

# The Lepidopterists' News

THE MONTHLY PERIODICAL OF THE LEPIDOPTERISTS' SOCIETY

c/o Osborn Zoological Laboratory, Yale University, New Haven 11, Connecticut, U. S. A.

Editor - C. L. REMINGTON

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## THE FIRST ANNUAL MEETING OF THE LEPIDOPTERISTS' SOCIETY

As discussed in a recent issue of the Lepidopterists' News (vol.4: p.1), definite steps have been taken this year to place the Society on a formally organized basis. Mr. Cyril F. dos Passos devoted a great amount of time to preparing a draft constitution and by-laws and modifying and amplifying the draft until a really notable document has been achieved. Mr. dos Passos then served as Chairman of the international Organization Committee which studied, amended, and approved the draft and which appointed temporary officers to serve the Society until the Constitution could be formally adopted and elections held. The final report of the Organization Committee will be found on the next page.

The President pro tem., Dr. J.H. McDunnough, appointed three temporary committees, as follows, to prepare for the first annual meeting:

### PROGRAM COMMITTEE

William D. Field (Washington, D.C.)  
Sidney A. Hessel (New York)  
Roger E. Richard (Michigan)  
C.L. Remington (Connecticut), Chairman

### COMMITTEE ON LOCAL ARRANGEMENTS

R.C. Casselberry (New York)  
William P. Comstock (New Jersey)  
Rowland R. McElvare (New York)  
George W. Rawson (New Jersey)  
A. Barrett Klots (New York), Chairman

### NOMINATING COMMITTEE

Ralph W. Macy (Oregon)  
Eugene G. Munroe (Ontario)  
Walter R. Sweadner (Pennsylvania)  
C.B. Williams (England)  
C.L. Remington (Connecticut), Chairman

The site chosen for this first meeting is New York City and the dates are December 29th-30th, 1950. New York gives promise of the largest possible attendance because of the concentration of Society members within 100 miles of the city. Furthermore, the American Museum of Natural History has ideal facilities for such a meeting, and the authorities of the Museum have very kindly made them available to the Society. The dates chosen seem to be the only ones when nearly everyone who might attend the meeting can get away from his place of vocation; they are long enough after Christmas and enough before New Year's Eve to avoid interference. Future meetings will be held in other parts of North America and possibly in other Continents.

The general program for the meeting will be as follows:

### Friday, December 29th

Morning - Paper-reading Session  
Afternoon - Symposium  
Evening - Illustrations Session

### Saturday, December 30th

Morning - Paper-reading Session  
Afternoon - Annual Business Meeting

Any member who will be attending the meetings may present reports of research, field observations, and technique developments at either of the paper-reading sessions, with a limit of 15 minutes on each paper "read". Mr. Field is in charge of this part of the program.

The Symposium will have as its general title, "Geographical Subspeciation in Lepidoptera". There will be a discussion leader and five invited speakers, each analyzing one aspect of the subject.

The Illustrations Session will include a salon of large photographs and drawings and an hour or two of projection of kodachrome slides and perhaps color-movies. All Society members may send material for this session. Mr. Richard is in charge.

There will also be an exhibition of specimens, equipment, and other material submitted by members. It will be on view in the Museum throughout the two-day period. The exhibition is under the direction of Mr. Hessel.

The primary matters for action at the Business Meeting are: 1) adoption of the Constitution and By-Laws; 2) election of officers for 1951; and 3) reports of committees and certain officers.

Prospects are already excellent for a large turn-out for the meetings, with some members planning to come from a considerable distance. We believe that all the sessions will be both valuable and entertaining. The contact with so many fellow enthusiasts is, of course, a chief attraction.

C.L. Remington

## THE LEPIDOPTERISTS' SOCIETY

## REPORT OF THE ORGANIZATION COMMITTEE

1. On the 31st day of July, 1950, Dr. Charles L. Remington, one of the founders of The Lepidopterists' Society and Editor of The Lepidopterists' News, appointed a Committee consisting of the following members of the Society to prepare and adopt a Constitution and By-Laws for the Society:

Cyril F. dos Passos, Chairman (U.S.A.)  
 Don B. Stallings, Secretary (U.S.A.)  
 Axel Andersen (Denmark)  
 Jean Bourgogne (France)  
 Harry K. Clench (U.S.A.)  
 John G. Franclemont (U.S.A.)  
 T.N. Freeman (Canada)  
 Lloyd M. Martin (U.S.A.)  
 Yoshio Okada (Japan)  
 Lauro Travassos F<sup>o</sup> (Brazil)  
 C.B. Williams (England)

2. The Organization Committee has considered the draft of a proposed Constitution and By-Laws, prepared by its Chairman in consultation with Dr. Remington, and a number of members of the Committee have made valuable suggestions for the improvement thereof. These suggestions all have been carefully considered and many of them adopted. In view of the distances separating most members of the Committee, it has not been possible to hold any meeting.

3. As a result of the foregoing, the Organization Committee hereby adopts the Constitution and By-Laws hereto annexed, made a part hereof and marked Exhibit A, as the Constitution and By-Laws of The Lepidopterists' Society, and recommends that the same be submitted to the annual meeting of the Society to be held at the American Museum of Natural History on the 30th day of December, 1950, for ratification and approval.

4. The Organization Committee, by virtue of the authority conferred upon it, nominates and appoints the following temporary officers of The Lepidopterists' Society to serve as such until their successors are duly elected:

President	Dr. James H. McDunnough
Secretary	Dr. Frederick H. Rindge
Treasurer	Dr. J. Benjamin Ziegler

Respectfully submitted,

Dated October 1, 1950

(signed)	(signed)
Don B. Stallings	Cyril F. dos Passos
Secretary	Chairman

[Mr. Austin H. Clark accepted appointment as Vice-President pro tem. on October 27th and will preside at the Business Meeting in New York in the event that the President is unable to attend the meetings.]

## NOMINATIONS FOR 1951 OFFICERS

Voting for officers will be by mail ballot by all members who will not be present at the meeting and it is hoped that every member will vote, although the ballot this year includes only one nominee for each office. The Constitution provides for additional nominations by petition from ten or more members, and this system will be in operation for each election after this first one. A shortage of time forced the single nominee system to be used exclusively, but every effort was made to have the ballot fully representative geographically, taxonomically, and with both amateur and professional lepidopterists.

The Nominating Committee submitted the following list, which has been placed on the ballot and mailed to all Society members by the Secretary:

## OFFICERS

President (term - one year):	J.H. McDunnough (U.S.A.)
Senior Vice-President (one year):	Austin H. Clark (U.S.A.)
Vice-President (one year):	Walter Forster (Germany)
Vice-President (one year):	K.J. Hayward (Argentina)
Secretary (two years):	Frederick H. Rindge (U.S.A.)
Treasurer (two years):	J. Benjamin Ziegler (U.S.A.)

## EXECUTIVE COMMITTEE

One-year term	Thomas N. Freeman (Canada)
	Henri Stempffer (France)
Two-year term	Lloyd M. Martin (U.S.A.)
	N.D. Riley (Great Britain)
Three-year term	John G. Franclemont (U.S.A.)
	Takashi Shirozu (Japan)

After adoption of the Constitution and By-Laws a copy will be sent to each Society member. The Constitution provides for a thirteen-man Executive Committee to control the affairs of the Society. The Committee is composed of the six officers, the Editor-in-Chief, and six other elected members two of whom shall be replaced each year. The Executive Committee will carry out its functions by correspondence and by a meeting at the time of the Annual Meeting.



## THE AMERICAN PAPILIOS

by F. Martin Brown  
Colorado Springs, Colorado

Many collectors of tropical butterflies tend to specialize in one or two groups of the more beautifully patterned species. Among these the Papilios stand high as favorites. Very few of the collectors have at hand the library facilities to determine their specimens and must depend upon the identification supplied by the dealer. An unfortunate number of such specimens are incorrectly named.

Perhaps the greatest deterrent to accurate determinations among the American Papilios is the large number of species that mimic one another. Several members of the Lepidopterists' Society have written to me and asked questions that indicate that some notes about the identification of the groups into which the American Papilios are divided may be of use to a rather wide circle of members.

Many attempts have been made to divide the blanket genus Papilio into less cumbersome genera. None of these attempts really has been successful. The prime reason for most of the failures has been the attempt to work with adequate material from only one faunal area. Until someone with an extensive worldwide collection, a complete library, and a lot of time attacks the problem we will have to continue using Papilio as a very heterogeneous "genus".

Serious students of the American Papilios base their studies on the classic work of Rothschild and Jordan published in 1906. For the amateur this work is not particularly satisfactory since it contains so few illustrations. A better reference that is adequately illustrated is the volume of Seitz' Macrolepidoptera of the World devoted to the American fauna. The section on Papilio for this was prepared by Dr. Jordan. But with no keys and very sketchy descriptions "Seitz" is often more confusing than illuminating, particularly among the groups that resemble each other.

To supplement "Seitz", in this and succeeding articles I will present keys and notes that may make the determination of the American Papilios a little more easy and certain. The keys are in part my own and in part are copied from Rothschild and Jordan. All conform with the exhaustive research done by those two men.

The three major sections of the Papilios are: the ARISTOLOCHIA-Papilios, the FLUTED-Papilios and the KITE-Papilios. To a practiced eye the typical species of each are easily recognized. North American representatives of the three groups are respectively, philenor, ajax, and marcellus. In the tropics the three sections are not so clearly distinct because of mimicry. By far the most reliable clues to the sections are found in the immature stages. However, these are of little use when only the imago is at hand. They do support and give value to what may otherwise seem insignificant structural differences used in the keys. Some of these differences are not easy to see and must be sought carefully

under a lens. There are a few outstanding characteristics that will immediately assign some species to the proper section. The males of the ARISTOLOCHIA section often can be spotted by the wooly sex-patch along the abdominal margin of the hindwings. This "wooly" condition does occur on some males of the KITES. These can be recognized by the anastomosed radial-one nervule. The fluted fold on the abdominal margin of the hindwings of both sexes of the FLUTED section is easily seen and is its key characteristic. Those of the KITE section that bear the characteristic long slender, non-spatulate tails are easily recognized but unfortunately many of the species in this group so closely mimic members of the other sections that the majority of KITES must be recognized by other characteristics. Some of the KITES are the Papilios upon which the first or first and second radial nervule is fused with the subcostal nervule. This does not happen in any other group.

It is necessary to include in this short discussion of the grouping of American Papilios a few words about the generic names that might be used with them. Hemming (1934) lists 34 names of generic rank that were applied to fractions of the giant genus Papilio previous to 1864. I have no idea how many have been proposed since but do know that the number is not small. Since Hemming is planning to discuss the generic names published since the close of 1863 it is best to await his diagnosis of the recent names before any attempt is made to fix generic names for the subdivisions of the blanket genus.

The basis for Rothschild and Jordan's analysis of the groupings seems to me adequate for further studies. This basis is not restricted to any one feature but involves the whole insect. It in turn is an elaboration of Horsfield's studies reported in the Catalogue of Lepidopterous Insects in the Museum of the East India Company published in 1857.

I think that there is little quarrel with the segregation into three major divisions. If these divisions be considered of generic rank then the names available for them are these:

ARISTOLOCHIA Papilios: Battus Scopoli 1777  
FLUTED Papilios : Papilio Linné 1758  
KITE Papilios : Graphium Scopoli 1777

Beyond this division I am loath to go. I am sure that there are groups within the three major divisions that rise at least close to generic stature as do the Bird-Papilios of the Indo-Australian region. These are recognized as Troides Hübner.

The following structural key will separate the three sections one from the other if care is taken. I would suggest that the characters used be compared for the three well-known species that are North American representatives of the sections. This will give an idea of what is to be sought.

## STRUCTURAL KEY TO THE SECTIONS OF PAPILIO

1. Spines on the tarsi: outer ventral row of four rows of spines not separated from the spines of the dorsal surface by a sharply defined, spineless, depressed space .....ARISTOLOCHIA

Spines on the tarsi: outer ventral row of four rows separated from the dorsal spines by a spineless depressed space .....2

2. Abdominal margin of hindwings curved downward, having appearance of being fluted when viewed from beneath; ♂ without a distinct scent-patch .....FLUTED

Abdominal margin of hindwings not curved downward; on ♂ this margin is widened and usually bears a scent-patch .....KITES

These characters will separate the Papilios from any faunal region into the three accepted sections.

## SECTION I - The ARISTOLOCHIA Papilios

This section of the Papilios is absent from Africa, except the island of Madagascar where one species flies. It is particularly abundant in the American tropics and in the Oriental and Indo-Australian regions. The Old World insects are separable from those of the New World on a structural basis. It is possible that this difference will be found of no value for generic purposes when a thorough study has been made. On the other hand investigation may prove that none of the Old World genera of the ARISTOLOCHIA Papilios fly in the Americas and vice versa.

The American ARISTOLOCHIAS are subdivided among two subsections, A and B. Whether or not these subdivisions are of generic, sub-generic, or super-generic value has not yet been clearly established. The characters given in the following key will separate the two subsections.

Antennae with sharply defined sensory grooves; ♂ sense organ woolly or densely scaled, no naked streak at its discal side; ♀♀ with anal segment adorned with numerous hairs and bristles; claws asymmetrical; body marking bright red .....SUBSECTION A

Antennae without distinct grooves; ♂ scent-patch never woolly, a naked streak on the discal side of the fold; ♀ anal segment with some short spinelike bristles; claws of at least the hind legs symmetrical; body markings not bright red, at most rufous, usually yellow or white; no red spot or band in center of hindwings, submarginal spots always present .....SUBSECTION B

## SUBSECTION A OF THE ARISTOLOCHIA PAPILIOS

The following is the description of this subsection as set forth by Rothschild and Jordan with the nomenclature of the nervules changed from their system to the more widely used Comstock-Needham system.

"Antennae long; club slender; sensory groove more or less large, sharply defined; end segment conical, almost as long as broad. Claws asymmetrical. Markings of body red. Hindwing usually with red band or row of red spots on disc, these markings seldom white or yellowish white. Forewing of female bearing often white or yellowish white patches on disc and in cell, being sometimes all black.  $Cu_2-A_1$  cellule long, widening distally; precostal curved near its base. Disco-cellular nervules of forewings oblique; upper angle of cell obtuse. Cell of the hindwing more or less acuminate,  $D_3$  (ldc) more or less leaning based anteriorly, the cell-angle at ldc- $Cu_2$  being smaller than angle mdc-ldc, or ldc reduced to a point, rarely transverse, never leaning distad.

"Male. Scent-organ woolly or densely scaled, no naked streak at its discal side. Tenth abdominal sternite not reaching to the apex of the long slender tergite. Tibiae often incrassate and hairy.

"Females. Anal segment with numerous hairs and bristles which are mostly tapering to a fine point, others ending abruptly, being somewhat thicker at the tip than at the base; in many species there are some bristles which are distinctly club-shaped."

The subsection A can be conveniently divided into three groups of species according to the artificial key presented by Rothschild and Jordan and based upon the pattern. I have slightly modified the form of this key from that in their publication.

1. Fringe-spots red; palpus always black .....  
.....LYSANDER Group (III)

Fringe spots white .....2

2. Hindwing with submarginal spots and usually also discal spots or dots, or a discal band; mostly with tail .....ASCANIUS Group (I)

Hindwing without submarginal spots but with discal band or row of spots ....AENEAS Group (II)

## I. ASCANIUS Group

The pattern of these ARISTOLOCHIAS is believed to represent the more ancestral type. The distribution is interesting in that it is more or less restricted to the northern and southern fringes of the Neotropics. The only species in the group that is found in the equatorial regions is phalaecus, the one spatulate-tailed ARISTOLOCHIA in the region. P. gundlachianus (columbus H.-S.), found on Cuba, is believed to have the most ancestral pattern of all the American ARISTOLOCHIAS.

There are 11 or 12 species in this group. Those from the northern areas are:

Cuba: gundlachianus Felder  
Mexico and Central America: photinus Doubleday,  
alopius Godman and Salvin, montezuma Westwood.  
Central America: dares Hewitson.

The single mid-tropical species is phalaecus Hewitson from eastern Ecuador.



## Brown: THE AMERICAN PAPILIOS - cont.

The species found in the southern part of the range are:

Brazil, Paraguay, Uruguay, and the Argentine: agavus Drury, and perrhebus Boisduval.  
Southeastern Brazil: ascanius, proneus Hübner, and chamissonia Eschscholtz.

## II. AENEAS Group

In this, the largest group of the ARISTOLOCHIA Papilios, many of the species are deceptively alike. Rothschild and Jordan give this advice: "if some attention is paid to the structure of the tibiae of the males, the colour of the palpi of both sexes, the extent of red at the tip of the abdomen of the females, and the shape of the apex of the cell of the hindwing, the reader will generally be able to identify the species and mate the sexes correctly."

There are thirty-five or more species of Papilio in the Americas that can be referred to this group. All of them are found in the Neotropics. Some are very widely spread and have broken into many geographic races, others are known from very limited areas. Many are rare in collections, other are the most abundant Papilio of the particular region being collected. I have found that both the common and rare species in a region usually have the same habits and thus there is a real difference in the abundance of each. The greatest number of species is known from the northwestern part of South America and the Amazon valley. There are no Antillean members of this group. Only two species are really very wide spread. P. sesostris Cramer is found throughout Central America and northern South America and anchises Linné pretty much throughout South America. The others are distributed as follows:

Mexico: polyzelus Felder and iphidamus Fabricius.  
Central America: childrenae Gray, lycimenes Boisduval, erithalion Boisduval, polyzelus Felder, and iphidamus.  
Northwestern South America: aeneas Linné, childrenae, erlases Gray, phosphorus Bates, vertumnus Cramer, lycemenes Boisduval, erithalion, iphidamus.  
Northeastern South America: triopas Godart, coelus Boisduval, klagesi Ehrmann, aeneas Linné, phosphorus, vertumnus.  
Amazon Basin: chabrias Hewitson, quadratus Staudinger, pizzaro Staudinger, aeneas, orellana Hewitson, burchellanus Westwood, drucei Butler, cutorina Staudinger, phosphorus, vertumnus.  
Southwestern South America: steinbachi Rothschild, aeneas, erlases, drucei, vertumnus.  
Southeastern South America: hahneli Staudinger, dardanus Fabricius, erlases, hedae Foetterle, nephalion Godart.

## III. LYSANDER Group

There are only eight or nine species in this group. The species are not too difficult to determine. The group is easily spotted by the red marginal spots. The bulk of the species is found to

the north of the Amazon but some occur throughout the southern parts of the Neotropics. There are no Antillean species and only one is found in Mexico and Central America. The ranges of the eight species noted by Rothschild and Jordan are as follows:

panthonus Cramer - the Guianas and Brazil.  
aglaope Gray - the lower Amazon, southeastern Peru, and northeastern Bolivia.  
lysander Cramer - the Guianas and entire Amazon Basin.  
echemon Hübner - the Guianas and lower and middle Amazon Basin.  
neophilus Hübner - all of tropical South America except west of the Andes and in the mountains of southern Brazil.  
zacyanthus Fabricius - east coast of southern Brazil.  
arcas Cramer - Mexico to northern South America.  
timias Gray - western Ecuador.

## SUBSECTION B OF THE ARISTOLOCHIA PAPILIOS

There are far fewer members to this section than to the preceding section of the ARISTOLOCHIAS. The members of Subsection B are much more alike in structure and therefore are placed in a single group. A quick separation of the two subsections can be based upon the color of the spots on the body. All of those with white or yellow belong to Subsection B. Those species with rufous spots on the body cause the most trouble. The appearance of a red basal spot on the underside of the hindwing of a specimen suspected of being a Subsection B species places it certainly in Subsection B.

There are fourteen or fifteen species in the subsection, or Polydamus-group, as it is called. The two ARISTOLOCHIA species commonly found in the Nearctic Region belong in this subsection. Only three species in the subsection bear tails; philenor, devilliers, and zetes. Of these the first contains races that are practically tailless. A larger part of the species of this subsection range into the temperate areas of the Americas than of subsection A. The majority of the species in this group are found on the older land masses of the Americas. They are less common in the Amazon Basin than are the members of the preceding subsection. The species that are met with in the various areas of the American faunal regions are as follows:

United States: philenor Linné and polydamus Linné.  
Mexico: philenor, polydamus, eracon Godman and Salvin, belus Cramer, laodamus Felder, crassus Cramer.  
Antilles: devilliers Godart, zetes Westwood, polydamus.  
Central America: polydamus, belus, laodamus, lycides Cramer, crassus.  
Northwestern South America: polydamus, belus, laodamus, lycides, crassus.  
Amazon Basin: streckerianus Honrath, polydamus, philetas Hewitson, belus, lycides, crassus.  
Southwestern South America: polydamus, lycides, crassus, archidamus Boisduval, madyes Doubleday, belus.  
Southeastern South America: polydamus, polystictus Butler, crassus (?).

(To be continued.)

Review of "THE BUTTERFLIES OF GEORGIA, REVISED"  
by Lucien Harris, Jr.

The original edition of this annotated check-list was issued in 1931 as Bulletin No. 1 of the Georgia Society of Naturalists and is out of print. Not having a copy of the 1931 edition available, we are unable to indicate the extent of revising in the copy at hand. It was issued as the Society's Bulletin No. 5. There is a brief and significant Foreword by Austin H. Clark, the most active student of butterfly faunistics for the southeastern states. Mr. Clark also prepared a thorough bibliography for the new check-list. Mr. Harris acknowledges also the nomenclatural assistance of Mr. Clark.

Any consideration of Georgia Lepidoptera must concern itself with the work of the superb 18th Century naturalist, John Abbot. Mr. Harris has devoted about one-half of his Introduction to a summary of Abbot's contributions, and he has made extensive use of Abbot's notes on biology throughout the text. In fact, the absence of life history observations more recent than 1797 is the most regrettable lack in the new Harris check-list.

The body of the publication is in the form of a list of the butterflies known or suspected from Georgia, with records of localities and dates of capture, etc. The nomenclature is in line with the newest specialized publications, with such names as *Battus* for *philenor* and *polydamas*, *Precis evarete coenia* in place of *Junonia coenia*, and *Limenitis* in place of *Basilarchia*. Some of the determinations, particularly in *Phyciodes*, appear doubtful to the reviewer.

While the latin nomenclature is current and precise, the treatment of infra-specific categories is neither clear nor consistent. Local lists like this one are of general interest primarily for geographic investigations. Therefore it is important that the geographic concept of the subspecies be very carefully applied. In the present list one finds such puzzling records as subspecies *flora* flying with subspecies *clyton* of *Asterocampa clyton* and *egeremet* flying with typical race *otho* of *Wallengrenia otho*. The terminology of non-geographic forms is also indefinite and perhaps reflects the muddled treatment encountered so widely in the current literature. Form *smilacis* of *Mitoura gryneus*, clearly a seasonal form name for the second brood, is reported occurring "with the regular form on July 17, 1929". "Subspecies *flavida*" of *Anthocharis midae* is of course not a subspecies in the modern sense and is probably a genetic form like the white female form of *Colias* spp. These rather technical lapses detract little from the usefulness of the list.

Collectors in the Southeast will find "The Butterflies of Georgia" an often consulted reference and for students of geographic distribution it will be a valuable source of data. It is mimeographed clearly and cleanly. The price is \$1.00 and the publication may be obtained from the author: Mr. Lucien Harris, Jr., President, Georgia Society of Naturalists, 61 Clarendon Ave., Avondale Estates, Georgia.



C.L. Remington

Review of "A NEW SPECIES OF MITOURA SCUDDER FROM THE PINE BARRENS OF NEW JERSEY", by Rawson and Ziegler

The discovery reported in this paper is so remarkable and yet a kind of discovery so possible for every assiduous field lepidopterist that it deserves special recognition beyond the abstract under "Recent Literature on Lepidoptera" (see p. 58).

For many years no STRIKINGLY different new species of butterfly has been found in the eastern U.S. A. except in northern Maine. It seems certain that every species has now been reported, with the exception of the hidden, or "Sibling Species". In fact, the reviewer ventures to predict that no new species of butterflies except Siblings will be discovered in North America or western Europe and few in any other part of the world; most new "species" these days are soon shown to be subspecies or less. A few years ago the discovery in the East of *Strymon* larvae on Hickory (*Carya*) by Dr. J.H. McDunnough led him to suspect a species difference and he soon discovered his new *S. caryaevorus*, which flies with *S. falacer* Godt. but is exceedingly difficult to distinguish from it except by ♂ genitalia.

"Sibling [from *sibb* = related] species" may be defined as two or more species which occur in the same range (in part or wholly) and which are almost indistinguishable to the unaided eye. They usually have important differences in their biology and do not tend to inter-mate. The recognition of a new sibling species is a high taxonomic achievement. In butterflies these concealed new species will doubtless be discovered occasionally for many years. Usually they are first noticed because they occur in an unusual environment and feed on a surprising food-plant. In some cases, like the *Phyciodes batesii* and *P. tharos* siblings, the flight periods are different. The two most exciting recent examples of new sibling species are *Colias "alfacariensis"* (sibling with *C. hyale*) of northwestern Europe and *Mitoura hesseli* of the East Coast of the U.S.A.

Drs. Rawson and Ziegler and their companion, S. A. Hessel, discovered *M. hesseli* at Lakehurst, New Jersey, for fifty years or more one of the most heavily collected localities in North America. Its invariable proximity to White Cedar (*Chamaecyparis*) in localities where Red Cedar (*Juniperus*) does not grow was the clue that led to the recognition of the new species. The common *M. gryneus* is not known to feed on anything except *Juniperus* and never wanders far from it. Slight differences in the habits of the adults are reported. The color pattern on the wings and the ♂ genitalia have small but dependable differences. Excellent photographs show the upper and under sides of both sexes of *M. gryneus* Hbn. (= *damon* Cram.) and of the types of *M. hesseli*. There are also drawings of the ♂ genitalia of *hesseli* and *gryneus*. In addition to the biological notes and thorough description of *hesseli*, the authors have outlined clearly all the known points of distinction between *hesseli* and *gryneus*. This fine paper will be followed soon by the description of the life-history of *hesseli*, which the authors have reared simultaneously with *gryneus*.

C.L. Remington

## SOME RECORDS OF BUTTERFLY MIGRATION IN JAPAN AND KOREA

by Tarō Iwase  
Kamakura, Japan

The following records of butterfly migration are compiled from the articles published in the Japanese magazine "Zephyrus", edited by Dr. Teiso Esaki, Fukuoka, Japan.

(1) "An enormous swarm of Parnara guttata (the Rice-plant Skipper) attacked Osaka city", by Nobuyoshi Tozawa. Zephyrus, vol.2: p.272; 1930.

On August 21, 1930, at 11 a.m., an enormous swarm of Parnara guttata Bremer and Grey (a smaller but near ally of the North American Calpodus ethlius), flying from east to west, attacked Osaka, the second largest city in Japan. They collided with office windows, cars on streets, and pedestrians, and the dead skippers were left on the scene. On the same afternoon at 3, Mr. Y. Matsuda, a veteran collector, observed a similar swarm resting on the water off Tarumi, 25 miles west of Osaka, while he was angling on a boat. It was reported also that on that morning the same skippers flew across Lake Biwa from north to south over Ishiyama railway station, Shiga-ken, 30 miles northeast of Osaka. The weather was cloudy with local thunder storms and the temperature dropped occasionally. Further, on August 25, a flight of the same skippers was noticed at Kishiwada, 15 miles southwest of Osaka. Mr. Tozawa suggested that there must be some relation between mass flight and the water damage caused by a heavy rain around July 30 in the Kyoto-Osaka-Kobe area.

(2) "An over 300 years old record of butterfly migration in Korea", by Dr. Tamezo Mori. Zephyrus, vol.3: p.279; 1931.

On July 20, 1617, white butterflies flew in a swarm from Manchuria (from northeast to south) over Kozan (Kop-San?) in Kankyo Nan-do. They were observed like a huge dragon and continued over three days. Afterward they appeared over Hokusei (near Zokko), 55 miles south of Kozan, in two days long and flew away southward to the Japan Sea. Mr. Mori

commented that these whites might be Pieris rapae L., but I would rather venture to take them for Pontia daplidice L. There are many recent records of occasional capture of the Bath White (Pontia) in Japan, just in the direction across the Japan Sea. For instance, 1 ♂ Pontia taken on October 23, 1929, in Fukuoka; 2 ♂♂ and 3 ♀♀ in May and June 1940 in the same locality; 1 ♂ captured in September 1939 in Shimane-ken, and another specimen reported from Yamaguchi-city. All localities are within a radius of about 450 miles from the southern shore of Kankyo Nan-do, Korea.

(3) "An extraordinary abundance of the Snout-butterflies (Libythea celtis celtoides Fruhstorfer) in Mino-o", by Kozo Hirose. Zephyrus, vol.1: pp.120-121; 1929.

On June 2, 1929, Mr. Hirose observed a great many snout-butterflies in Mino-o Park near Osaka. They were all hibernators. Three weeks after that he met with an extraordinarily large swarm of them on June 23 in the same place. They were almost all newly emerged ones, and literally covered the foliage and ground like so many fallen leaves. On June 30, there was still a very large mass of Libythea, but less than a week before. Mr. Hirose reminded us that Dr. T. Esaki had also reported the same phenomena in June 1917 in Mino-o and Osaka. No relation to migratory flight was suggested, but these instances are worthy of note.

There are some other records of butterfly migration in Japan, e.g., those reported by Mr. H.S. Pryer, but, to my regret, I have no available references now at hand. These await another occasion. Migration of the Long-tailed Blue (Lampides boeticus L.) has been eagerly sought here by my sponsorship since 1941, but no definite conclusion has been brought up to now.



## NOTES AND RANGE EXTENSIONS OF BUTTERFLIES IN GEORGIA

by Lucien Harris, Jr.  
Atlanta, Georgia

Euphydryas phaeton Drury. A fresh specimen of the Baltimore was taken near a small stream and boggy area at the base of Stone Mountain on June 17, 1950, by Lucien Harris, III. This apparently represents the southern limit of its range. About fifty years ago a small colony was found in north Georgia near Adairsville. Since then only two ragged and flown stray specimens have been observed, one by Eugene Smith near Madras and another by H.F. Strohecker near Macon.

Phyciodes ismeria Bdv. and Lec. Several males were taken on Old Fort Mountain near Chatsworth on May 2, 1950. Two weeks later on May 16 the females were fairly common. Specimens taken on both dates were sent to Mr. A.H. Clark. He reported that these specimens agree well with others from the West, from Texas to southern Canada. Boisduval and Leconte's figures are so poor as to be practically unrecognizable but there is no other species from Georgia that they could represent. Mr. William D. Field, who al-

so studied the question, agrees that these specimens undoubtedly represent Boisduval and Leconte's ismeria.

Asterocampa clyton flora Edw. Fairly common in Augusta where Henry Eustis takes them feeding on ripe figs. Only one stray specimen was previously known from the State.

Hesperia metea Scudder. New State record. Collected by Eugene Smith in Coweta County in April of 1949 and 1950; also collected by Lucien Harris, III, on Old Fort Mountain May 16, 1950.

Hesperia meskei Edw. New State record. A pair collected by Lucien Harris, III, in Atlanta on June 13, 1937; also collected by Eugene Smith in Coweta County on June 14, 1949.

Problema bulenta Bdv. and Lec. This species, lost since the days of John Abbot, was rediscovered by Frank Morton Jones who collected five specimens near Wilmington, North Carolina, in July 1925. The writer has taken two specimens in Georgia, one male on June 15, 1945, and a female on May 7, 1950. The male was presented to the United States National Museum so that genitalic studies might be made.

Poanes aaroni Skinner [= howardi Skinner]. Occurs at Augusta, which is rather surprising as it is

nearly one hundred miles from the coastal salt marshes. It has been collected several times by Henry Eustis and his Augusta specimens were examined by Mr. Clark and the identification confirmed.

Amblyscirtes belli Freeman. This new record for Georgia and the East was collected on May 14 and 17, 1941, in Augusta by Eustis and again on June 25, 1945. One specimen taken in Atlanta on June 3, 1941, by P.W. Fattig, of Emory University, was identified by Mr. Clark, who found it in the United States National Museum series of A. alternata. He also confirmed the identification of the Augusta specimens.

Amblyscirtes carolina Skinner. A specimen collected on May 10, 1946, by Eugene Smith at Madras and identified by Dr. Ralph L. Chermock of the University of Alabama is of special interest, as the only other Georgia specimen is one in the Academy of Natural Sciences of Philadelphia taken in Atlanta about 1910 by W.F. Fiske and determined by Dr. Skinner.

Atrytonopsis hianna Scudder. New record for Georgia. First collected by Eugene Smith in Coweta County in 1949 with the earliest date of capture being April 15th. Collected near the summit of Old Fort Mountain by Lucien Harris, III, and south Georgia in Grady County by the writer on May 6, 1950.



#### THE OCCURRENCE OF A BUTTERFLY IN THE PRIBILOF ISLANDS

by Eugene Munroe  
Division of Entomology  
Department of Agriculture  
Ottawa, Canada

Johnston (Lep. News, vol.4: p.28) states that there is no record of the capture of any butterfly in the Pribilof Islands. The following note may therefore be of interest.

There is in the Redpath Museum, McGill University, Montreal, in the collection of the late Mr. A.R. M. Boulton, a pair of Pieris napi L., the male of which is labelled as follows:

Pieris v. hulda  
Pribilof Island  
Behring Sea  
Alaska  
♂ VII - 24 - 1914

The label of the female is similar except for the sex symbol and the date, which is "VII - 25 - 1914".

The specimens are of the dark arctic type, and are not very different from those taken at Dawson, Yukon Territory. Not having examined them recently, I cannot give a more detailed description.

The labels seem sufficiently circumstantial to

exclude doubt as to the authenticity of the locality record. There is unfortunately no indication of the collector's name, or of the particular island on which the specimens were collected. There is no other material from the Pribilof Islands in the Boulton Collection.

It will be seen that the dates of capture fall within the season of Mr. Johnston's annual visits. The fact that he did not encounter the butterfly in eight years of collecting on both the principal islands suggests that the species, which is conspicuous and would not easily be overlooked, no longer exists on the Pribilofs, although it was apparently present in 1914. It is interesting and satisfying, however, to note that Pieris napi is the butterfly mentioned by Mr. Johnston as the one most likely to occur there.

I wish to thank Mr. George A. Moore, curator of the Lyman Entomological Room at the Redpath Museum, who was kind enough to look up for me the details of the specimen, of which I had only a bare locality record.





SOME NOTES ON DANAUS PLEXIPPUS IN 1949

by F. Martin Brown  
Colorado Springs, Colorado

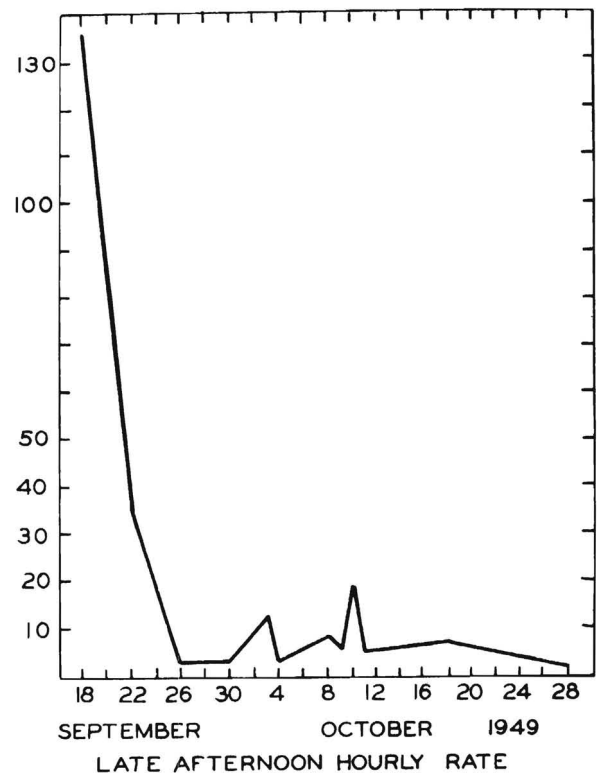
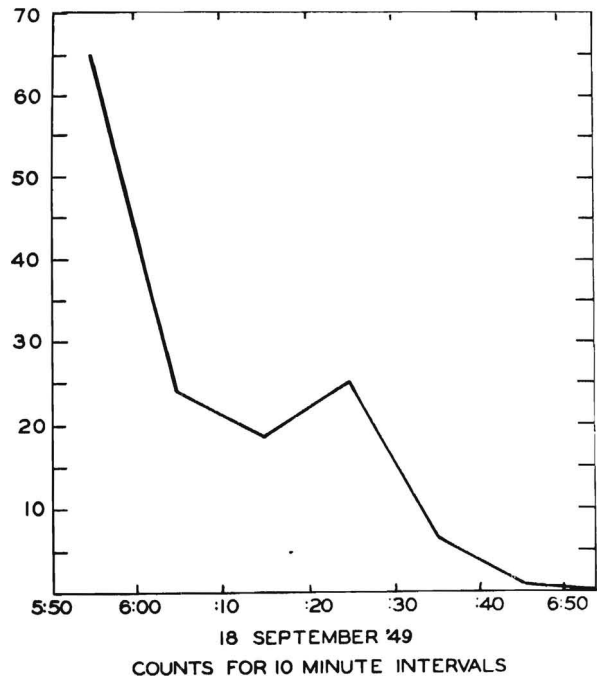
In October I asked the collaborators for THE NE-ARCTIC BUTTERFLIES to send me supplementary notes about the Monarch (Danaus plexippus L.) in 1949, especially any data on the year's migrations. This had been prompted by the unusual abundance of the species along the eastern face of the Rocky Mountains from the Mexican border to central Montana. In this stretch of over a thousand miles I noted the species in every county through which I passed in Texas, New Mexico, Colorado and Wyoming. Usually the species is rare from central Wyoming northward and not too common in southern Wyoming and north-central Colorado. The reply to my request was generous. It is impossible here to give credit to everyone who sent me data. I have selected some of the most interesting and compiled them by regions. I might say at the outset that almost everyone reported an abnormal abundance of the Monarch this year.

As yet the northern periphery of the summer range has not been established. Dr. T.N. Freeman, of Ottawa, wrote that this past summer the species was taken as far north as Rupert House on the eastern coast of James Bay, P.Q., on June 8th, and at St. John's, Newfoundland, on July 11th. R.J. Fitch has found it at Lloydminster in Saskatchewan. On the West Coast it extends into British Columbia but I have not learned how far. Richard Guppy reports the species very rare on Vancouver Island. He knows of only one specimen taken there.

From the eastern Provinces and States I have several reports of migration. D.C. Ferguson of the Nova Scotia Museum of Science tells me "a biologist friend recently reported seeing vast numbers of them piling up against the coast at Vogler's Cove, Lunenburg Co., N.S. They were in greater numbers than he had ever before seen in Nova Scotia." Terry McCabe reported that there was a gathering of Monarchs at the foot of the Mount Washington, N.H., carriage road on 12-13 August. He took some 43 specimens and then stopped because "it wasn't sporting anymore". He had seen none on either the 10th or 11th and the group moved on during the afternoon of the 13th. Dr. C.L. Remington states that the migration southward had begun by 17 September at Woodbridge, Conn., and was going strong on the 24th. Stragglers were still moving southward as late as 10 October. Dr. P.H.H. Gray sent the only definite data on the northward movement. He found the spring arrivals early this year (1949), appearing on 9 and 10 June at the western end of the island of Montreal, P.Q.

Probably the most detailed observation of the southward migration made this year was that of Joseph Keji at Biggs Hospital, near Ithaca, N.Y. The results of his observations are presented in the graphs illustrating this article. Briefly, the peak of the migration occurred on 8 September when the rate was 139 per hour. By the 22nd the rate dropped to 36 per hour. As late as 8 November there was still an occasional Monarch on the wing.

*D. PLEXIPPUS* L. MIGRATION RATE  
NR. ITHACA, N.Y. OBS. J.A. KEJI



From the Great Lakes region came these interesting notes: George Wren writing about the region around Chicago reported that: "I have, in past years, looked at hundreds of milkweed plants without seeing a plexippus larva but this year almost every third milkweed plant in some localities has a plexippus larva and many plants have two or three -- an almost unheard-of thing in my experience". William Sieker of Madison, Wis., reporting from localities well scattered over the State found the species had arrived earlier this year and was around later, October 8th, well beyond the first killing frost. He sent a clipping from the Milwaukee Sentinel dated 6 September that gave the fall migration a 7 inch column! As Bill said, the butterfly swarmed through Milwaukee! Roger E. Richard had this to say: "On 9.17.49 Mr. Perry Reynolds and Mr. James Cummins visited Pte. Pelee, Ontario, Canada. It was a rather stormy day with a strong wind blowing in from the South, off Lake Erie. The entire southern tip of the point was covered with D. plexippus in migration, literally hundreds of thousands on shrubs, trees, etc., all held up due to inclement weather and waiting for good weather to cross the lake to the South. This would have been an ideal time to 'band' or mark specimens but these gentlemen were not aware of the opportunity afforded. They did take movies, slides, etc., of the migration but the overcast weather made the project a gamble."

From the West Coast there is little to tell. Edward C. Johnston found the Monarch abundant and "so perfectly fresh that all must have recently emerged" on 19 September at Biggs, Oregon, on the south shore of the Columbia River. Dr. L.I. Hewes found the species on four islands in the Hawaiian group between 12 and 30 November.

So much for the North. In the South Dr. Ralph L. Chermock noted at Tuscaloosa, Ala., a marked northward migration in the later part of April that lasted two weeks. The peak was about 60 per hour on the two high-count days. W.M. Davidson, Orlando, Fla., writes that "The first examples of Danaus plexippus since I came here on April 1 were seen on September 14. On October 8 Dr. L.I. Hewes found the species swarming in the brush about 10 miles south of San Antonio, Texas. David Bauer, of Arizona, wrote of an interesting observation on Danaus berenice that should be brought to light here. "As far as a southward migration of D. berenice the most I have seen in regard to a migration occurred this fall here in the Verde River Valley. About the middle of Oct. D. berenice began to fly in a southerly direction. There were no large numbers but I was working out doors and could observe them all day long and every specimen which I saw was going South and they are all gone now; I haven't seen any specimens for about a month."



#### FIELD NOTES

CATOCALA FEIGNING DEATH.— For the attraction of nocturnal insects, entomology students at the Michigan Biological Station, Cheboygan Co., use a large carbon arc lamp which shines upon a large white cloth. The whole affair is on a wooden tower, so that the light may be seen for a considerable distance. August 8, 1950, was a warm, still night -- ideal for moths -- and Catocalas were numerous at the white cloth and around the lamp. As they were quite wary, the use of a net was generally necessary. Several times when the net was clapped over an Underwing lit on the cloth, the insect would fall suddenly, either into the net or onto the platform beneath, in which latter place it would lie quietly on its back until placed by hand in the killing jar. Although feigning death is not uncommon among the diurnal Lepidoptera, I had never observed it before among the moths.

Edward G. Voss  
Ann Arbor, Michigan



BUTTERFLY FLYWAYS.— The account of butterfly flyways by Austin H. Clark in Lep. News, vol. 4: p.13 (with editorial reference to former accounts) reminded me of two specific occasions on which I observed regularity in butterfly flight and made use of it in collecting specimens.

In Gregory Canyon, a small gulch just southwest of Boulder, Colorado, I made unsuccessful attempts to collect a swift-flying Speyeria until I discovered that it was flying a more or less regular "beat" among the shrubs and trees, perhaps 25 yards in greatest diameter. I stationed myself at a narrow

passage between two willow thickets and took the specimen with no difficulty on its next round.

In the Dinosaur National Monument, in extreme northwestern Colorado, there is a very narrow ridge overlooking the Green River just below its junction with the Yampa River, called Harper's Corner. Near its northern end it becomes just about wide enough for a foot-trail and falls off close by on either side. There I found Papilio brucei flying regular "beats" among the piñons and junipers and was able to take several specimens with very little effort by posting myself at strategic points.

Hugo G. Rodeck  
Boulder, Colorado



LEPIDOPTERA STRAYS IN NORTHERN MICHIGAN.— To the northern records of Erebus odora (Linné) recently published in the Lep. News (vol. 2: pp. 34, 86; vol. 4: p. 13) may be added the following data on two specimens taken at light at the University of Michigan Biological Station, Cheboygan Co., Michigan, and now in the Station collection. One, somewhat tattered at the edges, is labeled Aug. 1, 1939, Robert E. Serfling. The other specimen, in fairly good condition, was taken July 14, 1947, and bears the name of Cyril Appleton as collector. A western stray in the region is the butterfly Nymphalis californica (Bdv.), of which I took one specimen in damp sand along the Straits of Mackinac in Emmet Co., Michigan, on Sept. 6, 1945.

Edward G. Voss  
Ann Arbor, Michigan



## TECHNIQUE NOTES

## A SIMPLE SPREADING DEVICE

I am a collector of butterflies, and I keep my collection in Riker Mounts. For many years I have used a simple spreading technique, and today I am not positive whether it was picked up from a fellow collector or is in the main original. The large proportion of lepidopterists to whom I have shown the device, who appear never to have heard of it before, has induced me to describe briefly its advantages. Between two pieces of window glass, each about 3" x 4", is a layer of cotton-batting the same size. As I take a specimen out of a relaxing jar, I spread it partially on the cotton with tweezers, bringing the upper piece of glass down gently. If properly placed, the specimen will be spread almost perfectly by the carefully lowered upper piece of glass. After the glass is lowered, if necessary, the wings, body, and antennae can be moved into perfect symmetry with a long mounting needle. In most cases the weight of the glass will hold the upper specimen in place. By next morning the specimens are rigid enough to be placed into permanent cases.

Occasionally, with difficult little specimens, such as Skippers, it is advantageous to have the tip of the needle slightly curved, so that pressure against the veins of the wing will bring it into place without injury. Incidentally, a few half-sized sets are often helpful in spreading the smaller specimens, such as Hesperidae or Lycaenidae, while a few double-sized sets are needed for Saturniidae, Papilionidae, and other larger forms. A code number on a tiny slip of paper, the same as the specimen may bear in the final Riker Mount, can well accompany each specimen, both in the relaxing-jar and while drying under the glass. Thus dozens or hundreds of specimens can be handled simultaneously without confusion.

Side mounts, showing the underside of the specimen, can easily be spread the same way. In mounting a specimen ventral side up, I usually first spread it dorsal side up. Then, after from 2 to 20 minutes (depending on the size of the specimen), when the wings have attained a fixed position but the specimen is still pliable, it can be placed upperside down upon a double layer of cotton, and the upper glass lowered gently. Within a few hours the specimens are ready to be placed, showing both sides of both sexes, if two pairs are available.

I have found my spreading device especially useful in surveying and sorting out a large series taken in one or more places. Especially if I am looking for trends or prevailing patterns, I may spread 50 to 200 specimens, all appearing to be the same thing until closer study. Thus, where symmetrical arrangement is not necessary, I have spread from 50 to 75 specimens in 20 minutes. When I have sorted out the three or four pairs I need for my collection, the rest return to the relaxing jar, and in a few hours are ready for envelopes as duplicates.

Thus, when we return with a summer's catch of two or three thousand specimens, the speed with

which they can be spread depends entirely on how fast the relaxing-jar can produce them. The entire catch from one collecting area might carry the code "50BK" and be placed in one heap in the relaxing-jar. A spoonful of paradichlorobenzene crystals spread on the damp sand under the blotter will keep out mold, which forms so readily otherwise. The summer's catch may fill 40 or 50 Riker Mounts, bearing only locality labels. The winter months can then be conveniently used to sort out the material. The same 100 pieces of glass with perhaps 50 wads of cotton, have thus served me over and over to spread thousands of specimens over the years.

Arthur H. Moeck  
Milwaukee, Wisconsin



## AN EXPERIMENT WITH ATTRACTING MOTHS

During July an experiment was carried on to test the relative merits of two types of lighting source for traps, using two General Electric Co. lamps, the S-4 sunlamp and the BH-4, or "black lamp". In order to minimize so far as possible the influence of weather and the phases of the moon, the lamps were used on alternate nights, though as a matter of fact the weather was reasonably constant throughout the month. The following figures summarize the nightly catches of Lepidoptera of all families:

	S-4	BH-4
Average	777	304
Greatest catch	1698	747
Least catch	327	108

All unusual species were taken with the S-4. However, here is an interesting observation. The trap was hung about a foot from the white outer wall of the house, the house side of the light being shielded to reduce reflection on the wall. With the BH-4 very few moths were found resting on the house either when visited with a flashlight during the night or at dawn, whereas a considerable number roosted on the house when the S-4 was used, and a surprisingly large proportion, probably better than three-quarters, of the rarer species were taken on the house.

As the intensity of the S-4, both in the visible and ultraviolet, is much greater than that of the BH-4, the results will not permit any scientific deductions; they should be considered merely as of practical interest, demonstrating the relative merits of two sources of light available to the collector. In using either of them a word of warning is essential; special precautions must be taken to protect the eyes.

Charles P. Kimball  
Rochester, New York



I use Riker mounts for my specimens. I find all Riker mounts are "overstuffed". I remove a layer of the filler cotton amounting to about one-fifth of the original thickness. Far less damage to legs and other body parts results.

Anonymous



Dr. J.H. McDUNNOUGH decided reluctantly for reasons of health and his advanced age to resign in advance his appointment to the staff of the Department of Insects of the Museum of Comparative Zoology at Harvard University (see Lep. News 4: p.31). He has decided to settle in Halifax, Nova Scotia, and to continue his work on American moths in more leisurely fashion at the Nova Scotia Museum of Science, where he will have the companionship of Douglas C. Ferguson, one of Canada's keenest field entomologists.

At the end of September 1950, the Museum Zoologicum Bogoriense of Bogor, Java, is sending a collecting party consisting of Mr. A.M.R. WEGNER (assistant curator), Mr. LIEM SWIE LIONG (assistant), and two Indonesian collectors to southeast Borneo. The party will collect naturalia, chiefly insects (with special attention to Lepidoptera and Odonata), in the vicinity of Balikpapan for about two months.

M. ABEL DUFRANE, Belgian lepidopterist who is curator of the Musée d'Histoire Naturelle in Mons, has been awarded the Prix Quinquennal for Natural Sciences of the "Amis du Hainaut". The notice of the award cites M. Dufrane's work with Microlepidoptera and with the insect fauna of Kivu, Belgian Congo.

Dr. LIONEL G. HIGGINS, of Woking, Surrey, England, noted British specialist in the genus Melitaea, visited and collected with C.F. dos Passos at Mendham, New Jersey, in May and with F.M. Brown at Colorado Springs, Colorado, during part of the summer.

We report with regret the passing of Dr. LAWRENCE I. HEWES on March 2, 1950, in San Francisco, California.

Dr. WALTER HACKMAN, of the Museum Zoologicum Universitatis, Helsinki, Finland, is now working on the Coleophoridae collected in 1949 by the Finnish-Swedish expedition to Newfoundland. There are about twenty species represented.

Dr. WALTER FORSTER, of the Entomologische Abteilung, Zoologische Sammlung des Staates, in Munich, Germany, has been on an extended collecting trip to South America, particularly Bolivia.

Dr. JEAN ROMIEUX, of Geneva, Switzerland, has been in Indo-China since October 1949.

Prof. KENNETH J. HAYWARD wrote that the second volume on Argentine Hesperidae was in press and was expected to be out shortly. He is already at work on a volume on the Nymphalidae and Heliconiidae with 17 plates and 267 figures in color, "a somewhat brighter volume than the duller smaller Hesperidae". He notes that the "748 species and subspecies" and forms of Argentine butterflies mentioned in the Lep. News (vol.3: p.103) are in addition to the Hesperidae, of which a catalogue of about 450 forms has already been published. The catalogue of the other groups is expected to appear before the end of 1950.

On June 3rd, 1949, in Tjimahi, Java, died J.P. A. Kalis, the well-known professional collector of Lepidoptera and Coleoptera, at the age of 50 years. During many years he collected throughout the Malay Archipelago, chiefly in East Java, Bali, Lombok, and Celebes. His excellent collections of Rhopalocera and Heterocera went chiefly to Lord Rothschild at Tring and to the British Museum, Natural History, of London. Mrs. Th.F.R. Kalis, of Singaradja, Djalang Puri 3, Bali, is going to continue his work.



A. Diakonoff  
Bogor, Java

#### RESEARCH REQUESTS

Prof. Harry Federley, distinguished authority on the cytology and genetics of Lepidoptera, wishes to obtain living material of all American species of Melalopha (= Ichthyura = Pygaera) for hybridization studies with European species of the genus. Probably the best system would be to send newly transformed pupae by airmail; newly-laid eggs might also be sent by airmail. Field collectors familiar with this notodontid genus would be supplying pupae to Prof. Federley be aiding internationally important cytogenetical research. He also hopes to get eggs or pupae of American Drepana. Address him as follows: Prof. Harry Federley, Genetiska Institutet, Norra Järnvägsgatan 13, Helsingfors, FINLAND.

Drs. G.W. Rawson and J.B. Ziegler, describers of the remarkable new Mitoura, M. hesseli, are working out the distribution of their new species. It has long been unnoticed in series of its very similar relative, M. gryneus (= damon). They wish to receive on loan any specimens of Mitoura from the range of the foodplant of M. hesseli, the White Cedar (Chamaecyparis thyoides). The latter is found on the East Coast from southern New Hampshire to Florida and Mississippi. Address them: Ciba Pharmaceutical Co., Summit, New Jersey.

Data and descriptions of experiences with Callosamia angulifera are needed for a study of the relative scarcity of the species, the zone of distribution, and differentiation of northern and southern forms, particularly those of the Carolinas. In addition to helpful data, pupae and ova of the species are sought either on a monetary or exchange basis. Write to:

Richard L. Halbert  
2444-1/2 Cudahy St.  
Huntington Park, Calif.

Mr. Jin-Sheng Lu, National Northwestern College of Agriculture, Wukung, Shensi, China, (correct address July 10, 1950) writes that he is engaged in a study of the Chinese Noctuidae, especially those species which are of some economic importance. His chief difficulty is a lack of literature and he requests help from foreign colleagues. He will try to send specimens in exchange for noctuid literature.



## LETTER TO THE EDITOR

Port Washington, N.Y.  
7 June 1950

To the Editor:

In the current issue of Lepidopterists' News (page 15, Vol.4) is a report by Mr. F. Martin Brown calling attention to a new ruling by the National Park Service which restricts collecting in National Parks to Federal employees. Included is the view of the Chief Naturalist that the new ruling is not disadvantageous to the Park Service or research.

From time to time I have visited a number of National Parks and Monuments in the West and Southwest, yet I have never met a Park Naturalist who was an entomologist nor have I ever found available a study collection of local insects. For a number of years I have been making a study of a small subfamily of moths known as the Heliothiinae. While the group comprises only some 175 species, I can think off-hand of a half-dozen for which the type locality is a National Park, and in at least one case a biological island.

Mr. Brown's report states that there is some possibility that a specialist might be able to negotiate permission to collect in his particular field in a National Park. In the early spring of 1949 I collected in the Big Bend National Park under the old ruling. Nothing turned up in my group and I did some incidental collecting of other groups. This material was apparently of real interest to the two great museums in which it was deposited. Under the new ruling such incidental collecting would be banned. It provides, however, a valuable source of study material, often collected by people interested in natural history who are not entomologists.

For example, I recently described two new Heliothiinae. The specimens in one case were taken by an ethnologist in New Mexico and sent to the U.S. National Museum. In the other case, the specimen was collected by people primarily interested in ornithology and deposited in the American Museum of Natural History. As far as I am aware, these are the first new heliothiids which have been turned up since the Sperrys described C. jaegeri in 1940. These illustrations show the value of incidental collecting. As one of these new species was collected in a National Park, it would not have been taken under the new ruling.

I am sympathetic with the preservation of our National Parks and I can only wonder whether the new restriction is the best solution of the administrative problems of the Park Service. However, even the limited experience of one individual working in a restricted field suggests that further examination is required of the opinion that the new regulation "is not disadvantageous to research".

Very truly yours,

(signed) Rowland R. McElvare

## MOISTURE AND CHOICE OF INSECT PINS

Dr. Petr Wygodzinsky, of Tucumán, Argentina, recently wrote: "It is with certain surprise that I see that you recommend [Lep. News, vol.4: p.31] black steel minuten nadeln. I am convinced that if the respective microclimate where the collection is kept is not very dry, only minuten of stainless steel should be used. Even minuten made of silver wire may oxidize, be it through the action of the body juices of the insect itself, be it through humidity, be it through the action of disinfectants kept in the boxes. Minuten nadeln are used much for small Diptera, and these as well as Microlepidoptera are irrevocably lost if the pins are not of first class quality. When these were not available, I preferred to mount small insects with glue on the tip of paper triangles, which protects them much better. But for larger insects, if any possible only pins made of stainless steel should be used. Even if good white or black pins are employed, they are sure to oxidize within 10 or 20 years. I have seen a great deal of old material (about 80 years) of Hemiptera from European collections, mounted on good white pins (apparently these very old white pins were much better than those fabricated today) but still I recounted the insects to save them from sure destruction".

Using the right type of pin is of considerable importance, as Dr. Wygodzinsky has pointed out. We welcome comments from News readers who have had difficulty or long success with any type of pin.

## MARKING MIGRANT MONARCHS

A few years ago Dr. F.A. Urquhart, Director of the Royal Ontario Museum of Zoology, published a preliminary paper in the Canadian Entomologist on his project of marking migrating Monarch butterflies by fastening small paper labels on the wings. In response to a recent query concerning the results of his work, he wrote: "In the year that we placed our small tickets on the wings of this butterfly, some 3,000 specimens were labeled, of which we received only 7 returns, none of them significant. As you are no doubt well aware, it would be necessary to mark many thousands of butterflies in order to obtain a few significant returns.

"We intend to continue our work this year, with the assistance of some of the members of the naturalists' club. Perhaps our combined efforts may produce some interesting returns. ...The method we used in marking the Monarch butterfly... proved very successful. It was possible to capture, insert the label and liberate the specimen, on an average of eight seconds per specimen, and those returned to us still had the label intact and it was almost impossible to remove it without damaging the wing."

C.A. Anderson, of Dallas, Texas, is now dipping part of the wing of Monarch butterflies in red chick dye just before he releases the specimens. The process apparently does not hamper their flying ability. He also stamps the wings to make identity certain in the event of recoveries. (See Lep. News 4: p.31).

## A NEW GERMAN PERIODICAL FOR LEPIDOPTEROLOGY

The only German periodical dealing exclusively with LepidopteroLOGY was Iris (Dresden; since 1884), which was discontinued in 1944. Now the appearance of a new lepidopterological periodical, the Zeitschrift für Lepidopterologie, can be reported. It is published by Dr. Max Cretschmar (Celle), Albert Grabe (Dortmund), and Georg Warnecke (Hamburg-Altona), editorship Hermann Jung (Viersen). The annual subscription fee is 16 German Marks. The first issue, of May 1950, which has been sent to The Lepidopterists' Society, contains 64 pages (2 plates); the whole annual volume will have 192 pages. Articles in all modern languages are to be sent to the editors, of whom Dr. Cretschmar and Herr Warnecke are members of The Lepidopterists' Society (see membership list).

An introduction by the editors gives a short historical review of the German entomological periodicals and discusses the difficult situation of post-war German lepidopterology. The individual articles (see "Recent Literature on Lepidoptera") deal with faunistic field summaries, with general migration problems and the 1946 immigration of Celerio lineata livornica into Central Europe, with the description of new forms of Nothris obscuripennis (Lep., Gelechiidae), of Actinote erinome (Lep., Acraeinae), and of Ocnogyna latreillei (Lep., Arctiidae), with short notes and observations, and with a detailed review of recent literature. Besides German authors, there are articles by Austrian, Swedish, and Spanish lepidopterists.

This new periodical will be no doubt much welcomed in Germany and the rest of Europe. It is to be hoped that the new Zeitschrift für Lepidopterologie will have a long life and find a wide distribution all over the world.

Gerhard Hesselbarth  
Diepholz/Hann., Germany

[Ed. Note: This valuable new periodical should prove of interest to all lepidopterists who read German. We congratulate its founders on their bold venture under difficult conditions and on the high quality of the new Zeitschrift. Subscription fees should be sent to the publisher: Goecke and Evers, Krefeld, Germany. C.L.R.]

ENTOMOLOGICAL SOCIETY IN INDONESIA  
AND A NEW PERIODICAL

After a lethargy of 8 years due to the war and to postwar difficulties, the "Nederlandsch-Indische Entomologische Vereeniging" has been reerected in Bogor (formerly Buitenzorg) on Dec. 11, 1949, under the new name of "Entomologische Vereeniging in Indonesië". The Society has the same aim as the previous one, viz. to promote entomological science in Indonesia by means of meetings, exhibits, excursions and the publication of a periodical, "Idea" (named after a common Javanese Nymphalid butterfly, Idea (Hestia) hypermnestra Westw.). The chairman is Prof. Dr. L.J. Toxopeus, University of Indonesia, Bandung, Java.

This periodical is a continuation of the Entomologische Mededeelingen van Nederlandsch-Indië of which volumes 1-7, 1935-1941, were issued; consequently Idea begins with volume 8, of which combined parts 1-2 appeared on May 8, 1950; one volume, consisting of four parts, will appear annually. Except for the abbreviated proceedings of the meetings, notes of the Board and an information column, leading articles and short papers will be printed, for which the English language has preference, but also Dutch and Indonesian with a short English summary may be used.

The members of the Society receive Idea free of charge. The annual contribution for the members abroad is an amount equivalent to \$4.00 (U.S.A.). The subscription price for Idea is the same.

Volumes of the Entomologische Mededeelingen van Nederlandsch-Indië 1-7, 1935-1941, can be had from the Editor (Dr. A. Diakonoff, Pledang 25 pav., Bogor, Java, Indonesia) for the price of \$4.00 (U.S.A.) per volume.

A. Diakonoff

[Ed. Note: Idea is on file in the Lepidopterists' Society library for reference by Society members.]

The PROCEEDINGS OF THE EIGHTH INTERNATIONAL CONGRESS OF ENTOMOLOGY have been published and are now available for 50 Swedish crowas (about \$10) from:

Sekretariat, VIII Intern. Entomolog-Kongr.  
Stockholm 50, Sweden

## BOOK REVIEWS

17. "De Plagen van de Cultuurgewassen in Indonesia", vol. 1\*, by L.G.E. Kalshoven

The translation of the title is: "The Pests of Cultivated Plant Crops in Indonesia". It is in Dutch. This handbook is richly illustrated with drawings, photographs, and colored plates and forms an extract from notes and observations collected by many applied entomologists through more than twenty years. Since the handbook by Dammerman, Agricultural Zoology of the East Indian Archipelago, of 1929, no comprehensive work of this kind has been published in this country. A large part of the book is dedicated to insect pests; in this part the orders Apterygota, Dermaptera, Embioptera, Psocoptera, Isoptera, Thysanoptera, Rhynchota, Odonata, Neuroptera, and a part of Lepidoptera are treated. Of the latter order the following heterocerous families are reviewed: Hepialidae, Cossidae, Squamuridae, Pyralidae, Thyrididae, Psychidae, Limacodidae, and Epipyropidae. The second part, which will appear in the course of this year, will deal with the remaining Lepidoptera and other insects, birds, and mammals, and also include English captions to illustrations in both parts.

A. Diakonoff, Bogor, Java

\*512 pp., 298 figs., 8 pls. Published 1950 by W. van Hoeve, The Hague, Netherlands. Price: 33.75 guilders (Dutch).

## MEASUREMENTS AND LEPIDOPTERA

by F. Martin Brown  
Colorado Springs, Colorado

As the attention of lepidopterists shifts from species to subspecies the need develops for a better understanding of the value of measurements. So long as the taxonomist is dealing with species he usually can find differences that clearly set apart each species. Between subspecies the differences are more subtle and frequently are quantitative not qualitative. Just as soon as quantitative differences become important the question of statistical significance arises. If two fractions of a population seem to differ in size, is this difference real? If two fractions differ in the amount of marking, are these differences real?

Since the turn of the century, mathematicians have been devising methods for testing the validity of differences among all sorts of measures and based upon samples of various sizes. All too few taxonomists have used these useful aids. An outstanding proponent of statistics in taxonomy has been Kinsey, working with gall-forming insects. Few others have made any use of statistics in all of its aspects. It is time that all taxonomists who use measurements become aware of the usefulness of this tool.

Generally the taxonomist is satisfied with giving an average dimension or frequency with no reference to the size of the series studied nor to the variability found. All too often size is given empirically - "subspecies A is a little larger than subspecies B". Such a statement has no value. To point up just what I mean let me take examples from a study that has all of the earmarks of a thorough job yet falls down miserably so far as measurements are concerned. Its author has gone into far more numerical detail than have most of the current working taxonomists. For all of this, the results of his labors are of little use, in fact may be misleading, because he did not discover how much variation from his stated measures might be expected.

I have before me a recent generic revision, Prof. V. Nabokov's "Nearctic *Lycaeides*" (Bull. M.C.Z. 101: 479-541; 1949). It gives every evidence of being a painstakingly careful study of these "Blues". Many of the conclusions at which Prof. Nabokov arrives are based upon careful measurements; yet nowhere does he give evidence of having tested the statistical validity of these measurement-based conclusions. This, for me, detracts much from the value of the work.

In several places, such as on p.525, Prof. Nabokov notes that the length of "F", a part of the male genitalia, varies with the size of the insect when that size is noted in terms of the maximum radius of the forewing. His table of means for the genitalic measures F, H, U, and E. on p.540 does not mention the means for the wing-length. Without this last measure "F", for instance, is proportional to the

size of the insect or varies independently of the size. Yet Prof. Nabokov seems to use the absolute length of "F" as a diagnostic character with no reference to the length of the forewing.

If, for each race, a table of measurements like that on p.513 had been included for each specimen examined, then Prof. Nabokov's measurements would have much more meaning. I realize that such inclusion would have added two or three pages to the printed result. Perhaps the editors and not Prof. Nabokov are responsible. The detailed data set forth in the table referred to might have been greatly reduced and have been even more useful if several simple statistical procedures had been used. It is unfortunate that the great majority of taxonomic biologists fail to make use of these techniques for stating a lot in a small space.

Taking the table referred to in the preceding paragraph as an example let us see how much more informative the data can be made. The length of nine falces are given; also the mean and the range of length. A few minutes' work with a pencil and pad shows that the mean and its probable error are  $48.8 \pm 1.7$  units, and that the standard deviation is 2.45 units. One step further shows that in a typical population of *Lycaeides argyrognomon sublivens*, the race being discussed, 95% of the specimens will have falces that fall between 44.0 and 53.6 units in length and 99% of such specimens captured will have falces that fall between 42.4 and 55.2 units in length.

Although a table of data is not presented for the next race discussed, *longius*, measurements on seven specimens are scattered in the text. When these are gathered and treated statistically and compared with the data for *sublivens* it appears that in a large series of these two races there will be a considerable overlap in dimensions.

	<u>sublivens</u>	<u>longius</u>
Number of Specimens	9	7
Mean Length of "F"	$48.8 \pm 1.7$	$53.9 \pm 1.8$
Standard Deviation	2.45	2.70
95% Limits	44.0 - 53.6	48.6 - 59.2
99% Limits	42.4 - 55.2	47.0 - 60.8

The question then is, is the apparent difference seen in the mean lengths of "F" real or only a result of the small size of the sample used? This can be tested mathematically and the chance of the two being samples drawn from the same general population estimated. The difference between the two

means is  $5.1 \pm 1.3$ . The difference is 3.92 times its probable error. The chance of this occurring solely through the technique by which the samples were drawn is less than 1 in 120 — assuming that sublivens and longius might constitute extremes of a single natural population. On such a basis it would require a series of about 1000 measurements to prove STATISTICALLY whether or not the observed difference was really of racial value. However, since Prof. Nabokov has pointed out that size of the insect has something to do with the length of "F" the above conclusion is not valid since size of the insect was not considered. The fact that my series of three topotypical longius are about the same size as Prof. Nabokov's series of sublivens may be considered an INDICATION but cannot be used statistically. Only the seven specimens used for the genitalic statistics can be used.

All of Prof. Nabokov's time-consuming counts of scale-rows means nothing until the statistical parameters of the data on each subspecies is established. His original data should be properly analyzed and then those data published. When this is done some order may come of the chaotic mass of information presented in the paper.

Perhaps there are some readers of The Lepidopterists' News who would like to use more refined statistical procedures but hesitate because of lack of statistical training. They should not hesitate if they can do simple arithmetic accurately. Mathematical procedures boil down to the four fundamentals of addition, subtraction, multiplication, and division. Many of the simpler methods of testing the significance of measurements can be learned quickly. To aid those who are interested in improving the quality of their work this way I propose to present a series of five articles discussing the use of different statistical procedures that have proved useful in taxonomy.

The first of these will deal mostly with definitions and where to find detailed instructions about the mathematics involved. This will be followed by a discussion of sample sizes and the effects of the size on the resultant parameters. The third will be devoted to frequency measures and next to correlation measures. The final article will treat comparisons of series and of individuals.



#### MISCELLANY

##### CORRECTION ON THE HOPE DEPARTMENT

In the note on the retirement of Prof. G.D.Hale Carpenter [Lep. News 4: p.9], by some unaccountable lapse we gave the Hope Professorship for Cambridge University. The distinguished Hope Department is of course at Oxford, in the University Museum. Cambridge has no chair of Entomology. Drs. P.H.H. Gray and C.B. Williams kindly called our attention to the error. Doubtless many other English colleagues were startled. Being a Harvard man at Yale I should have learned by now to be very precise in references to universities! My sincere apologies are extended to Professor Carpenter.

C.L. Remington



Minoru Sawada, a sophomore in the Hokkaido Liberal Arts College, hopes to exchange letters and butterfly specimens with students in other countries. His address is: South 8, West 26, Sapporo, Japan.



The note regarding pin labels available from The Nature Co., P.O. Box 403, Covington, La. [Lep. News 4: p.31] was out-of-date regarding the prices. The correct prices on four-line (or less) labels are: \$0.55 per 500, \$0.85 per 1000, and \$0.55 for each additional thousand of the same label.

C.L.R.



PLEASE SEND PROMPT NOTIFICATION  
TO THE LEPIDOPTERISTS' NEWS  
WHEN YOUR ADDRESS IS CHANGED

A recent letter from Austin H. Clark, of the U.S. National Museum, has a note on a curious Lepidoptera larva he has encountered: "In New England there is a micro that feeds as a larva on the woolly exudations of woolly aphids on the alder. I have found these larvae when looking for the larvae of Feniseca, but I have never raised them. They seem only to neatly shave the aphids, never eating them."



Herr Georg Warnecke, of Hamburg, Germany, writes that Guenée's record of the noctuid, Crymodes exulis borea H.-S., occurring in Lapland has never been confirmed. Careful collecting has failed to reveal it in Lapland or any other part of Fennoscandia. In the Lep. News (vol.4: p.29) Johnston quoted McDunnough's note on Guenée's statement.



Dr. R. Mell, Hainbuchenstrasse 34, Berlin-Frohnau, Germany, wishes to sell paratypes of 9 new species and 37 new subspecies of Lepidoptera described by him from China. These include butterflies, Sphingidae, Brahmaeidae, Saturniidae, Catocala, etc.



We have a supply of membership applications and the circular announcement for the IXth International Congress of Entomology, to be held in Amsterdam in August 1951. We will be very glad to send them to Lepidopterists' Society members requesting them and are particularly anxious to have the names of all Society members planning to attend the Congress.





## RECENT LITERATURE ON LEPIDOPTERA

- Under this heading are listed each month papers on Lepidoptera from all the scientific journals which are accessible to us and our cooperating abstractors. It is hoped eventually that our coverage of the world literature will be virtually complete. It is intended that every paper published since 31 December 1946 will be included. In the first three volumes of the Lep. News 886 were listed. Abstracts give all new subspecies and higher categories with generotypes and type localities. Papers of only local interest are merely listed. Papers devoted entirely to economic aspects will be omitted. Reprints are solicited from all publishing members and the many recently received are gratefully acknowledged. Initials of cooperating abstractors are as follows: (P.B.) - P.F. Bellinger; (A.D.) - A. Diakonoff; (C.D.P.) - C.F. dos Passos; (L.G.) - L.A. Gozmány; (G.D.L.) - G. de Lattin; (C.R.) - C.L. Remington; (T.S.) - T. Shirôzu. A complete set of these pages, for clipping and filing, may be obtained for Vol.4 for \$0.50.
254. Agenjo, R., "El aparato auxiliar del andropigio en las Epischia Hb., y descripción de una nueva especie de este género dedicada al Excmo. Sr. Presidente de la República Argentina, General D. Juan Domingo Peron (Lep. Phycit.)" [In Spanish]. Eos, vol.24: pp.7-24, 2 pls., 6 figs. 31 Mar. 1948. Describes as new E. peroni (Spain). Discusses at length the three Spanish spp., with comparative descriptions and figures and outline of distribution. [P.B.]
255. Agenjo, R., "Sobre la morfología y distribución geográfica de Issoria lathonia (L.) en España" [In Spanish]. Eos, vol.24: pp.29-55, 2 pls. 31 Mar. 1948. Discusses distribution and variation at length. Describes 15 'forms', 7 of them new; all are figured, some in color. Naming of these forms, which the author himself does not consider worth subspecific rank is a defect in an excellent paper. [P.B.]
256. Agenjo, R., "La o de Adalbertia castiliaria (Stgr.) y una segunda generación de esta especie (Lep. Geom.)" [In Spanish]. Eos, vol.24: pp.213-232, 3 pls. 30 June 1948. Describes both (naming latter); compares sp. with superficially similar ones. [P.B.]
257. Agenjo, R., "Nuevas subespecies burgalesas de las Anthrocera rhadamanthus (Esp.), fausta (L.) y trifolii (Esp.)" [In Spanish]. Eos, vol.24: pp.391-401. 31 Oct. 1948. Describes as new: A. (Peristygia) rhadamanthus rasura, A. (Agrumenia) fausta fernan, and A. (Anthrocera) trifolii lain-calvo, all from Burgos Province, Spain. No figures. [P.B.]
258. Agrell, Ivar, "Some Experiments concerning Thermal Adjustment and Respiratory Metabolism in Insects." Arkiv för Zool., vol.39A, no.10: 48 pp., 19 figs. 10 Jan. 1948. Study of the effects of temperature changes on metabolism in a number of insects, including Ephestia larvae and Phalera bucephala pupae. [P.B.]
259. Anonymous, "An Oleander Butterfly (Euploea corinna)." AGR. Gaz. N.S. Wales, vol.59: pp.90-91, 1 fig. 1 Feb. 1948.
260. Anonymous, "The Orange-Barred Grass Moth (Eutane terminalis)." AGR. Gaz. N.S. Wales, vol.59: p.91, 3 figs. 1 Feb. 1948.
261. Anonymous, "Cabbage Moths (Plutella maculipennis) and Cabbage White Butterflies (Pieris rapae)." AGR. Gaz. N.S. Wales, vol.59: pp.203-205, 4 figs. 1 Apr. 1948.
262. Anonymous, "Caterpillars." AGR. Gaz. N.S. Wales, vol.59: pp.261-262, 5 figs. 1 May 1948. Zizeeria labradus, Maruca testulalis, Heliothis armigera, Plusia sp. [P.B.]
263. Anonymous, "The Fruit-Tree Moth Borer (Maroga unipuncta)." AGR. Gaz. N.S. Wales, vol.59: pp.374-375, 2 figs. 1 July 1948.
264. Anonymous, "The Heliothis Caterpillar (Heliothis armigera)." AGR. Gaz. N.S. Wales, vol.59: pp.470-479, 6 figs. 1 Sept. 1948.
265. Antram, Chas. B., "Note on the Butterflies of the New Forest Area in 1948 Compared With 1947 and Weather Conditions." Ent. Rec. and Journ. Var., vol.60: pp.122-124. Dec. 1948.
266. Arbuthnot, K.D., "Temperature and Precipitation in Relation to the Number of Generations of European Corn Borer in the United States." U.S.D.A. Tech. Bull., no. 987: 22 pp., 5 figs. July 1949. Prediction of no. of generations to be expected in various parts of the U.S., based on observed relation between climate and no. of generations in the Old World. No. of generations genetically controlled. [P.B.]
267. Ardö, Paul, and Bertil Lindquist, "On Laspeyresia grossana Haw., a pest in the beech woods of north-western Europe" [In Swedish, English summary]. Medd. Stat. Skogsforskninst., vol.36, no.4: 30 pp., 10 figs. 1948. Morphology, biology, distribution. [P.B.]
268. Astaurov, B.L., "Iskusstvennyĭ temperatunĭ parthenogenez u kitskĭ og odu'ovogo shelkopriada (Anthe-raea pernyi Guér-Mén.)" [Artificial parthenogenesis produced by heat in the Chinese silkworm] [In Russian]. Doklady Akad. Nauk SSSR, vol.59: pp.1029-1032. 1948.
269. Bailey, Stanley F., "The Peach Twig Borer." Calif. Agr. Exp. Sta. Bull., no.708: 56 pp., 12 figs. Sept. 1948. General account of Anarsia lineatella. [P.B.]
270. Bank, G., Jr., "De kviklamp als lokmiddel voor insecten" [In Dutch; Mercury vapour lamp as trap for insects]. Ent. Berichten, vol.12: pp.433-434. 1 Nov. 1949. Mercury vapour lamps are extremely useful in collecting nocturnal Lepidoptera because: 1) of the great attractive power upon insects; and 2) of their economy (160 watt with light intensity of 300 decalumen). The number of specimens attracted is about seven or eight times as large as with ordinary filament lamps. [A.D.]
271. Barney, R.W., "Interesting Butterflies at Kakamega." Nature in E. Africa, ser.2, no.1: pp.5-6. May 1949.
272. Beebe, William, "What's in a Butterfly's Name?" Animal Kingdom, vol.51: pp.14-15, 2 figs. Jan.-Feb. 1948. Popular account of Linnaeus' method of naming butterflies. [P.B.]
273. Benander, Per, "Gotlandska smaffjarilar, nya for Sverige (Lep.)" [In Swedish, English summary]. Opuscula Entomologica, vol.13: p.171. 31 Dec. 1948.
274. Bentinck, G.A., "Nieuwe en zeldzame Lepidoptera in 1948" [In Dutch; New and rare Lep. in 1948]. Ver-slag 81ste Wintervergadering Nederl. Ent. Ver., pp. v-vii. 1 Mar. 1950. Captures of seven species of Microlepidoptera new for the fauna of Holland and of a number of other rare species are recorded. [A.D.]
275. Bird, J.F., "Notes on Migrants and Light in North Somerset During 1947." Ent. Rec. and Journ. Var., vol.60: pp.105-107. Oct. 1948.
276. Breakey, E.P., and G.S. Batchelor, "The Orange Tortrix, a Pest of Raspberries in Western Washington." Journ. Econ. Ent., vol.41: pp.805-806. June 1948.
277. Brunn, Henrik, "Beitrag zur Kenntnis der Schmetterlingsfauna von Västmanland und Härjedalen" [In Swedish, German summary]. Opuscula Entomologica, vol.13: pp.157-158. 31 Dec. 1948.

278. Brunson, M.H., "Secondary Parasites of the Oriental Fruit Moth through *Macrocentrus ancyliivorus*." *Journ. Econ. Ent.*, vol.41: pp.119-120. Feb. 1948.
279. Brunson, M.H., and H.W. Allen, "Oriental Fruit Moth Cocoon Parasites." *Journ. Econ. Ent.*, vol.41: pp.446-450. June 1948.
280. Bryk, Felix, "Daniel Solander, der ursprüngliche Besitzer des aufgefundenen Linnéschen Typus von *Papilio teucer* L. (Lep. Brassolidae)" [In German]. *Opuscula Entomologica*, vol.13: p.168. 31 Dec. 1948.
281. Bryk, Felix, "Entomological Results from the Swedish Expedition 1934 to Burma and British India. Lepidoptera: Fam. Notodontidae Stephens, Cossidae Newman and Hepialidae Stephens. Gesammelt von René Malaise" [In German]. *Arkiv för Zoologi*, vol.42A, no. 19: 51 pp., 4 pls., 1 map. 1950. Describes the following as new [new genera in CAPITALS, the type species or subspecies (sic!), also new, immediately following]: (Notodontidae) *Dudusa sphingiformis birmana*; *ANGUSTIALA*, *A. cryptocephala*; *Plusiogramma aurosigna* form *homogena*; *Phalera sangana birmicola*; *P. albicauda*; *PHALEROMIMUS*, *P. albocalceolata*; *PHEOSIOPSIS*, *P. niveipicta*; *Pydna aurata midas*; *P. sburnea*; *P. (Ceira) griseodivisa*; *P. (C.) albidostriata*; *P. (C.) mediodivisa*; *P. (C.) prominens*; *P. (C.) plusioides*; *P. (C.) alboflavida*; *P.? brunneosticta*; *Pseudofentonia obliquiplaga roseogrisea*; *P. diversipunctata*; *Stauropus ferrugineozonatus*; *S. sporadochlorus*; *LIBIDO*, *L. voluptuosa* (!); *MIMESISOMERA*, *M. aureobrunnea*; *Dicranura birmica*; *Damata longipennis japonica* (Japan); *Notodonta flavicincta birmidonta*; *N. peniculus*; *N. scutellaris*; *N. antennalis*; *SPATALINA*, *S. argentata birmalina*; *NEOPHYTA*, *N. argentifera sikkima*; *Rosama plusioides X-magnum*; *R. sororella* (Shan States); *R. emimens*; *PSEUDONERICE*, *P. unidentata*; *Pygaera fulgurita larva*; *P. mahatma*; *PODOCRYPTULA*, *P. nana* (Tennessee); (Cossidae) *Xyleutes obliquifascia*; *X. clara*; *Catopta albonubilosa birmantorta*; (Hepialidae) *Hepialus ebba*. Type locality of all, unless specified, is Kambaiti, N. Burma; a more extensive range is given for some, but no specimens are recorded from other localities. Notes on some other spp. Adults of most of above are figured; no figures of venation, no mention or figures of genitalia. The new genus *Neophyta* is not described at all! Future workers will suffer for papers like this. [P.B.]
282. Burkhardt, V.R., "Collecting in West Surrey - 1947." *Ent. Rec. Journ. Var.*, vol.60: pp.25-28. Mar. 1948.
283. Burr, Malcolm, "Field Notes from Anatolia." *Ent. Rec. Journ. Var.*, vol.59: pp.148-151; vol.60: pp. 10-14, 71-73, 103-105, 112-115; 4 pls. Dec. 1947; Jan., June, Oct., Nov. 1948.
284. Carlgren, Georg, "En för Sverige ny noctuid" [In Swedish, English summary]. *Opuscula Entomologica*, vol.13: p.45. 21 June 1948. *Rhyacia saucia*. [P.B.]
285. Carolsfeld-Krausé, A.C., "Some remarks on the synonymy of the *Fagus*-feeding Nepticulæ (Nepticulidae, Lepidoptera)." *Ent. Meddelelser*, vol.25: pp.299-310, 1 pl. 25 Nov. 1948. Synonymizes *N. hemargyrella* and *N. tityrella* under *N. turicella*, and *N. fulgens* under *N. basalella*. Rejects *N. brunneensis*, based on a single empty mine. Notes on life history. [P.B.]
286. Caspari, Ernst, "Physiological Action of Eye Color Mutants in The Moths *Ephestia kühniella* and *Ptychopoda seriata*." *Quart. Rev. Biol.*, vol.24: pp.185-199, 4 figs. Sept. 1949. The phenotypic effect of certain eye-color mutants in various insects is known to be mediated by diffusible substances ("hormones") present in the larval and pupal hemolymph. Because of the possibility of chemical analysis of intermediate substances and reactions, these forms are especially favorable for studies on the mechanism of gene action. Dr. Caspari, the original discoverer of this phenomenon in *Ephestia*, reviews thoroughly the present state of our knowledge dealing with eye-structure and development, pigment chemistry, and the nature and physiological action of the diffusible substances concerned. It is perhaps unfortunate that the scope of the review could not have been extended to include the great amount of information available from similar studies in other insects, notably *Drosophila* and *Bombyx*; however, the present treatment makes for a more compact summary, while sacrificing little information of general importance. [P.B.]
287. Caspari, E., and J. Richards, "Genic Action." *Carnegie Inst. Wash. Yearbook*, vol.47: pp.183-189. 1948. Discusses mode of action of gene *g* (white eye) in *Ephestia*. [P.B.]
288. Chamberlin, Joseph C., "Insects of Agricultural and Household Importance in Alaska with Suggestions for Their Control." *Alaska Agr. Exp. Sta. Circ.*, no.9: 59 pp., 21 figs. 1949. Includes descriptions and figures of several moths and larvae. [P.B.]
289. Ciampolini, Mario, "Contributo alla conoscenza morfologica e biologica della *Piloba coerulescapala* L. (Lepidoptera Noctuidae)." [In Italian]. *Redia*, vol.33: pp.143-189, 28 figs. 1948. An exhaustive monograph of this species; all stages are described and figured. [P.B.]
290. Clausen, Lucy, "The Life History of the Monarch Butterfly." *Am. Mus. Nat. Hist. Sci. Guide*, no.132: 15 pp., 13 figs. 1948. Popular account. [P.B.]
291. Cockayne, E.A., "*Selidosema plumaria*, Schiff., *R. tyronensis*." *Ent. Rec. Journ. Var.*, vol.60: p.79. July/Aug. 1948. Names an extinct 'race' from a single bog. [P.B.]
292. Cockayne, E.A., "Aberrations of British Lepidoptera (Geometridae)." *Entomologist*, vol.83: pp.49-55, 1 pl. Mar. 1950. Describes and names 28. [P.B.]
293. Cole, A.C., "Illustrated keys to the immature forms (exclusive of eggs, nymphs, and pupae) of the more common orders and families of Tennessee insects." *Rep. Reelfoot Lake Biol. Sta.*, vol.11: pp. 28-44, 2 pl. Jan. 1947. Includes key to 18 families of Lepidoptera. [P.B.]
294. Comenga, M. and E. Ojeda, "Sobre el metabolismo del *Bombyx mori* L. I. Antecedentes y composición global. II. Materia seca y agua. III. Glúcidos y lípidos. IV. Metabolismo de Protéidos" [In Spanish, English summary]. *Rev. Española Fisiol.*, vol.3: pp. 145-164, 351-370; vol.4: pp.109-116, 117-120. June, Dec. 1947; June 1948. Series deals with larval metabolism and its modification in later stages. [P.B.]
295. Comstock, John Adams, "Notes on the life history of *Orthodes accurata* Hy. Edwards." *Bull. So. Calif. Acad. Sci.*, vol.46: pp.124-126, 1 pl. 20 Apr. 1948. Describes and figures mature larva and pupa. Food plant *Brickellia* sp. [P.B.]
296. Comstock, John A., "The larva and pupa of *Eumaeus debora* Hbn." *Bull. So. Calif. Acad. Sci.*, vol.47: pp.3-5, 1 pl. 20 July 1948. Mature larva and pupa described and figured. Food plant *Dioon edule*. [P.B.]
297. Comstock, John Adams, "The mature larva and pupa of *Arctonotus terlootii* Hy. Edw." *Bull. So. Calif. Acad. Sci.*, vol.47: pp.49-51, 2 figs. 20 Aug. 1948. Both figured. Food plant *Boerhaavia concinna*. [P.B.]
298. Corporaal, J.B., "Diefstal van Lepidoptera te Parijs" [In Dutch; Theft of Lepidoptera in Paris]. *Verslag 81ste Wintervergadering Nederl. Ent. Ver.*: p.1v. 1 Mar. 1950. About 20,000 specimens from the large Le Moults collection of Heterocera of the world have been stolen. A French lepidopterist is suspected but there are no proofs. (A warning for everyone who buys material of this group, chiefly *Morpho*, *Ornithoptera*, *Charaxes*, *Aglas*, *Papilio*, *Parnassius*, etc.). [A.D.]

## RECENT LITERATURE ON LEPIDOPTERA - cont.

299. da Costa Lima, A., "Sobre Parasitos e Hipoparasitos do Curuquerê (*Alabama argillacea*)" [In Portuguese]. *An. Acad. Brasil. Cienc.*, vol.20: pp.31-37, 4 figs. 1948. Lists about 50 parasites; describes one new ichneumonid. [P.B.]
300. Couchman, L.E., "Notes on the Geographical Races of *Hesperilla chrysotricha* Meyrick and Lower (Lepidoptera-Hesperiidae)." *Pap. Proc. Roy. Soc. Tasmania*, 1948: pp.65-73, 1 pl. 15 Sept. 1949. Describes as new: *H. g. naua* (Pt. Lincoln, S. Australia); *H. g. lunawanna* (S. Tasmania). Discusses range, distinguishing characters and biology of these and 4 other subspecies. [P.B.]
301. Crozes, J., "Melanargia *svilius* Herbst, dans la Basse-Ariege" [In French]. *Rev. Franç. Lepid.*, vol. 11: pp.230-231. 22 Jan. 1948.
302. Danilevsky, A.S., "Novye Predstaviteli Roda *Hemimene* Hbn. (Lepidoptera, Tortricidae) Palearkticheskoi Fauny" [In Russian; New representatives of the genus *Hemimene* in the Palearctic fauna]. *Ent. Obozrenie*, vol.30: pp.68-81, 19 figs. 1948. Describes as new: *H. filipievi* (West Georgia); *H. dzhungarica* (Sinkiang); *H. immaculata* (E. Caucasus); *H. albinimacula* (N. Caucasus); *H. cinerascens* (E. Europe generally); *H. caucasica* (Transcaucasus); *H. gracilis* (Daghestan); *H. eximia* (N. Caucasus); *H. riabovi* (Daghestan); *H. inconspicua* (Armenia); *H. fusca* (Daghestan); *H. uralensis* (S. Urals); *H. proxima* "Filipjev (in litt.)" (Daghestan); *H. unicolor* "Filipjev (in litt.)" (Daghestan). Gives new name *H. pseudoalpestrana* to sp. apparently confused with *alpestrana*. Figures genitalia of all but *pseudoalpestrana* and *alpestrana*. [P. B.]
303. Danilevsky, A.S., "Fotoperiodicheskaya reaktivnaya nasekomykh v usloviyakh iskusstvennogo osveshcheniya" [In Russian; Photoperiodic reactions of insects under similar conditions of artificial illumination]. *Doklady Akad. Nauk SSSR*, vol.60: pp.481-484. 1948.
304. Danilevsky, A.S., and G.G. Shel'deshova, "Biologiya i morfologicheskie osobennosti grushevoi plodozhorki (*Carpocapsa pyrivora* Danilevsky)" [Biology and morphological features of the pear leaf roller; in Russian]. *Zool. Zhurnal*, vol.29: pp.69-81, 5 figs. 1950.
305. Dannreuther, T., "Maximum year records of immigrant Lepidoptera in the British Isles." *Journ. Sci. Brit. Ent.*, vol.3: pp.49-51. 15 Mar. 1949.
306. Dannreuther, T., "Records of five rare vagrant Waincots (Lep., *Leucania*) observed in the British Isles during 1945-48." *Journ. Soc. Brit. Ent.*, vol. 3: pp.51-53. 15 Mar. 1949.
307. Dannreuther, T., "Records of Heliethinae (Lep.) observed in the British Isles during 1945-48." *Journ. Soc. Brit. Ent.*, vol.3: pp.53-58. 15 Mar. 1949.
308. Darlow, H.M., "Insects Taken at Sea, August to October, 1947." *Entomologist*, vol.81: pp.158-163. July 1948.
309. Dethier, V.G., "Life history of *Hesperia leonardus* Harr." *Bull. So. Cal. Acad. Sci.*, vol.47: pp.1-2, 2 figs. 20 July 1948. Completes description of life history. Figures pupa and larval head. [P.B.]
310. Dethier, V.G., and L.E. Chadwick, "Chemoreception in Insects." *Physiol. Revs.*, vol.27: pp.220-254. April 1948. Review article. Covers work on olfaction and contact chemoreception, the distinction between them, and factors affecting both senses. Much work on the Lepidoptera is reviewed. [P.B.]
311. van Deurs, W., "Nye og sjældne Sommerfugle i 1947" [In Danish]. *Ent. Meddelelser*, vol.25: pp. 212-213. 15 June 1948. New records for Denmark. [P.B.]
312. Diakonoff, A., "Case-bearing Lepidoptera II (10th Paper on Indo-Malayan and Papuan Microlepidoptera)." *Treubia*, vol.19: pp.177-182, 2 figs, 2 pl. May 1948. Describes as new *Hypophrictis saphropha* (E. Sumatra); describes larva and pupa. Larvae saphrophagous, living at first in bumble-bee nests. Lists congeneric spp., with range and notes on larval habits. [P.B.]
313. Diakonoff, A., "Microlepidoptera of the Wissel Lakes, West New Guinea, II." *Treubia*, vol.19: pp. 183-195, 4 figs., 3 pls. May 1948. Describes as new the following spp. (new genera, all monotypical, in capitals): (Tortricidae) *Zacorisca helminthophora*; (Eucosmidae) *ALLODAPPELLA daemonia*, *Peridaedala hagna*; (Carposinidae) *Meriderchis monopa*; (Gelechiidae) *NEOLECHIA gamma*; (Cryptophasidae) *Cryprophasa psiloderma*, *C. proleuca*, *STACHYNEURA iostigma*, *Agriophara asaphes*; (Schrecksteiniidae) *EUDAEMONIURA le-cithochra*. Figures head and venation of new genera, and ♂ genitalia of all new spp. except *M. monopa*. Discusses several other species of micros; all from W. New Guinea. [P.B.]
314. Diakonoff, A., "Fauna Buruana. Microlepidoptera II." *Treubia*, vol.19: pp.197-219, 28 figs. May 1948. Describes as new the following spp., all from Buru (new genera, monotypical, in capitals): (Glyphipterygidae) *CERCOSIMMA electrodes* (also *Celebes*), *Hilarographa ludens*, *Imma iota*, *Phycodes mcroasa*, *Anthophila macropa*, *Glyphipteryx metron*, *G. monodonta*; (Copromorphidae) *PSYGMOMORPHA trisecta*; (Cosmopterogidae) *Pyroderces resoluta*; (Cryptophasidae) *Acria psathyra*, *Odites duodaca*; (Schrecksteiniidae) *Stathmopoda divisa*, *S. triplex*, *S. bicvela*, *Thrambeutis melanocephala*; (Orneodidae) *Orneodes fumosa*; (Plutellidae) *Anaphantis aurifraga*; (Lithocolletidae) *Catoptilia daedala*, *Opogona glaphyra*, *O. gymnota*; (Tineidae) *Hypophrictis dichorrhaga*. Figures head and venation of new genera and genitalia of new spp. Lists other spp. taken on Buru, with synonymy and range. [P.B.]
315. Diakonoff, A., "Notes on synonymy of some South Asiatic Microlepidoptera." *Bidr. tot Dierkunde*, vol.28: pp.133-139. 1949. The following synonymy is given: Phalonidae: *Clysiana opistodonta* Diak. = *C. reliquatrix* Meyr.; *C. reliquatrix* Diak. nec. Meyr. = *C. tenggerensis* Diak. (nom.nov.). Tortricidae: *Zacorisca stephanitis* Meyr. = *Z. taminia* Feld.; *Terthreutis duosticta* Willem. and Stringer = *T. sphaerocosma* Meyr.; *Amniodes* Meyr. = *Terthreutis* Meyr.; *Rhapsodia* Meyr. (Xyloryctidae) = *Leontochroma* Wals. Eucosmidae: *Eucosma brachyptycha* Meyr. and *Idiograpis zophocosma* Meyr. = *Cryptaspasma lugubris* Feld.; *Eucosma leucaspis* Meyr., *Platyepclus rhyndias* Meyr. and *Argyropluce peltastica* Meyr. = *A. discana* Feld.; *A. heteraspis* Meyr. = *A. simeiculta* Meyr.; *A. philocompa* Meyr. = *A. harmonica* Meyr.; *A. tetraploca* Meyr. = *A. strepsibathra* Meyr.; *A. onychosema* Meyr. = *A. confertana* Walk.; *A. hydrargyra* Meyr. = *A. herbifera* Meyr.; *A. conchifera* Meyr. = *A. albitibiana* Snell.; *Eucelis ochreoceroina* Wals., *Eucosma trophiodes* Meyr. and *E. melanaula* Meyr. = *E. falcata* Wals.; *Procoronia rhotias* Meyr. = *P. swinhoeana* Wals.; *Laspeyresia cymbalora* Meyr. = *Enarmonia novarana* Feld.; *Laspeyresia ptychora* Meyr. = *Enarmonia pseudonectis* Meyr.; *Laspeyresia haemograptis* Meyr. = *Enarmonia delectana* Snell.; *E. koenigiana* Fabr., a distinct species; *Laspeyresia exemplaris* Meyr. = *Enarmonia hemicosma* Low. Glyphipterygidae: *Irianassa alcyonopa* Meyr. = *I. speciosa* Pag.; *Simathis nubicincta* Meyr. = *Imma mormona* Meyr.; *Badera prodigella* Walk. = *Tortyra divitiosa* Walk.; *T. beryllitis* Meyr. = *T. pretiosa* Walk.; *Simathis pilaria* Meyr. = *Anthophila dichlora* Meyr. [A.D.]



316. Dillon, Lawrence S., "The Tribe Catagrammini (Lepidoptera: Nymphalidae). Part I. The Genus *Catagramma* and Allies." *Sci. Pub. Reading Pub. Mus. and Art Gallery*, no. 8: 113 pp., 14 pls. 3 Sept. 1948. Describes as new: *PAULOGRAMMA* (type *C. pyracmon*); *CATACORE* (type *C. kolyma*); *P. peristera piraya* (Argentina); *Catagramma hydaspes peregrinata* (Peru); *C. h. dubiosa* ("Amazon"); *C. aegina sticheli* (Honduras); *C. mengeli* (Peru); *C. mionina acrensis* (Brazil); *C. atacama amastris* (Colombia); *C. a. bassleri* (Peru); *C. felderi peruviansis* (Peru); *C. cyllene madetrensis* (Brazil); *C. levi* (Peru); *C. hystaspes cuyaba* (Brazil); *C. h. macrifasciata* (Brazil); *C. cynosura fulva* (Brazil); *C. astarte astartoides* (Bolivia); *C. a. staudingeri* (Venezuela); *C. selima govazae* (Brazil); *C. a. reflexa* (Brazil); *C. s. lilliputa* (Colombia); *C. excelsior micheneri* (Colombia); *C. e. uaupensis* (Brazil). Covers 101 forms in the three genera; figures almost all. [P.B.]
317. Dowdeswell, W.H., and E.B. Ford, "Butterfly Migrations Noted in the Isles of Scilly in 1947." *Entomologist*, vol. 81: p. 141. June 1948.
318. Downes, J.A., "The history of the speckled wood butterfly (*Pararge aegeria*) in Scotland, with a discussion of the recent changes of range of other British butterflies." *Journ. Anim. Ecol.*, vol. 17: pp. 131-137, 1 fig. Nov. 1948. Reports range changes of this and other spp. during the last century. Concludes that in view of these rapid changes zoogeographical theories based on the British butterfly fauna cannot be firmly established. [P.B.]
319. Easton, Nigel T., "*Pieris napi*, L. ab. *rotunda*, ab. nov." *Ent. Rec. Journ. Var.*, vol. 60: pp. 121-122. Dec. 1948. Genetic form, with abnormal wings and reduced viability. [P.B.]
320. Fearnough, T.D., "Colour Variation in Pupae of *Euphydryas aurinia*." *Ent. Rec. Journ. Var.*, vol. 60: pp. 88-89, 1 pl. July/Aug. 1948. Describes differences between specimens pupating in dark and in light. [P.B.]
321. Fernández, Ambrosio, "Contribucion al conocimiento de la biología del lasiocampido *Chondrostega vandalia* Mill. (Lepidop. heteroc.), y descripción de una forma nueva" [In Spanish]. *Rev. R. Acad. Cien. Madrid*, vol. 42: pp. 117-121. 1948. Discusses range and life history; names one aberration. [P.B.]
322. Evans, W.H., "Revisional Notes on African Hesperidae." *Ann. Mag. Nat. Hist.* (ser. 11) vol. 13: pp. 641-648, 1 fig. 8 Jan. 1947. Describes as new: *Coeliades keithloa lorenzo* (Delagoa Bay); *C. k. merwa* (Kenya); *Eagris nocteana knysha* (Cape of Good Hope); *Sarangesa lucidella helena* (Abyssinia); *Abantis paradisea meru* (Kenya); *Astictopterus stellata amania* (Usambara); *Ampitilia capenas blanda* (N. Rhodesia); *Gorgyra pan* (Usambara); *Ceratrachia argyresticta enta* (Uganda); *C. bongu* (Usambara); *Andronymus neander torosa* (Uganda); *A. gander* (Uganda); *Gretna waga bugoma* (Uganda); *Parnara guttana* (Usambara). Notes on other forms. [P.B.]
323. Fernández, Ambrosio, "Rectificaciones y datos nuevos acerca de la biología del lepidoptero *Thaumtopoea herculeana* Rmbr." [In Spanish]. *Rev. R. Acad. Cien. Madrid*, vol. 42: pp. 303-308. 1948.
324. Fife, L. Courtney, "Studies of the Diapause in the Pink Bollworm in Puerto Rico." *U.S.D.A. Tech. Bull.* no. 977: 26 pp., 7 figs. Jan. 1949. Stimuli for initiation and termination of diapause are drought and moisture respectively, but genetic control also exists. [P.B.]
325. Fisher, R.A., and E.B. Ford, "The spread of a gene in natural conditions in a colony of the moth *Panaxia dominula* L." *Heredity*, vol. 1: pp. 143-174, 2 figs. 1948. Statistical analysis of changes in frequency of a gene affecting wing pattern in a local population over a period of years. The authors believe that their results are inconsistent with the view that random fluctuations in gene frequency in small populations are of evolutionary significance; but see Wright's criticisms (*Evolution*, vol. 2). [P.B.]
326. de Fluiter, H.J., "Een belankrijke publicatie over de Nonvlinder" [In Dutch]. *Ent. Berichten*, vol. 12: pp. 364-371, 383-390, 401-406. 1, 21 May, 1 July 1949. *Lymantria monacha*. [P.B.]
327. Franklin, Henry J., "Cranberry Insects in Massachusetts." *Mass. Agr. Exp. Sta. Bull.*, no. 445: 64 pp., 4 pls., 68 figs. 1948. 18 spp. of Lepidoptera discussed and figured, some in color. Practical keys to insects attacking cranberry. [P.B.]
328. Gardner, J.C.M., "On larvae of the Noctuidae (Lepidoptera) - IV." *Trans. Roy. Ent. Soc. Lond.*, vol. 99: pp. 291-318, 3 figs. 30 Sept. 1948. Conclusion of a series giving keys for some Indian spp. [P.B.]
329. Ghélelovitch, Sabbas, "*Coelocregarina ephestiae*, Schizogregarine parasite d'*Ephestia künniella* Z. (Lépidoptère)" [In French]. *Arch. Zool. Expér. Gén.*, vol. 85: N and R pp. 155-168, 1 fig. 30 Apr. 1948. Morphology, life history, systematics. Original generic name, *Coelocystis*, preoccupied. [P.B.]
330. Gladman, John C., "Additional Notes on Arakan Butterflies." *Journ. Bombay Nat. Hist. Soc.*, vol. 48: pp. 379-380. Apr. 1949.
331. Goldschmidt, R., "A Note on Industrial Melanism in Relation to Some Recent Work With *Drosophila*." *Amer. Nat.*, vol. 81: pp. 474-476. Nov.-Dec. 1948. Suggests that melanism is linked genetically to toleration of large amounts of metal salts in larval food. [P.B.]
332. Gorter, A.J., "Nachtvinders op bloeiende *Epilobium*" [In Dutch]. *Ent. Berichten*, vol. 12: p. 380. 21 May 1949.
333. Hackman, Walter, "On the Systematics of the Coleophorid Moths" [In Swedish, summaries in Finnish and English]. *Ann. Ent. Fennici*, vol. 14, suppl.: pp. 69-74. 1949. Outlines classification based on ♂ genitalia, biology, and habitat. [P.B.]
334. Heller, J., and W. Swiechowska, "Investigations on insect metamorphosis, Part XIII. The macroscopical aspect of metamorphosis." *Zool. Polon.*, vol. 4: pp. 73-82. 1948. *Dellephila euphorbiae*: changes in relative proportions of various tissues. [P.B.]
335. Hellman, E.A., "Beobachtungen über die Grossschmetterlingsfauna der nächsten Umgebung von Mariehamn auf Åland in den Jahren 1941-1943" [In German]. *Acta Ent. Fennica*, no. 6: 92 pp., 17 figs. 23 April 1948. Describes climate, physical features, and vegetation of the area; gives an annotated list of 448 spp. [P.B.]
336. Hinton, H.E., "The dorsal cranial area of caterpillars." *Ann. Mag. Nat. Hist.* (ser. 11), vol. 14: pp. 843-852, 6 figs. 16 July 1948. Discusses the external and internal cleavage lines on the head capsule of caterpillars, as well as the adjacent sclerotized areas and the muscle insertions on them. The paper is mainly a criticism of the work of Snodgrass on the "epicranial suture" (see *Lep. News*, vol. 1: p. 82; 1947). [P.B.]
337. Hovanitz, William, "Change of Host Preference in *Colias philodice*." *Journ. Econ. Ent.*, vol. 41: pp. 980-981. Dec. 1948. *C. p. hageni* as an alfalfa pest in Colorado. [P.B.]
338. Hubault, E., "Premières états de *Lithocolletis populifoliella* Tr. (Lep. Tineidae)." [In French]. *Rev. Franc. Ent.*, vol. 14: pp. 203-208, 8 figs. 31 Jan. 1948. Describes and figures adult, egg, and 1st instar larva; notes on biology. [P.B.]
339. Jauch, Clothilde, and Norberto Jauch, "*Nogema coliadis*, nueva especie de Microsporidio, parásito de la 'Isoca de los alfalfares' (*Colias lesbia*)" [In Spanish]. *Ann. Soc. Cient. Argentina*, vol. 145: pp. 307-314, 3 pls. June 1948.



## RECENT LITERATURE ON LEPIDOPTERA - cont.

340. Jones, Wyatt W., "Paraleucoptera heinrichi n.sp." Bull. So. Cal. Acad. Sci., vol.46: pp.122-123, 4 figs. 20 Apr. 1948. Type locality Palo Alto, Calif. Figures wing and male genitalia of this species and the related P. albella. [P.B.]
341. Kaisila, Jouko, "Some special chorological features of the lepidopterous fauna of Aunus [In English, Finnish summary]. Ann. Ent. Fennici, vol.14, suppl: pp.92-98, 9 maps. 1949. Zoogeography of the Aunus fauna, with illustrations from the Macrolepidoptera. [P.B.]
342. Kalshoven, L.G.E., "De plagen der cultuurgewassen in Indonesie" [In Dutch]. Vol.1, 512 pp., 298 figs. 8 plates. W. van Hoeve, The Hague, 1950. A richly illustrated handbook on crop pests in Indonesia. Deals with the following Lepidoptera: Hepialidae, Cossidae, Squamuridae, Microlepidoptera, Pyralidae, Thyrididae, Psychidae, Limacodidae and Epipyropidae. [A.D.]
343. Karpinsky, Jan Jerzy, "Nouvelles espèces d'insectes citées pour la faune de Bologne et nouvelles localités des espèces rares trouvées dans le Parc National de Białowieża et dans la Forêt de Białowieża" [In Polish, French summary]. Frag. Faun. Mus. Zool. Polonici, vol.5: pp.309-315. 15 Sept. 1948. Includes 12 Lep., none new to Poland. [P.B.]
344. Knowlton, G.F., and W.P. Nye, "Insect Food of the Vesper Sparrow." Journ. Econ. Ent., vol.41: p.821. Oct. 1948. Lists some Lepidoptera. [P.B.]
345. Koch, M., "Las Zygaena españolas del Instituto de Entomología de Madrid. (Lep. Zygaen.)" [In Spanish]. Eos, vol.24: pp.319-333. 31 Oct. 1948. Describes as new Zygaena nevadensis guadalupae (Guadalupe, Spain). Discusses the species purpuralis, scabiosae, achilleae, nevadensis, and sarpedon and their races in Spain. No figures. [P.B.]
346. Kowarzyk, H., and J. Ryman, "The experimental aberrations of Vanessa spp." Zool. Polon., vol.4: pp.83-106, 2 pls. 1948. Experimental modification of Vanessa urticae wing pattern by injection of heavy metal compounds. [P.B.]
347. Kozhantshikov, I.V., "Zimovka i diapauza cheshuekrylykh nasekomykh Sem. Orgyidae (Lepidoptera, Insecta) [Hibernation and diapause of Lepidoptera of the family Orgyidae; in Russian]. Izvest. Akad. Nauk SSSR, Ser. Biol., 1948: pp.653-673.
348. Kudla, Miloslav, "Doplňek ku článku 'Lepidoptero-logický průzkum Olomoucka'" [In Czech.]. Acta. Soc. Ent. Českosloveniae, vol.46: pp.62-65. 1 Feb. 1949.
349. Kurentsov, A.I., "K zoogeografii ostrova Sakhalina" [In Russian; Contributions to the zoogeography of the island of Sakhalin]. Doklady Akad. Nauk. SSSR, vol.60: pp.1405-1408. 1948.
350. Lee, Helen Tsui-ying, "A Comparative Morphological Study of the Prothoracic Glandular Bands of Some Lepidopterous Larvae with Special Reference to their Innervation." Ann. Ent. Soc. Amer., vol.41: pp.200-205, 1 pl. June 1948. Covers 13 spp. Suggests that these are endocrine glands, which has been confirmed since this paper was written. [P.B.]
351. Lempke, B.J., "De geografische variabiliteit van Philodoria potatoria L. in Nederland (Lep., Lasiocampidae)" [In Dutch; Geographical variability of Ph. p. in the Netherlands]. Blidr. tot Dierkunde, vol.28: pp.299-307, 1 map, 4 tables. 1949. Two subspecies of this lasiocampid appear to occur in Holland, the "Dactylis race" preferring hairy grasses and inhabiting higher grounds while "Phragmites race" preferring reed and living in lowlands. [A.D.]
352. de Lesse, H., "Nouvelle note sur Gegenes pumilio Hfsgg" [In French]. Rev. Franc. Lépid., vol.11: pp. 229-230. 22 Jan. 1948.
353. Levett, R.J.R., "Butterfly Collecting in Balcombe and East Sussex in 1947." Ent. Rec. and Journ. Var., vol.60: pp.95-97. Sept. 1948.
354. de Lucca, C., "Some Species of Crambidae (Lepidoptera, Heteroneura, Pyralina) Observed in Malta." Entomologist, vol.81: p.228. Oct. 1948.
355. MacGillavry, D., "Een kleine vaarneming bij Vanessa atalanta L." [In Dutch]. Ent. Berichten, vol.12: p.453. 1 Dec. 1949.
356. Manunta, Carmina, "Nitrogen metabolism in silkworms (Bombyx mori)." Proc. 8th Int. Genet. Congr., pp.624-625. 1949. Abstract.
357. Mařan, Josef, "Beauveria Brumpti Langeron (1934) comme parasite des insectes" [In Czech, French summary]. Acta Soc. Zool. Českoslovenicae, vol.12: pp. 89-96. 1948. Records Ephestia kühnliella and other insects as hosts of this fungus. [P.B.]
358. Mason, Horatio, C., "Chremylus rubiginosus (Nees.), a Braconid Parasite of the Casemaking Clothes Moth." Ann. Ent. Soc. Amer., vol.41: pp.28-40, 5 figs. Mar. 1948.
359. Michelbacher, A.E., W.W. Middlekauff, and N.B. Akesson, "Caterpillars Destructive to Tomato." Calif. Agr. Exp. Sta. Bull., no.707: 47 pp., 19 figs. May 1948. 8 spp. discussed. [P.B.]
360. Michener, Charles D., "Sympatric Species of Calisto in Cuba (Lepidoptera, Satyrinae)." Am. Mus. Novitates, no.1391: 3 pp., 2 figs. 10 Jan. 1949. Describes as new C. bruneri (Oriente); figures this sp. and the sympatric C. herophila. [P.B.]
361. Mikulski, J.S., "Studies in thermal ecology of insect pupae. I. Pupae of Malacosoma neustria L. and Euproctis chrysorrhoea L." Bull. Int. Acad. Polonaise Cl. Sci. Math. Nat. BII 1948: pp.109-115. 1948. Effects of constant and varying temperatures on length of pupal stage. [P.B.]
362. Musgrave, A., "Some Butterflies of Australia and the Pacific. Family Danaidae - Danaids I." Australian Mus. Mag., vol.9: pp.270-275, 10 figs. 30 Sept. 1948. Brief account of several spp. of Danaus and Euploea. [P.B.]
363. Nickels, C.B., "Cameraria carvaefoliella, a Pest on Pecan." Journ. Econ. Ent., vol.41: p.114, 2 figs. Feb. 1948.
364. Notley, F.B., "The Leucoptera Leaf Miners of Coffee on Kilimanjaro. I. Leucoptera coffeella, Guér." Bull. Ent. Res., vol.39: pp.399-416, 10 figs. Dec. 1948. Life history, parasites. [P.B.]
365. Nüesch, Hans, "Entwicklungsgeschichtliche Untersuchungen über die Flügelreduktion bei Fumea casta und Solenobia triquetrella (Lep.) und Deutung der Solenobia-Intersexen" [In German]. Arch. Julius Klaus-Stiftung, vol.22: pp.221-293, 28 figs. 15 Feb. 1948. Describes wing development in Fumea and Solenobia and in intersexes of the latter. [P.B.]
366. Nunberg, Marian, "Second contribution to the knowledge of the native insects, mining the leaves" [In Polish, English summary]. Frag. Faun. Mus. Zool. Polonici, vol.5: pp.185-197. 28 Feb. 1948. Lists 87 spp., including 27 Lepidoptera. [P.B.]
367. Osborn, Herbert, Neale Howard, C.R. Neiswander, N.D. Blackburn, C.R. Cutright, T.H. Parks, R.B. Neiswander, and J.B. Poliuka, "Recent Insect Invasions in Ohio." Ohio Biol. Survey Bull., no.40: pp. 357-385, 8 figs. Jan. 1948. Reports distribution, spread, and habits of a number of insects, including Pyrausta nubilalis and Grapholitha molesta. [P.B.]
368. Park, Orlando, "Observations on the Migration of Monarch Butterflies through Evanston, Illinois in September 1948." Chicago Acad. Sci. Nat. Hist. Misc. no.30: 8 pp., 2 figs. 21 Oct. 1948.

369. Parsons, Arthur C., "The *Polyphemus* Moth." Natural History, vol. 58: pp. 78-81, 9 figs. Feb. 1949. Good figures of wing expansion in emerging *Telea polyphemus*. [P.B.]
370. Peltonen, Osmo, "Die Raupe von *Catocala adultera* Mén. (Lep., Noctuae) aufgefunden" [In Finnish, German summary]. Ann. Ent. Fennici, vol. 14: pp. 120-121. 30 Dec. 1948. Describes larva, from *Populus tremula*. [P.B.]
371. Petersen, Bjorn, "Views on the study of geographic variation" [In English, Finnish summary]. Ann. Ent. Fennici, vol. 14, suppl.: pp. 181-186, 3 figs. 1949. Discusses the analysis of variation of individual characters, with examples mainly from *Argynnis aphirape*. Points out that variation of different characters need not coincide geographically; therefore the study of this variation is more important for understanding of evolution than study based on artificial "subspecies". [P.B.]
372. Polonovski, Michel, and René-Guy Busnel, "Sur un pigment à fluorescence bleue des oeufs de *Bombyx mori*" [In French]. C. R. Acad. Sci., vol. 226: pp. 1047-1048. 22 Mar. 1948.
373. de Puysegur, K., "*Lycaena* (Heodes) *dispar* s. sp. *burdigalensis* D. Lucas dans le Lot-et-Garonne" [In French]. Rev. Franc. Lépid., vol. 11: pp. 294-295. 20 Apr. 1948.
374. Rawson, George W., and J. Benjamin Ziegler, "A new species of *Mitoura* Scudder from the Pine Barrens of New Jersey (Lepidoptera, Lycaenidae)." Journ. N. Y. Ent. Soc., vol. 58: pp. 69-82, 11 figs. June 1950. Describes as new *Mitoura hesseli* from Lakehurst, New Jersey, distinguishes it from *M. gryneus*, and figures both insects together with their genitalia. Holotype and allotype in the U.S. National Museum. Points out that *gryneus* is valid name for insect now going under name *damon*. [C.d.P.]
375. Rimsky-Korsakov, M.H., "Nekotorye Nabliudenija nad Faunoi Nasekovykh Zapovednika 'Borovoe' v Kazakhstane" [In Russian; Some observations on the insect fauna of "Borovoe" national park in Kazakhstan]. Ent. Obozrenie, vol. 30: pp. 148-153. 1948.
376. Roney, J.N., "The Beet Armyworm on Flax." Journ. Econ. Ent., vol. 40: pp. 931-932. Dec. 1947.
377. Schramm, Wiktor, "Lepidoptera in the Olchera Region of the Sanok District Collected over a Period of 50 Years" [In Polish, English summary]. Poznan Soc. Friends Sci., Publ. Math. Nat. Hist. Sect., vol. 10: pp. 269-313. 1948. An annotated list of over 550 Macrolepidoptera from this region. [P.B.]
378. Schuh, Joe, and Don C. Mote, "The Oblique-banded Leaf Roller on Red Raspberries." Oregon Agr. Exp. Sta. Tech. Bull., no. 13: 43 pp., 12 figs. 1948. Biology and control of *Archips rosaceana*. [P.B.]
379. Schwanwitsch, B.N., "Evolution of the Wing-Pattern in Palaearctic Satyridae. IV. Polymorphic Radiation and Parallelism." Acta Zoologica, vol. 29: pp. 1-61, 263 figs. 1948. Summarizes his previous work on 9 Palaearctic genera, discussing the fate of the prototypal pattern components in terms of divergent and parallel evolution. [P.B.]
380. Schwanwitsch, B.N., "O risunke kryla babochek tolstogolovok (Hesperiidae)" [In Russian; On the wing pattern of skippers]. Doklady Akad. Nauk SSSR, vol. 59: pp. 789-792, 9 figs. 1948.
381. Sevastopulo, D.G., "A Day's Collecting at Athi River, Kenya Colony - 15.VIII.48." Ent. Rec. and Journ. Var., vol. 60: pp. 97-100. Sept. 1948.
382. Simmonds, F.J., "The biology of parasites of *Loxostege sticticalis* in North America. IV: *Cryptus inornatus* Pratt (Ichneumonidae, Cryptinae)." Proc. R. Ent. Soc. Lond. (A), vol. 23: pp. 71-79, 11 figs. 15 Sept. 1948.
383. Slaby, Otto, "The digestion of cellulose by the caterpillars of our Cossidae and Sesidae" [In Czech, English summary]. Acta Soc. Zool. Czechosloveniae, vol. 12: pp. 184-209, 4 figs. 1948. Shows that symbiotic bacteria in proctodeum permit spp. to use cellulose as food. [P.B.]
384. Sperry, John L., "Three apparently undescribed geometrid moths from the Southwest." Bull. So. Cal. Acad. Sci., vol. 47: pp. 6-10. 20 July 1948. Describes as new: *Chlorochlamys martinaria* (Sta. Rita Mts., Ariz.); *Drepanulatrix ruthiaria* (Charleston Mts., Nev.); *D. rindgearia* (Inyo Co., Calif.). No figs. [P.B.]
385. Stempffer, H., "Contribution à l'étude des Lycaenidae de la faune éthiopienne" [In French]. Rev. Franc. Ent., vol. 15: pp. 185-196, 5 figs. 28 Sept. 1948. Describes as new: *Virachola lorisona* form *albifrons* (Abyssinia); *V. suk* (Abyssinia); *Epamera mimosae septentrionalis* (Kenya); *Spindasis homeyeri* form *fracta* (Rhodesia, Uganda, Mozambique); *Axioceres jacksoni* (Somaliland); *Cupidesthes irumu* (Belgian Congo); *Tarucus legrasi* (Senegal, Nigeria, Dakar). Male genitalia of new species described and figured. Regards *Epamera tajoraca haemus* as probably a race of *E. mimosae*. [P.B.]
386. Tobias, Julian M., "The high potassium and low sodium in the body fluid and tissues of a phytophagous insect, the silkworm *Bombyx mori*, and the change before pupation." Journ. Cell. Comp. Physiol., vol. 31: pp. 143-148. April 1948.
387. Toumanoff, Constantin, "Une épizoötie mortelle chez les chenilles de fausses teignes des ruches, *Achroia grisella* Fabr. et *Galleria mellonella* L., due à *Coelogregarina ephestiae* Ghel." [In French]. C. R. Acad. Sci., vol. 227: pp. 1274-1276. 8 Dec. 1948. Suggests infection may be carried by the chalcid parasite *Dibrachys boucheanus*. [P.B.]
388. Turcek, Frank J., "Birds in an Oak Forest during a Gypsy Moth Outbreak in South-Slovakia." Amer. Midland Nat., vol. 40: pp. 391-394. Sept. 1948. Reports concentration of birds in area and rates importance of various species as predators on the larvae. [P.B.]
389. Viette, P., "Contribution à l'étude des Hepialidae (Lep.). Sème Note. Quelques Hepialidae d'Indo-Chine" [In French]. Notes Ent. Chinoise, vol. 12: pp. 83-86, 2 figs. 15 Oct. 1948. Describes as new *PROCHARGIA*, with type *P. coomani* n.sp. (Tonkin). Venation and genitalia figured. [P.B.]
390. Viette, P., "Les Ophideres du Pacifique (Lepid. Noctuidae)." [In French]. Rev. Franc. Ent., vol. 15: pp. 209-220, 14 figs. 15 Dec. 1948. Places the three Pacific species in the genera *Eumaenas* (*O. salimnia*) and *Othreis* (*O. fullonia*, *O. materna*). Gives a key to the species and describes them thoroughly, with figures of genitalia, etc. A complete bibliography is given. [P.B.]
391. Waloff, N., "Development of *Ephestia elutella*, Hb. (Lep., Phycitidae) on some Natural Foods." Bull. Ent. Res., vol. 39: pp. 117-130, 4 figs. May 1948.
392. Walton, R.R., and G.A. Bieberdorf, "The Southwestern Corn Borer and Its Control." Okl. Agr. Exp. Sta. Bull., no. 321: 23 pp., 14 figs. June 1948. Range, morphology, and biology of *Diatraea grandiosella*. [P.B.]
393. de Wilde, J., "Contribution to the Physiology of the Hearts of Insects, with Special Reference to the Alary Muscles." Arch. Néerland. Physiol., vol. 28: pp. 530-542. 10 Jan. 1948. Studies of the contraction and irritability of the alary muscles in several Lepidoptera and other insects. [P.B.]
394. de Worms, C.G.M., "British Lepidoptera Collecting, 1947." Entomologist, vol. 81: pp. 118-122, 137-140, 153-157. May, June, July 1948.

## NOTICES BY MEMBERS

All members may use this column to advertise their offerings and needs in Lepidoptera. There is no cost for this service. Unless withdrawn sooner by the member, each notice will appear in THREE issues.

AMAZON BUTTERFLIES from Santarém, Obidos, Manaus, and Tefé. Young Swiss on collecting trip wishes to sell his duplicates to help defray expenses. Will be on home leave in Switzerland from December 1950 on. Please let me know your wishes. Jorge Kesselring, Weinbergstr. 166, Zürich 6, SWITZERLAND.

For sale: Complete set of BULL. LEP. SOC. JAPAN, vol.1, nos.1,2,3, and 4 (108 pp.)(1946) - 70 cents, including postage. Hiroshi Inoue, 290 Miyamae, Okamachi, Minami-ku, Yokohama, JAPAN.

Butterflies from ECUADOR and ARGENTINA. If you are interested as an amateur or a specialist in material collected by William Clark-Macintyre in Ecuador or Juan Foerster in Argentina and Paraguay, write for information and price-lists from F.M. Brown, Fountain Valley School, Colorado Springs, Colorado.

Duplicates of many groups of insects for exchange (full data, papered), from Panama, Cuba, Japan. Large number of Japanese Lycaenidae. Desire tropical Lycaenidae, esp. from remote countries; list made up on request. Raymond Jablonski, 920 E. Knapp St., Milwaukee 2, Wisconsin.

Pinned Catocala from Big Horn Mountain region for exchange. Duke Downey, 51 West 4th St., Sheridan, Wyoming.

SPEYERIA specialists! Rare endemic species from Atlas Mts. of Morocco, S. (Argynnis) lyauteyi Obth. 2♂ 1♀ \$5.00, ♂ \$1.50 each. Also many other rarities - Satyrus abdelkader, S. atlantis (mniszchii), Epinephele maroccana, Coenonympha vaucheri, C. fetigi, Cigaritis allardii, Heodes alciphron herakleana, H. phoebus, etc. Exchange for arctic U.S. Rhopalocera also considered. Colin W. Wyatt, Cobbetts, Farnham, Surrey, ENGLAND.

For exchange: The Periodic Cicada, Tibicina septendecim, with all data, for Lepidoptera, particularly Papilionidae and Sphingidae. Large number of cicadas available. Will also sell. J.W. Morris, 2704 W. Genesee St., Syracuse 9, New York.

For sale: Rhopalocera from Africa. Have Papilio, Charaxes, and other genera. Send for list. Prices are low. Charles Seydel, B.P. #712, Elisabethville, Belgian Congo, AFRICA.

For sale: insect pins, excellent quality, made in Austria. Sizes 2,3, and 4. 55¢ per 100 of a size, \$4.00 per 1000 of a size. Limited supply on hand, order early. Leonard S. Phillips, 1839 S. Hamlin Ave., Basement Apt., Chicago 23, Illinois.

Wanted: ENTOMOLOGICAL NEWS, vol.2: no.10; will purchase or will give other literature in exchange. Dr. C.L. Remington, Yale Univ., New Haven 11, Conn.

Southwestern Lepidoptera for sale. Many species offered of all families of Lepidoptera, prepared as desired and with complete data. Good selection of LIVING MATERIAL available. Your special interest is my interest. Inquiries invited. Frank P. Sala, 1764 Colorado Blvd., Los Angeles 41, California.

Wanted: three volumes of Seitz' "Macrolepidoptera of the World" (English Transl.): Vol.5 - American Rhopalocera; Vol.7 - African Rhop.; Vol.9 -- Indo-Australian Butterflies. Bro. John J. Renk, Regis College, West 50th and Lowell Blvd., Denver 11, Colo.

For sale: specimens of Cisseps fulvicollis, Ateva aurea at 10¢ each, with full data. Also unnamed moths at 6¢ each; will exchange for exotic Rhopalocera with full data. James Unsel, Jr., Gravel Switch, Kentucky.

Young man, 22, seeking a position collecting, papering, or mounting entomological material. Will travel to desired localities and collect your needed species. For details write: Raymond Jablonski, 920 E. Knapp St., Milwaukee 2, Wisconsin.

Speyeria diana; have a dozen males and three females for sale or trade. What do you have to offer? Stephen B. Smalley, 6129 Glade Ave., Cincinnati 30, Ohio.

Twenty thousand California butterflies for sale. Ten for \$1.00; \$5.00 per hundred. Perfect condition, named. Largest of all Morphos, the Amothonte, \$1.00 each. Price list free. Ben Karp, 3148 Foothill Blvd., La Crescenta, California.

Disposing of periodicals in my private library. Journ.N.Y.Ent.Soc., vols.1-57 (complete, 1893-1949) - \$100; Bull. Brooklyn Ent. Soc., vols.8-28 (1912-28) - \$20; Can. Ent., vols.36-45 (1906-13, 1 issue missing) - \$7. W.P. Comstock, American Museum of Natural History, New York 24, N.Y.

LIVING MATERIAL 

Platysamia gloveri and columbia-gloveri hybrid cocoons for sale. Good condition guaranteed. Duke Downey, 51 W. Fourth St., Sheridan, Wyoming.

LIVING COCOONS and PUPAE of giant Indian moths for sale. Living materials are always despatched by air-mail. U.S. Dept. of Agr. import permits (see Lep. News, vol.3: p.13 for directions) must accompany orders from U.S.A. Remittance must accompany all orders. Probable garden foodplants in parentheses: Actias selene (Walnut, Cherry, Hibiscus) - \$0.20; Attacus atlas - .50; A. cynthia (Ailanthus) - .12; A. edwardsii - .50; Loepa katinika (Ivy, Va. Creeper) - .20; Antheraea mylitta (Oaks) - .40; A. rollley - .20; Salassa lola - .50; Brahmaea wallichi (Ash, Privet, Lilac); scarce sphingid Langia zenzeroides (Apple, Cherry, Pear) - \$1.00. Fertile eggs of large stick insect (Lettuce?) - \$2.00 per 100. The Himalayan Butterfly Co., Shillong, Khasi Hills, INDIA. [Prices in U.S. dollars].



Q. "Is there any published list where I can find out the type localities of North American Lepidoptera."

A. No. Barnes and McDunnough prepared a list about 1916, which I suppose is now in manuscript at the National Museum, and in any case exists there in the form of tickets placed with each species in the collection. But it has not been published.

Q. "Can you give me references to Papilio alcinous Donovan which Scudder mentioned in his Butterflies of the Eastern United States and Canada as a Jasonides from Australia but very close to glaucus? I have seen no other mention of it."

A. Papilio alcinous is a well known East Asiatic species, a black one with some resemblance to troilus in the adult, but a caterpillar feeding on the orange family like our cresphontes. It is figured in many works on exotic butterflies, for instance in the Seitz "Macrolepidoptera of the World", vol.1: pl.2, figs.2,3. Also Leech's "Butterflies of China", and all the standard Japanese butterfly books. It does not actually occur in Australia. The larva was figured by Dyar (Proc. U.S. National Museum, vol. 28: p.938) and elsewhere.

Q. "Can you tell me the origin of the use of the symbols for Venus (♀) and Mars (♂) for designating sex in biological writing? Is the symbol for Earth (♁) used merely as another symbol for male?"

A. The symbol for female was the symbol the astrologers used for both the planet and the goddess Venus. Originally it was the hieroglyphic (Egyptian) symbol for the word ankh and the idea "life", and was actually a bow-knot, with the loops spread sideways and the two ends hanging down together. Our form of the sign goes back about to King Tutankhamen's time [1350 B.C.].

♁ → ♀ → ♀ → ♀

The male symbol had nothing to do with the symbol for "earth" which was a quite late invention. It was the astrologers' symbol for the planet and god Mars, and goes back to the Egyptian hieroglyph for their war-goddess Neith, which was two crossed spears behind a shield.

♁ → ♂ → ♂

The use for the signs of Mars and Venus for male and female respectively was natural, but I think relatively modern.

The use of the sign of Mercury (♿) for the worker in Hymenoptera was very recent, and I think was chosen simply because it was available in type fonts and looks harmonious with the other two. Purists use the ordinary female sign instead, mutilated by leaving off the cross-piece (♀). (For termite workers ♂ = mutilated ♂.)

W.T.M. Forbes

[In the answer and the question concerning "a peculiar growth attached to the extremity of the abdomen" of Parnassius butterflies (the 'seal' or 'sphragis'), mention should have been made of the fact that it is the female which carries the sphragis. (Lep. News 4: p.16.)]

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A supply of reprints of the Mitoura hesseli paper (see p.42) has been sent to the News office for Society members by Drs. Rawson and Ziegler. A few copies are also available of the following paper: "English Names [Common] for Japanese Butterflies", by Tarō Iwase. U.S.A. members please send postage to cover forwarding; members outside the U.S.A. merely need to request the papers.

The annual "List of Members" of the Society for 1950 will be mailed with the next issue of the News.

THE LEPIDOPTERISTS' NEWS  
Monthly periodical of The Lepidopterists' Society

Membership is open to all persons interested in any aspect of the study of butterflies and moths. The 1950 dues, including subscription to the News, are \$2.00 for Regular Membership and \$4.00 for Sustaining Membership. Please make remittances payable to: C.L. Remington.



## THE LEPIDOPTERISTS' SOCIETY

Dear Fellow Member:

Major steps are now being taken towards the formal organization of the Lepidopterists' Society: a draft of the proposed Constitution and By-laws of the Society has been drawn up, and the first annual meeting of the Society is scheduled for December 29 and 30, 1950. At this meeting it is proposed not only to ratify the Constitution and By-laws and to elect officers, but also to have a most interesting general session and symposium.

The Organization Committee has made a careful selection of the proposed first set of officers for the Society. Due to the shortness of time, only one person has been selected for each post to be filled: this is the system followed by most scientific societies. However, in future elections, additional nominees may be placed on the ballot by written petitions by the members. I have the honor of being selected by the Organization Committee as Secretary pro tem. I work in the Department of Insects and Spiders at the American Museum of Natural History, where I have charge of the extensive Lepidoptera collection.

The first annual meeting of the Society, as mentioned above, will take place December 29 and 30, 1950, here in New York City at the American Museum of Natural History. Present plans call for the following program:

December 29 -- Morning: General Session.  
Afternoon: Symposium with invited speakers.  
Evening: Illustrations Session with movies, slides,  
and salon of mounted photographs and drawings.

December 30 -- Morning: General Session.  
Afternoon: Business Meeting.

A most cordial invitation is extended to all members to attend these meetings. The above dates were selected because they fall in a vacation time for many and yet do not interfere with Christmas and New Year. Members from out-of-town who plan to attend and wish to stay at a hotel should contact Dr. Alexander B. Klots, Department of Biology, The City College, 17 Lexington Avenue, New York 10, New York, as soon as possible if they would like advice on hotels or restaurants.

We are naturally interested in having a varied and well-balanced program for the two general sessions. Anyone interested in presenting papers in person at these two meetings should so signify by filling out the enclosed form; this should be returned to me not later than December 1, 1950. There is certainly a wide field of topics that can be discussed -- a few include field and museum research techniques, accounts of field or museum observations, whether they be ecological, taxonomic, life history, etc.

To those members who cannot be present in person at these meetings, an invitation is extended to send in, for display purposes, samples of special apparatus, specimens of particular interest, and the like. All exhibits will be returned if so desired. Members outside the United States are particularly urged to participate in this field. Send all such material to me at the American Museum, to be here not later than December 10.

FIELD SEASON SUMMARY REPORTS DUE DECEMBER 20th

The time has arrived for assembling the annual summary of the field season for North America. Because of the many new Society members this year a review of the Summary background is appropriate.

The purposes of these annual summaries are two: first, to satisfy the interest of field lepidopterists in results of collecting around the continent during the recent season; second, to assemble a record, for permanent reference, for a long series of years to make possible future analyses of long-term trends and possible cycles. Summaries have been published for the 1947, 1948, and 1949 seasons. The information desired from individual cooperators is as follows:

1. LATENESS OR EARLINESS of flight periods compared to average; give precise dates for a few rather abundant species.
2. CHANGE AS THE YEAR PROGRESSED in earliness or lateness of season.
3. UNUSUAL CLIMATIC EVENTS (drought, storms, etc.) and effect on Lepidoptera.
4. TYPE OF WINTER of 1949-50 (mildness, rainy or snowy or dry, duration).
5. Unusual EFFECTS FROM BIOLOGICAL OR HUMAN FACTORS (parasites, fires, lumbering, birds, etc.).
6. UNUSUAL OCCURRENCE of individual species (rare spp. suddenly common, etc.).
7. ALL MIGRATION RECORDS, including any kind of field observation (1st and last dates, abundance, etc.) of the main migrants: Danaus plexippus; Vanessa cardui; Celerio lineata; Alabama argillacea; Phoebis eubule; Ascia monuste; Agraulis vanillae; Libytheana bachmanii. We particularly need every shred on cardui and lineata, which had massive flights last year.
8. ALL NEW STATE OR REGIONAL RECORDS.

Please note that it is of little value to call a season "good" or "bad" and that the report should not appear to cover more than actual field observations allow. DETAILS ARE ESSENTIAL.

For convenient grouping of summaries, the Continent is divided into eight zones. Please send individual reports directly to the Area Coordinators listed below BEFORE DECEMBER 20th. If you collected in more than one zone, send separate reports for each. The general summary will be published in the last number of the News for 1950.

- Area 1. (Southwest - Calif., Ariz., Nev.) - LLOYD M. MARTIN,  
Los Angeles County Museum, Exposition Park, Los Angeles 7, Calif.
- Area 2. (Northwest - Oreg., Wash., Ida., B.C.) - J.C. HOPFINGER, Brewster, Wash.
- Area 3. (Rocky Mts. - N.Mex., Colo., Utah, Wyo., Mont., Alta.) -  
J. DONALD EFF, 820 Grant St., Boulder, Colo.
- Area 4. (Great Plains - Tex., Okla., Kans., Nebr., S.D., N.D., Man., Sask.) -  
DON B. STALLINGS, 216 W. First St., Caldwell, Kans.
- Area 5. (Central - Mo., Ill., Ind., Ky., W.Va., Ohio, Iowa, Minn., Wisc., Mich.,  
Ont.) - P. S. REMINGTON, 5570 Etzel Ave., St. Louis 12, Mo.
- Area 6. (Southeast - La., Ark., Miss., Ala., Tenn., Fla., Ga., S.C., N.C., Va.) -  
RALPH L. CHERMOCK, Dept. of Biology, Univ. of Alabama, University, Ala.
- Area 7. (Northeast - Md., Del., Pa., N.J., N.Y., New England, E. Canada) -  
EUGENE MUNROE, Div. of Entomology, Dept. of Agric., Ottawa, Ontario, Can.
- Area 8. (Far North) - T.N. FREEMAN - same address as Dr. Munroe just above.

An Illustrations Session is scheduled for the evening of December 29. Members in all parts of the world are urged to participate in this session. We will need mounted photographs, drawings, paintings, kodachrome slides, and movies of Lepidoptera. The Program Committee reserves the choice of selecting the material to be shown. All such material should be sent to the Chairman of the Illustrations Committee, Mr. Roger E. Richard, 1833 N. Highview, Dearborn, Michigan, to be in his hands by December 1.

The agenda for the Business Meeting includes: ratification of the Constitution and By-laws; election of officers and Executive Committee; reports of pre-constitutional officers; such other business as may arise. To accomplish the first two points, it is necessary that every member vote, either in person or by filling out the enclosed mail ballot. It is imperative that these forms reach the Secretary in the near future. All members should detach, sign, and return the ballot, plus the program participation form, as soon as possible. Mail to Frederick H. Rindge, Lepidopterists' Society, American Museum of Natural History, Central Park West at 79th Street, New York 24, New York.

Sincerely yours,

*Frederick H. Rindge*  
 Frederick H. Rindge

November 6, 1950.

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Ballot for Election of Officers, December, 1950.

Officers

President	J. H. McDunnough (Canada)	-----
Senior Vice-President	Austin H. Clark (U.S.A.)	-----
Vice-President	Walter Forster (Germany)	-----
Vice-President	K. J. Hayward (Argentina)	-----
Secretary	Frederick H. Rindge (U.S.A.)	-----
Treasurer	J. Benjamin Ziegler (U.S.A.)	-----

Members of the Executive Committee

(Vote for two)

To serve 1 year	Henri Stempffer (France)	-----
	T. N. Freeman (Canada)	-----
To serve 2 years	L. M. Martin (U.S.A.)	-----
	N. D. Riley (Great Britain)	-----
To serve 3 years	Takashi Shirozu (Japan)	-----
	J. G. Franclemont (U.S.A.)	-----