected from a sunny leaf beside the trail while the same situation attracted several Victorina steneles with four being collected.

by Q.F.Hess

PARTIAL LIST OF LEPIDOPTERA COLLECTED IN GUAYANA, SOUTH AMERICA, AT BARTICA, BARTICA FOREST RESERVE AND WINEPERU, DURING FEBRUARY 1971, BY Q.F. HESS OF TORONTO

PAPILIONIDAE: Battus polydamas group
Papilio thoas
Parides neophilus 1m 1f

PIERIDAE: Eurema agave 1m 2f
Eurema venusta
Leucidia brephos 1m 1f
Phoebis argante 2m 3f
Phoebis sennae (marcellinae) 1m
Phoebia statira 1m

NYMPHALIDAE:

DANAINAE: Leucothyris aegle

SATYRINAE: Callitaeraphilis ap.
Euptychia batesii thalessa
Pierella astyoche 2m 1f
Pierella iamia 1m 2f
Pierella lena 2m

NYMPHALINAE:

HELICONIINI: Agraulis vanillae 1m Heliconius flavescens 2m
Colaenis iulia 2m 1f Heliconius melpomene 2m
Dryadula phaetusa 1m 2f

MELITAEINI: Phyciodes liriopae fragilis 1m

TORONTO ENTOMOLOGISTS' ASSOCIATION

TRAPPING MOTHS WITH LIGHT SOURCES -

As far back as Aristotle (350 BC) and Pliny (50 AD) it was observed that moths are attracted to light and to fire. For these men this was something extraordinary perhaps even miraculous and it was a long time before scientists tried to find an explanation for this obvious, but nevertheless unexplainable fact.

It wasn't until our own times that the first papers were published to explain phototropism, the term used for the attraction of insects to light sources. The main publications came from CLEVE (1964, 1966), DUFAY (1964), EBERT (1961) and MARTEN (1956). It was found that moths have to have some means of navigation during the night so that they would not run into trees and other obstacles. It was also found that moths are guided by the light from fixed stars, lighted-cloud banks and the moon, in some instances, thus avoiding collision.

The question which quite naturally arose now was: on what wavelength are the stars operating? The wavelength is at least 280 nanometers (1 nanometer being 0.000 000 001 m, which is the same as 10^{-9} m or Å; instead of nanometer one can also say millimicron) since our atmosphere screens out anything less. CLEVE showed in his experiments that moths may be seeing stars with between 350 and 700 nm, the optimum is a little over 400 nm. The moon and the planets have a somewhat higher light wavelength, about 500 nm. CLEVE found that the moths prefer the fixed stars with the lower wavelength.

Moths see the stars the same as we do, the main thing is the so-called light density. We all know that shining objects are best seen when the light density is smaller at the point of observation. High light-density at the point of observation makes the far away object of low light-density obscure. Therefore moths at about 30 to 100 m from our sheet probably do not take notice of the stars anymore since the light-density of the lamp and sheet is too high. The eye of the moth is focused at "infinite" to stars and therefore when they are close to the sheets they are apt to act abnormally. This would explain the wonderous girations, almost drunken-like attitudes that they take. They will sometimes lie on their backs on the ground, bat madly at the sheet when there is no need, etc. The sheet finally holds the moth. If however the sheet is put up in such a fashion that the moth can get behind it (out of the main light rays) very often it will take off again. This fact everyone has had the occasion to confirm.

It should now be understood that the best kind of lamp to use in such a trap is one emanating a wavelength of 400 nm; and this is the ordinary, inexpensive fluorescent BL lamp (order no. F15T8-BL). This is a BL lamp without any filter, which is very important. Higher wattage, larger lamps etc. do not make any difference, only the wavelength counts and this is the same at 15 watt as it is in a higher wattage lamp.

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The BL tube gives the main radiation at 360 nm. This should be brought up to about 400 to 420 nm by bleaching the screen with one of the "super" modern bleaching agents: it has to be a strong one. The faintly visible violet light which we get in this way is the right kind of light. Ultraviolet light alone does absolutely nothing, and there is no other way (known at this time) to get this type of low violet light.

Therefore, do not listen to anybody who tries to sell you expensive so-called "mixed-light" bulbs or even special quartz lamps which only ruin your own eyes and bring in no more moths (if any at all).

by J.C.E. Riotte

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Toronto Entomologists' Association

A Field Guide to the Butterflies of Britain and Europe

By L. G. Higgins and N. D. Riley

Here for the first time is a comprehensive guide to European butterflies, illustrated in colour. This book covers every species and important subspecies or form - in Europe west of the Russian frontier, in western North Africa, in Madiera, the Canaries and the Azores. For each are given its names: details of size, markings, characters important for identification; flight months, habitat, food - plants, altitude, range, distribution and rarity; other species with which it might be confused; and references to its illustration and its map.

T. E. A. Price \$8.00 ea.

A Field Guide to the Butterflies of Africa

By John G. Williams

An authoritative and finely illustrated guide - the first of its kind - to the commonest and most conspicuous butterflies of Africa. The region covered is Africa south of the Sahara, excluding Madagascar. Out of over 2,400 species - John Williams has chosen 436 of those which the user of this book will have most chance of seeing. For every species are given the English and Latin names; measurements; characters of colour or pattern important for identification or for distinguishing the sexes or related species; and notes on distribution within Africa, habitat, flight, habits and food plant.

T. E. A. Price \$9.00 ea.

Toronto Entomologists' Association
53 Duncan Dr., Georgetown, Ont.

Please send me copies of
A Field Guide to the Butterflies of Britain and Europe, at \$8.00

Please send me copies of
A Field Guide to the Butterflies of Africa, at \$9.00

Enclosed please find \$..... in full payment.

Send To

Name _____

Address _____

Tel. No. _____

January 1971

TORONTO ENTOMOLOGISTS' ASSOCIATION

Two New Publications for 1971

Occasional Publication No. 2

- Contribution to the knowledge of Hyalophora columbia
 - 1970 seasonal summary
 - Highlights of moth collecting in Ontario
- Publication completed - March 1971

T.E.A. Members - \$1.00 ea.

Non Members - \$2.00 ea. *Pre publication orders - \$1.50 ea.

Occasional Publication No. 3

- Checklist of Ontario lepidoptera

This checklist contains all lepidoptera except Tortricoidae, Gelechioidea and Tineoidea; not annotated; indicates four faunal zones referenced to a map.

Publication completed - Fall 1971

T.E.A. Members - \$2.50 ea.

Non Members - \$4.00 ea. *Pre publication orders - \$3.50 ea.

To: Toronto Entomologists' Association
53 Duncan Dr., Georgetown, Ontario

Please send me copies of
Occasional Publication No. 2 at \$_____ ea.

Please send me copies of
Occasional Publication No. 3 at \$_____ ea.

Enclosed please find \$_____ in full payment.

SEND TO:

Name _____

Address _____

Tel. No. _____

TORONTO ENTOMOLOGISTS' ASSOCIATION

CONSERVATION AND COLLECTING: ARE THEY COMPATIBLE?

"After God created every beast of the field and every fowl of the air, He gathered them all in the Garden of Eden and presented them to Adam, with instructions to name them" (Genesis 2:19-20). Ever since then, man has been collecting and naming things.

Some people collect stamps or coins, some collect rocks and minerals, and some collect insects. People, especially those in the more affluent societies, just like to collect things. Why?

Collecting as such needs no justification, because for many people it is a recreational activity -- a hobby, pursued in spare time. An individual collects for his own enjoyment and edification, and that is sufficient reason to collect.

If a person has any intellectual curiosity, one of the first things he asks when he sees a new bird, plant, rock, or insect is: "What is it?" Man has asked this question for millenia, and will continue to do so as long as there are questions to be answered. As soon as he learns what it is, he begins wondering how to distinguish it from its relatives, and gradually he accumulates a reference collection of named specimens. From this stage the transition is easy to attempt to assemble representatives of a particular group of a particular area.

As the amount of available leisure time increases, more and more people are taking to the field in pursuit of insects, and some truly magnificent personal collections are being built.

But today we are also witnessing an increasing concern for the environment -- not enough concern, but nevertheless it is increasing. And we begin asking ourselves if our collecting activities are in any way damaging the population from which we are collecting.

Collecting is Random

Consider this: most collecting activities are undertaken at an opportune moment, often dictated by our vocational work schedule and other commitments, using specific collecting methods, under a specific set of environmental conditions prevailing at that moment (stage of the season, temperature, wind, etc.). All these factors are focused on a single locality for a brief span of time. And this single locality can be quite small indeed: recent studies have shown that a black light, one of the most effective and productive collecting tools for certain nocturnal insects, can, under the best of conditions, attract insects from a distance of up to 500 feet, or a maximum area of 4-1/2 acres. Add to this the fact that not all insects are equally available for collecting at any given time, and we see how truly random and opportunistic collecting really is.

But as we become familiar with particular species of insects, their flight periods, and their habitats, our collecting can become very specific indeed. A local example is collecting

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Mitchell's Satyr (Euptychia mitchellii) in Wakelee Bog, Cass County, Michigan on the Fourth of July. Over-collecting of a very localized insect such as this can very well lead to extirpation of the animal. A collector may not take the very last specimen, but once a population is reduced to a certain critically low level, it is beyond restoration. An event such as a late spring or a wet summer may finish the job.

Living organisms, unlike rocks and minerals, are a renewable resource. Many more are produced than can survive. Whether parasites, weather, or man skim off the excess makes no difference to the population as a whole. Only when a population is dangerously weakened will the effects of man's collecting be felt by the population.

The real dangers to our insect populations are reductions in the available habitat (through drainage, paving, construction, etc.) and, perhaps, the inadvertent or indiscriminate application of pesticides. Random collecting can have little effect on a healthy population.

But we now encounter a paradox. Should we collect specimens of something which is rare or becoming extinct, when we know that by collecting it we are contributing to its decline? The answer, surprisingly, is "Yes", but with strong qualifications.

In addition to having esthetic and some monetary value, as in stamps and coins, biological specimens -- be they plants, ants, or mice -- have an additional scientific value. Each individual specimen, the product of a long evolutionary history, was collected in a particular place at a particular time. Each specimen, with its associated data, is unique and irreplaceable. This imposes an extra responsibility on the collector.

Responsibility of a Collector

The three chief obligations of the collector are: (1) an awareness of and concern for, the effect of his collecting on the population; if a population is endangered he will take only what is needed, leave enough to maintain the population, and attempt to obtain specimens through rearing. (2) proper care of the specimens while they are in his possession. (3) adequate arrangements for the disposition of his collection upon his loss of interest or death.

Most collectors take sufficient pride in their specimens not to let them deteriorate as long as they are in his care. But surprisingly few collectors make satisfactory arrangements for the disposition of their collection. A widow or executor, not realizing the full scientific value of the collection or realizing the value but needing the money, may sell the collection to the highest bidder. If the successful bidder is a commercial interest, the collection may be fragmented and sold, thus destroying the extra value of the collection in its entirety. If the successful bidder is a public institution, it may not be the institution where the collection would be most useful or valuable from a scientific or practical standpoint.

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These two situations emphasize the need for making definite arrangements, as in a will, for the disposition of a collection -- in the manner and place chosen by the collector -- while he is still capable of choosing.

As more and more private collections are incorporated in public museums, even the rarest of species will eventually become fairly well represented, obviating the need for further sampling from a population that is endangered or extinct. We have seen this happen with birds, for example, where very little major collecting is undertaken in this country today, because huge collections have been accumulated from past collecting.

Collectors should go into the field realizing their responsibilities to the scientific community, while appreciating the effect they may have on the organisms they are collecting. Generally, collectors are responsible people, and will not knowingly decimate an endangered population.

In fact, many collectors assume the role of protector for an endangered population, and strive to increase the population and establish new colonies -- and even go so far as to profess total ignorance of the location of the population, to prevent collecting by others. These attitudes are entirely commendable PROVIDED that some permanent record of observations, together with specimens, is eventually made available to competent researchers.

J.P. Donahue

Los Angeles County Museum
of Natural History

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TORONTO ENTOMOLOGISTS' ASSOCIATION

Mid-Winter Meetings

Saturday, January 9, 1971
Royal Ontario Museum
Room 4, 2 p.m.

Saturday, February 13, 1971
Royal Ontario Museum
Room 4, 2 p.m.

Speaker: (Rev.) H. Falke
Topic: collecting butterflies
in tropical Africa;
variety in natural
environments; insect
mimicry.

Speaker: Prof. C. Atwood
Topic: method of operation
and effects on the
environment of some of
the insects (spruce
budworm, sawflies, etc.)

* * * * *

1971 Membership Dues

We have enclosed our membership application forms for 1971. Due to our present financial status, we urge all our members to complete the membership application form and return it with their remittance as soon as possible.

* * * * *

Rearing The Tulip-Tree Saturnid

In the Spring-Summer issue (Vol. 5, No. 1-2) of the Teen International Entomology Group newsletter, appear two interesting articles on the collecting, rearing, life history and behavior of Hyalophora (callosamia) angulifera -- the Tulip-Tree saturnid. These articles, written by young members of T.I.E.G., go into detail of the trials and tribulations in collecting and rearing this interesting moth. T.E.A. members, who specialize in rearing silkmoths, will undoubtedly find this information useful and may help them in securing more live material of this usually scarce saturnid. Single copies of this newsletter are \$0.40 postpaid and may be obtained by writing to Editor, T.I.E.G. Newsletter, 47 Woodside Ave., Oneonta, N.Y. 13820.

* * * * *

1971 Field Trips

With collecting at an end for 1970, now is the time we should be considering and planning our field trips for 1971.

Any suggestions??? Any volunteers for leaders???

If you have a suggestion or are willing to volunteer as a leader, please contact Ron Michaels no later than January 3, 1971.

* * * * *

For Sale or Trade Books on lepidoptera; Morphos and other exotics; Canadian and Trinidad beetles. Contact Q.F. Hess, 11 Esgore Dr., Toronto, Ontario.

Moths and How To Rear Them
By Paul Villiard

Moths and How To Rear Them is the first modern rearing manual to appear in North America, and fills a real need for the amateur or professional breeder for collection specimens.

The result of nearly nine years of study and effort, this book not only lists many species of world-wide moths, but presents the individual rearing requirements, description of each stage of metamorphosis, photographs of the stages, and a comprehensive catalogue of food plants accepted by the larvae.

Not least in importance is an appendix of photographs of terminal winter twigs of the food plants, making it much easier to identify the plants in the early spring before leafing-out time. Now the breeder can find the correct food plant for forcing buds to feed early larvae.

T.E.A. Price \$8.50

1001 Questions Answered About Insects
By A. B. Klots and E. B. Klots

A fascinating world is revealed in this comprehensive picture of insect life. In addition to answering questions about the natural history of insects and the activities of the group as a whole, the authors discuss many subjects not found in the usual textbooks or field guides.

Included are descriptions of insect origins and classification, structures, distribution and environments, growth and development, senses and communication, behavior, societies and the relationships of insects to plants, animals and man.

T.E.A. Price \$8.50

Butterflies and Moths
By Andre Deutsch

\$15.00

Mimicry in Plants and Animals
By Wolfgang Wickler

\$2.75

A Field Guide To The Insects
By D. J. Borror and R. E. White

\$5.95

TORONTO ENTOMOLOGISTS' ASSOCIATION

Winter Field Trip

Saturday, January 16, 1971 Leaders: W. Plath Jr. and
R. Michaels

1 p.m. at Halton County Forest, Campbellville, Ont.

This will be an excellent opportunity for anyone interested in learning how to find hibernating species of insects.

To those not familiar with the area, go west from Toronto on Highway 401 to interchange #38. This is the Guelph Line or the Campbellville Mohawk Race Track Road. Go north on this road past the race track to the first road on the right. There is a small church on the north east corner. We will meet at the church.

* * * * *

T.E.A. Members - We need two more leaders for our winter field trip. Anyone willing to volunteer, please contact R. Michaels.

* * * * *

Research Requests

As with most of nature, the butterflies of Ontario are faced with an increasingly pessimistic future. Two species have already suffered drastically due to man's activity. Two or three known colonies of Pieris Virginiensis have been eliminated.

At present the Toronto Entomologists' Association is urging the Ontario Government to create a National Park Reserve for this species in Halton Co. Forest, north of Campbellville. Mr. Walter Plath and Mr. Paul Catling presently are preparing an article on P. Virginiensis which will feature Walter's study of the life history of this species, as well as an account of the ecology, which may assist the Department of Lands and Forest in "managing" the area.

If you have collected this species in Ontario, it would be appreciated if you would send your data to Walter or Paul, as it would be most useful in establishing the flight periods of males and females.

* * * * *

Records Wanted of the capture of Eurema Lisa in Ontario. As I would like to document the occurrence of this species in Ontario, it would be appreciated if members could consult their records and collection, - and send the dates and locations to Paul Catling, 104 Victoria Park Ave, Toronto 13.

MERRY CHRISTMAS and a HAPPY NEW YEAR

TORONTO ENTOMOLOGISTS' ASSOCIATION

Membership Application

Please enroll me as a member of the Toronto Entomologists' Association in the classification checked below.

_____ Student Member _____ Active Member
(Annual Dues \$2.00) (Annual Dues \$3.50)

(Note: Additional Member in the same family - Annual Dues \$1.00)

Name _____

Address _____

Telephone Number _____

Send remittance - Payable to Toronto Entomologists' Association.

and mail to: Ron Michaels,
53 Duncan Drive,
Georgetown, Ontario.

My General Entomological Interests are:

_____ Aquatic Insects _____ Evolution _____ Behavior
_____ Biology & Ecology _____ Collecting _____ Taxonomy
_____ Geographical Distribution _____ Insect Photography

Other (Specify) _____

My specific interests are (Orders, Families, Genera, Geographical Area) _____

TORONTO ENTOMOLOGISTS' ASSOCIATION

Rearing Lepidoptera In Sleeve Cages

J. E. Duncan

There are three general methods of rearing larvae of butterflies and moths. The larvae may be kept in cages in the house and provided with fresh branches of an acceptable food plant, reared in sleeve cages over branches of a growing shrub or tree, or they may be set out as eggs or larvae in colonies to develop under completely natural conditions. The latter method should be used only for rearing species indigenous to the area.

Sleeve cage rearing is perhaps the most successful method and the least time consuming of the two cage methods. Each summer I rear several hundred moths of the Saturniidae family in sleeve cages over sandbar willows and apple. I will describe the technique which I have found most effective in this rearing.

In constructing the sleeve cages, form a cylinder with galvanized window screen 36" wide and 36" long. Tack both edges to a wooden lath so that the cylinder is about 11" in diameter. Cut two pieces of heavy unbleached muslin large enough to go around the cylinder at each end and overlap about two inches. The cloth end pieces should extend 18" to 20" beyond the ends of the cage after being sewed firmly to the screen. The other edges of the cloth should also be sewed together so that the entire cage forms a cylinder about six feet long.

Examine the cage closely to make sure that no insects can enter through gaps in the cloth or screen.

The actual size and shape of the cage can be varied, depending somewhat upon the branches to be covered. Although plastic or nylon screen or cloth netting may be used for the cages, I have found that the wire screening gives better protection for the larvae against bird predators.

Pull the cage over a branch of the shrub or tree on which the caterpillars are to feed and secure with a strong cord around the end of the extensions. Before slipping the cage over the food plant; however, make sure there are no spiders or predacious insects on the leaves. Shake the branches vigorously to dislodge these unwanted insects.

It is preferable to hatch out the larvae in the house or in some protected place. I usually place the eggs in a small covered jar and as the larvae begin to emerge, place a small twig with leaves of the food plant in the jar. When the larvae are on the leaves the twig may be dropped into an open end of the sleeve cage at which time the cage is closed again. If the newly hatched larvae must be handled use a fine bristle camel hair brush for picking up and placing them on the leaves.

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One hundred or more first or second instar larvae may be kept in a cage. As the larvae increase in size they should be thinned out or spread to several cages. Some of the giant silk moth caterpillars such as the cecropia and gloveri moths require more room than others. By the fifth instar not more than seven should be kept in a single cage. This is to reduce the incidence of diseases which are often a problem with these species. The polyphemus larvae and certain others can be reared in larger groups without losses from disease. However, crowding will make it necessary to change the cage more often as the leaves are consumed.

When nearly all of the leaves in a cage have been eaten, untie the ends, slip the cage off the branch, and onto a fresh branch - or two or three branches tied together. Do not pull the larvae from the leaves and branches as this will often tear the prolegs and eventually destroy the larvae. To move the larvae, clip off the twigs with larvae attached (using a hand pruner) and place them one by one back in the relocated cage. When the larvae are small several may be moved together on a cut twig or section of a branch.

If the larvae are molting when moved or are resting before or after a molt they may be damaged so it is better to wait a day or so until they again become active.

Most of the Saturniid caterpillars spin silk cocoons which should be allowed to harden and then should be removed by clipping off the branch with the pruning shears so that a small section of branch is attached to the cocoon. A week or so later this section of branch can be removed without damaging the pupae.

Some exotic silk moth larvae and all hawk moth larvae should be removed from the cages when through feeding and placed in a box with several inches of soil so they can burrow in and pupate. Most butterflies will form chrysalids on the branches and can be carefully removed to emergence cages.

Cages should be washed thoroughly before being used for a second brood of caterpillars and at the end of the season. It will be necessary to replace the stained and worn cloth ends of the sleeve cages before the beginning of the next season. The screen cylinders should be disinfected before being re-used.

Ova for rearing may be obtained from dealers or may be received in exchange from other collectors. Most often the ova are obtained from the pairing of a male and female confined in a cage, or from a captured female. In this case place the female in a brown paper bag for three or four days, then cut out sections of the paper with eggs attached and keep in a covered jar for hatching.

Although the rearing methods described above were detailed particularly with the giant silk moths in mind, larvae of most lepidopterous families can be reared in the same manner. Certain variations will probably be necessary to fit the individual situations regarding species to be reared and the food plants involved.

Toronto Entomologists' Association

Books

A Field Guide to the Insects

By D. J. Borror and R. E. White

Here is the most comprehensive authoritative and up-to-date pocket guide to North American insects ever published. This field guide covers 579 families of insects and includes descriptions of other arthropods as well. More than 1,300 drawings, of which 142 are in colour, illustrate the book, and most of the families have one or more illustrations; only the rarely encountered or obscure families are not illustrated.

T.E.A. Price \$5.95 ea.

The Pictorial Encyclopedia of Insects

By V. J. Stanek

Combining an authoritative and extremely readable text with over 1,000 wonderful photographs in colour and black and white, this magnificent volume reveals, as never before, the beauty and interest of the vast and incredibly varied world of insects - from tiny Daphnia water fleas and delicate and beautiful moths and butterflies to fantastic scorpions and giant hairy spiders, each species is described scientifically in the concise, lively text, and details are given of its habits, location and peculiarities.

The result of detailed investigations and extensive photographic activities by Dr. V. J. Stanek, former Director of Prague Zoo and a world-famous authority on insects, this is both a quick-reference work and a fascinating survey that will be appreciated by the naturalist and general reader alike.

592 pages, 48 in colour, over 1,000 photographs.

T.E.A. Price \$6.00 ea.

Mariposas De Venezuela (butterflies and moths of Venezuela)

By Michael Schmid and B. M. Endicott

In Spanish and English, this book has more colour photographs of South American lepidoptera than any other publication available.

67 pages, 4 figs., 142 colour photos depicting 132 species.

T.E.A. Price \$9.50 ea.

To: Toronto Entomologists' Association,
53 Duncan Dr.,
Georgetown, Ont.

Please send me copies of
A Field Guide to the Insects, at \$5.95ea.

Please send me copies of
The Pictorial Encyclopedia of Insects, at \$6.00 ea.

Please send me copies of
Mariposa De Venezuela, at \$9.50 ea.

Enclosed please find \$ in full payment.

Ship To

Name _____

Address _____

Tel. No. _____

TORONTO ENTOMOLOGISTS' ASSOCIATION

SPRING MEETINGS

Saturday, March 13, 1971
Royal Ontario Museum
Room 4, 2 p.m.

Speaker: Prof. I. Campbell
Topic: Population genetics -
genetic factors influenc-
ing population density of
insects.

Saturday, April 10, 1971
Royal Ontario Museum
Room 4, 2 p.m.

Speaker: Dr. G.B. Wiggins
Topic: Why study insects?

* * * * *

Reminder: Next meeting February 13, 1971
R.O.M. Room 4, 2 p.m.
Speaker: Prof. C. Atwood

* * * * *

Membership Dues

To date only 34% of our members have paid their dues for the coming year. If you have not mailed your dues, we ask that you do so not later than February 15, 1971. Our second publication is scheduled for completion in February and the bills must be paid -- we ask for your co-operation.

Occasional Publication No. 1

- Checklist of Ontario Skippers and Butterflies
- 1969 seasonal summary

Copies of our first publication are still available at \$1.50 ea. Anyone who would like to order additional copies may do so by sending a cheque or money order payable to the Toronto Entomologists' Association, c/o R. Michaels, 53 Duncan Dr., Georgetown, Ontario.

Books

We are beginning to encounter difficulties with some of the publishing companies who supply our books. Many of our members have purchased books taking advantage of the special discounted prices which we have been able to obtain. Unfortunately, the publishing companies did not have sufficient stock on hand to fill all of our orders and now several of the books that we have listed are now out of stock.

We hope our members will continue taking advantage of our special books prices and as soon as stock arrives, all orders will be filled.

* * * * *

Next Newsletter - March, 1971

As this will be our last newsletter before the Spring collecting season begins, we ask that all articles, field trips, research requests, and exchange notices be submitted not later than March 10, 1971.

R. Michaels

TORONTO ENTOMOLOGISTS' ASSOCIATION

Books/Publications

Mimicry in Plants and Animals
By Wolfgang Wickler.

Previous accounts of mimicry, following the original discoveries of Henry Bates, have been largely restricted to moths and butterflies. Dr. Wickler shows that mimicry is much more widespread than is sometimes supposed, stressing that behaviour is as important as colouration. On the other hand, he shows that often what appears at first sight to be a case of mimicry may really not be mimicry at all. He establishes the criteria for a true mimicry system and emphasizes the importance of careful experiment to settle the question in each case. His book is the first to cover the whole field of the mimetic falsification of signals.

T.E.A. Price - \$2.75

* Hawk Moths of Central and Southern Africa
By Elliot Pinhey

T.E.A. Price - \$8.95

* Allow 15 weeks for delivery

Butterflies and Skippers of Northern Ontario
By J.C.E. Riette
(The Mid-Continent Lepidoptera Series - Vol. 2, No. 21 February 1971)

In the 1959 issue (No. 13) of "The Ontario Field Biologist" the author published a "Revision of C.J.S. Bethune's List of the Butterflies of the Eastern Provinces of Canada as far as Northern Ontario is concerned". Two additions to this list were published in the "Journal of the Lepidopterists' Society" (Volume 16, 1963 and Volume 21, 1967). It seemed desirable to republish the list with all of the additions accumulated since the first publication. It also seemed desirable to make larger changes in the entire way and concept with which the previous list was written.

T.E.A. Price - \$1.00

The Moth Book
By W. J. Holland

A popular guide to the knowledge of the Moths of North America. 1903 reprint 1968. XIV + 179P; 48 col. pls; 263 figs, new forward by A. E. Brower.

T.E.A. Price - \$5.00

Butterflies of Australia and New Guinea
By Charles Barrett and A. N. Burns

This beautifully illustrated book provides what has long been needed - an up-to-date guide to the Australian rhopalocery and many of the splendid butterflies of Papua - New Guinea. Concise descriptions of a large number of species are given, together with details of their life histories.

T.E.A. Price - \$5.85

TORONTO ENTOMOLOGISTS' ASSOCIATION

SPRING MEETING

Saturday, April 3, 1971
Royal Ontario Museum
Room 4, 2 p.m.

Important: With the Easter week-end
being on April 10, we have changed
the date for our Spring Meeting

Speaker: G. B. Wiggins
Topic: Why study insects?

1970 Seasonal Summary

The 1970 seasonal summary is now published. It is joined by a reprint of a paper by Wm. Brodie (1894) about Hyalophora columbia and a second section concerning highlights of moth collecting.

The seasonal summaries can be helpful in planning your field trips and with spring just around the corner, we urge all of our members to send their order in early.

The price of the publication to T.E.A. members - \$1.00/copy.
(non-members - \$2.00/copy)

Field Trip

Is there another colony of *Pieris virginiensis* in Ontario

As with most of nature, the butterflies in Ontario are faced with an increasingly pessimistic future. One such species has been *P. virginiensis*, at least two of the four known colonies have been eliminated in Ontario. The purpose will be to try and locate other colonies of *P. virginiensis* in Ontario.

Mr. Paul Catling has agreed to co-ordinate the search. Any member who will have some free time in late April or early May is asked to contact Paul (in writing) as soon as possible. There are many areas worth investigating and in order to cover as many areas as possible, Paul will be assigning special areas that should be checked.

Books Wanted: Any or all three volumes of *The Lepidoptera of New York and States* by W. T. M. Forbes
- A. MacNaughton, 236 Guelph St., Kitchener, Ont.

TORONTO ENTOMOLOGISTS' ASSOCIATION

September 1971

Books/Publications

The following list represents Books/Publications that are presently in stock.

	<u>T.E.A. Price</u>
- The Moth Book By W. J. Holland	\$5.00
- Butterflies and Skippers of Northern Ontario By J. C. E. Riotte	\$1.00
- A Field Guide to the Insects By D. J. Borror and R. E. White	\$5.95
- The Pictorial Encyclopedia of Insects By V. J. Stanek	\$6.00
- A Field Guide to the Butterflies of Britain and Europe By L. G. Higgins and N. D. Riley	\$8.00
- The Butterflies of Trinidad and Tobago By Malcolm Barcant	\$9.00
- Mimicry in Plants and Animals By Wolfgang Wickler	\$2.75
- A Field Guide to Shells of the Pacific Coast and Hawaii By Percy A. Morris	\$5.95
- Garden Guide for Canadians By Stan Larke	\$1.75
- The Canadian Gardeners Handbook	\$0.75

TORONTO ENTOMOLOGISTS' ASSOCIATION

Research Request

The Entomology Department of the Royal Ontario Museum is undertaking a project which many of our members can take part in. At our request, Dr. Barr has supplied the following information: -

"Chiracanthium mildei is an introduced, household spider that has probably been established in Ontario cities for some years. Strangely enough, specimens of this spider had never been brought to the Museum for identification before late 1969. Then we were given two at the same time and have received a trickle of others ever since. Dr. Herbert Levi of the Museum of Comparative Zoology, Cambridge, Mass. confirmed the identification and filled in some background on the remarkable spread of this species since it was first recognized in North America in 1949.

We are often called upon for information on household spiders. The discovery of C. mildei suggested the interesting project of compiling a list of those species regularly found in Ontario buildings, together with some idea of how frequently each occurs. This information should be an asset to our general policy of reassuring people that spiders are beneficial invertebrates in the household. None are known (in Ontario) to interact with humans in other than accidental situations, and the rare spider bite is either harmless or only annoying (C. mildei).

Information needed with the specimens for this project is: where collected, what type of building, which room, date and collector's name."

Send all specimens to:

Dr. David Barr
Dept. of Entomology
Royal Ontario Museum
100 Queens Park
Toronto, Ontario.

REMEMBER - DON'T SQUISH THAT SPIDER, TRAP HIM

* * * * *

WANTED - - Papilios, Saturniids, SpHINGids - Any quantity;
Contact: R. Michaels, 53 Duncan Drive, Georgetown,
Ontario.

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TORONTO ENTOMOLOGISTS' ASSOCIATION

1971 SEASONAL SUMMARY

In order that you are able to submit your contribution to the 1971 Seasonal Summary on time, please make sufficient notes after each collecting trip.

ALL RECAPS MUST BE IN NO LATER THAN OCTOBER 8, 1971.

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If you are unable to purchase carbon tetrachloride at your local drugstore, there is a substitute product that is available which is recommended for killing insects - - perchlorethylene.

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PUBLICATIONS

Available from *Publication Distribution Unit
Department of Fisheries and Forestry
344 Wellington, Ottawa, Ontario

Forest Lepidoptera of Ontario
Recorded by the Forest Insect Survey

Volume #1	Volume #2	
Papilionidae to Arctiidae	Nycteolidae	Notodontidae
	Noctuidae	Liparidae

Volume #3	Volume #4	
Lasiocampidae	Drepanidae	Microlepidoptera
Thyatridae	Geometridae	

*Publications are available, at no cost, upon written request.

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DO YOU NEED HEADER LABELS FOR YOUR COLLECTION? If so we can sell you a set for 75¢. ~~At~~ present, we have some spare sets of "The Checklist of Ontario Skippers and Butterflies" (published 1969) which will make excellent header labels for your collection. Place your order early - once stock is depleted, this offer expires.

Send your order to Toronto Entomologists' Association
c/o 53 Duncan Drive,
Georgetown, Ontario.

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