

The Lepidopterists' News

THE MONTHLY PERIODICAL OF THE LEPIDOPTERISTS' SOCIETY

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

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THE LEPIDOPTERISTS' SOCIETY: 1948

With the present issue the Lep. News begins its third volume and the Lepidopterists' Society enters a new year. In order to refresh charter members and inform new members on the aspirations and on the progress of the first two years a brief account of Society activities is presented.

The Society was formed and is continuing for the purpose of advancing the knowledge of Lepidoptera by associating lepidopterists of all parts of the world and keeping them aware of each other's activities by means of a small, informal periodical. Some members are trained professional zoologists; many are well-informed amateurs interested in serious research; most are amateurs with varying degrees of background who enjoy a lively interest in Lepidoptera but do not care to publish papers on special research. The problem of cutting across such a diversity of interests is difficult and has not yet been solved to our satisfaction.

While the total membership has been nearly doubled during the past year, the most significant development has been the extension of membership outside of North America. The total number of these members has risen from 12 to 88 and the total number of nations from 9 to 30. Much of this international development has been subsidized by gifts of Society memberships from American members to lepidopterists in "soft currency" countries, and there is every reason to believe that these members will wish to continue their membership when the dollar balance has been restored.

Thus far the time has not seemed propitious for forming the Society into an organization having elected officers and meetings, but this development is kept constantly in view. Constructive ideas for the best steps in this direction are invited.

Much of the material in the Lep. News has been planned specifically for News readers, and there are several series of related articles. Prof. Forbes' "Questions and Answers" column has become an established feature of the News. The series of brief biographies has continued with its original purpose of acquainting lepidopterists with the history of their science; biographies of great European workers are planned for this year. A series of discussions on an elementary level of procedures and techniques of taxonomy has been presented and will be continued in response to many requests for such introductory discussions. The section giving abstracts and comments on current papers relating to Lepidoptera from the world literature has been continued and

much improved by the addition of several cooperating abstractors; eventually we hope that every country will have one or more members abstracting its literature and that world coverage will be virtually complete. The series of reviews of important books on Lepidoptera is continuing. At our request, papers have been written by members to give accounts of Lepidoptera collecting in various parts of the world, in 1948 the Arctic, Hungary, Jamaica, and the Rocky Mts.; Dr. Wilcke's article in the current issue continues the series. The first article has appeared in what is planned to be a long series of summaries of the important Lepidoptera collections around the world. Several articles on nomenclature were given and are followed by Munroe's discussion in the present issue. There were numerous field notes and technique suggestions, and we continue to solicit significant notes of this sort. The series of reports on war losses of lepidopterology is nearly complete. The "Notices by Members" page was very active.

The 1948 Field Season Summary for North America will be issued soon as a supplement to Volume II.

The annual List of Members provided a directory of names, addresses, and special interests of all members. The 1949 list will appear in the fall.

The Society's Board of Specialists is a permanent establishment. Its present composition will be found on page 2 of this issue.

As in the past, no new taxonomic material (new species, new descriptions, etc.) will be accepted. It is felt that these should go to the multitude of research periodicals. Usually only solicited articles are desired for the Lep. News; it is intended that these be chiefly of a review nature.

Volume 3 will be issued monthly, but will again be discontinued during July, August, and September.

An important incipient Society project, "The Butterflies North of Mexico", was outlined by F.M. Brown, its Coordinating Editor. It is planned as an exhaustive treatment in several volumes of the systematics and biology of North American Rhopalocera.

Subscribers to the Lep. News (including all members) are guaranteed the delivery of every issue. Please check your file of the News to be sure you received the nine issues of Vol. 2. We will forward, at no cost, all numbers not received if you request them before 1 May 1949.

An aspect of Lepidoptera biology of prime importance for knowledge of taxonomy, phylogeny, ecology, and genetics, as well as for economic studies, is the exact identification of host plants on which the larvae feed. Accurate identifications are the only useful ones. Consequently arrangements have been made to provide host plant identifications for all North American workers. Probably members in other parts of the world will find botanists of their nations equally cooperative. North American plants will be identified as follows:

GRASSES John R. Reeder
Osborn Botanical Lab.
Yale University
New Haven 11, Conn.

OTHER PLANTS Ivan M. Johnston
Arnold Arboretum
Jamaica Plain 30, Mass.

Dr. Reeder is a leading authority on grasses. Professor Johnston is not only an outstanding plant taxonomist, but also an enthusiastic lepidopterist. Please write them before sending material and please mention your Lepidopterists' Society membership.

In order to insure ready identification it is essential in collecting the plants to take the following steps:

1.) Preserve the specimen carefully. Flatten and dry it simultaneously either in a standard botanical press or between sheets of newspaper placed in a large book weighted by any heavy weight. Press it for at least one week. The plant may be mailed in folded newspaper, with the package braced against bending by strong cardboard backing on both sides.

2.) Preserve as many parts as possible. Leaves attached to a stalk or twig and the flower are essential for most plant species. The fruit is always helpful, and in grasses the seeding stalk is necessary. If it is small enough, press the whole plant.

3.) Include complete data: locality, date of collection, habitat, and altitude if in mountains.

IDENTIFICATION OF PARASITES

We will be glad to publish in the Lep. News records of all accurately identified parasites whose host is known. Be sure to save carefully all parasites you rear. The following authorities have kindly agreed to identify parasites. We do not yet have a determiner for the minute Chalcid wasps, but these should be saved. (See Lep. News, vol.2: p.53 for descriptions and illustrations.)

ICHNEUMON WASPS (Ichneumonidae) H.K. Townes
North Carolina State College
Raleigh, N.C.

BRACONID WASPS (Braconidae) C.F.W. Muesebeck
Div. of Insect Identification
Bureau of Entomology & Pl. Quar.
Washington 25, D.C.

PARASITIC FLIES (Larvaevoridae) ... C.W. Sabrosky
(same address as Mr. Muesebeck)



The purpose of the Board is to strive toward a high standard of accuracy in published check-lists, life histories, etc. by providing authoritative identifications of specimens forming the basis of these published papers. The following rules concerning the service were formulated by the Board:

1. No specimens may be sent until the specialist has replied in writing that he is ready to receive them.
2. No specimens will be accepted unless full data (not key numbers) are on each specimen.
3. A series of each species must be spread, mounted on pins; the others may be in papers.
4. Wherever possible, at least 3 prs. should be sent for determination.
5. The specialist may, if he chooses, retain one-half of the first 8 specimens of each species, but not uniques unless by agreement.
6. Return postage should be provided.
7. Specimens must be carefully packed.

NORTH AMERICA:

Pieridae & Boloria ("Brenthis") A.B. Klots
Dept. of Biology,
College of City of N.Y.
New York 10, N.Y.

Satyridae C.F. dos Passos
Washington Corners, Mendham, N.J.

Speyeria ("Argynnis") L.P. Grey
Lincoln, Maine

Theclinae (Hairstreaks & allies) H.K. Clench
1270 Sudbury,
Willow Run Village, Mich.

Plebejinae (Blues) V. Nabokov
Cornell University, Ithaca, N.Y.

Hesperiidae (Skippers) A.W. Lindsey
Denison University, Granville, Ohio

Phalaenidae & Notodontidae J.G. Franclemont
5829 Little Falls Rd., Arlington, Va.

Catocalinae & Aegeriidae A.E. Brower
5 Hospital St.,
Augusta, Maine

CENTRAL & SOUTH AMERICA:

Hesperiidae E.L. Bell
150-17 Roosevelt Ave.,
Flushing L.I., N.Y.

WEST INDIES:

Hesperiidae E.L. Bell

All other Rhopalocera Eugene Munroe
Institute of Parasitology
Macdonald College, P.Q., Canada

AFRICA:

Lycaenidae H. Stempffer
Lab. d'Entomologie du Museum
45 bis, rue de Buffon,
Paris (5^e), FRANCE



SOME REMARKS ON THE GENUS CONCEPT IN RHOPALOCERA

by Eugene G. Munroe
Institute of Parasitology
Macdonald College, Quebec, Canada

In the past few years there has been a strong tendency toward the subdivision by revisers of some of the larger of the well known butterfly genera. Conspicuous examples of this trend are the work of Warren and of dos Passos & Grey on the Argynnidini, and Nabokov's study of the Neotropical "Plebeinae". The first group of workers have divided the fritillaries (in the strictest sense) into twelve genera, with a promise of more to come, while Nabokov has split so homogeneous a group as the "Blues" into five subfamilies, each presumably breaking down into a number of genera.

While not wishing to pose as an extreme "lumper", I cannot bring myself to agree with these innovations. The size of genera is of course to some extent a matter of taste, and, confronted by the same taxonomic situation, two workers may quite legitimately differ as to the number of genera necessary for its clear interpretation. Within the limits imposed on the one hand by the more or less definite species concept and on the other by the necessity for fitting his arrangement into the general scheme of zoological classification, the choice made by each worker will depend on his appraisal of three governing factors: first, the equivalence of the diagnostic characters used with those which define genera in other related groups; second, the usefulness of the genera adopted in outlining the internal relationships of the group; and, third, the usefulness of the genera adopted in outlining the internal relationships of the group; and, third, the description and discussion. Thus, although I agree with the authors I have mentioned in their interpretation of relationships, and consider their work admirable from a purely systematic standpoint, I differ entirely in my evaluation of the factors governing generic size, and consequently take issue with their representation of the admitted relationships in terms of genera.

Let us consider first the Argynnis complex. Here the situation is fairly clear: there are two principal groups, which are, roughly speaking, the large fritillaries and the small fritillaries, although a few of the smaller species, including the type of Brenthis,* belong to the large fritillary group. The large fritillaries are predominantly North Temperate, with minor extensions into the montane and temperate regions of the Southern Hemisphere, and with one tropical species. The small fritillaries are predominantly Arctic and montane, with a minority of species in the North Temperate zone in each hemisphere. The two groups are separated by clear-cut genitalic differences. Within each group, and particularly within the large fritillaries, there is considerable variety, but the general facies is remarkably constant, and childrenae and the American group, near the extremes of variation within the large fritillaries, are connect-

ed by a fairly good chain of intermediates: paphia, laodice, adippe, niobe, and aglaia, to name a few. While genitalic differences within the two groups are perfectly obvious, Warren's implication that they are so large and striking as to compel the recognition of numerous genera seems to me to be a gross exaggeration. Warren's eye was perhaps somewhat sharpened by his previous experience with Erebia, an exceptionally uniform genus even for the Satyrinae, a group in which, as a whole, genitalic differences are remarkably small. To me the genitalia within each group seem very homogeneous, differing only in minor characters of form and proportion; the differences are not at all comparable to those found within such groups as Nymphalis, Junonia, Anaea, Calisto, or Phoebis, to mention a few with which I am familiar. A group so uniform in ecology and general facies as Parnassius shows larger differences than the "tribes" adopted by dos Passos & Grey, while in the Hesperidae species hardly distinguishable superficially, and congeneric on any interpretation, may show the most conspicuous genitalic contrasts, as in Ephyriades and Achylodes. A classification of the Papilioninae in which such minor characters were given weight would require literally dozens of genera, and such homogeneous entities as the thoas group would have to be split. In the aristolochiae group of "Polydorus", a large part of the normal structure of the genitalia, including the main body of the valve and the outer tube of the aedoeagus, is wholly aborted, and the claspers are greatly hypertrophied in compensation, yet there are grave objections to the generic separation of this group from the allied nox and latreillei groups, in which the same parts are entirely normal.

It is clear that the differences on the basis of which the division of the fritillaries has been proposed are not nearly as large as those which characterize many of our commonly accepted genera. However, two lines of argument are left open to supporters of the division. They may say that Rhopalocerous genera are in general too large, and that many of the more important ones need splitting; or they may say that the fritillaries represent a special case in which excessive splitting can be justified on the ground of expediency. The first argument almost answers itself. Using these characters we multiply the number of genera of fritillaries by at least six. This is likely to be a very conservative estimate of the proportional increase if the system is extended to the Rhopalocera as a whole, for the fritillaries are one of the best known groups. If we go on to the moths, we shall require twenty to fifty thousand genera, and the system becomes cumbersome beyond belief. The only argument that I can see in favour of the procedure is that it would bring our classification more into line with that of the higher vertebrates, in which orders are about equivalent to our families, and families to our genera; in that group the situation is rendered tolerable by the enormously disproportionate development of one of the subphyla, and the relatively small overall number of species.

* Brenthis is actually transitional to the small fritillaries in several respects.

The second argument is in my opinion legitimate in form, but I think that it has no validity in the present case. It is obviously desirable to divide large, heterogeneous groups, such as the Swallow-tails or "Blues", in which structural characters are slight or inconstant, on much finer criteria than need be employed in groups which are very uniform in appearance and ecology (e.g., Parnassius), or which present striking and trenchant morphological characters (e.g., the Erycinidae). Structural characters in the Argynnis group are certainly slight, but the group can hardly be considered as conspicuously heterogeneous. On the contrary, striking similarities in appearance, life history, and habits extend throughout it and into the neighbouring Phalantine genera, and even in some degree to the related Dione, Heliconius, and Acraea complexes. The only forms which are really divergent in appearance are the females of a few species of large fritillaries, and in each of these cases there is a definite possibility of mimetic modification. The cleavage in structure and pattern between the large and small fritillaries, supported as it is by a corresponding cleavage in distribution and habits: temperate-subtropical vs. arctic-subarctic, single brooded vs. (frequently) multiple brooded, etc., is certainly significant, and represents a division which is not only of major importance to the specialist but also of practical value to the general student. For groups of this scope I would without hesitation recognize genera, viz.: Argynnis and Boloria. The finer nuances of relationship, however interesting and suggestive though they may be, could receive quite adequate treatment in the entirely conventional terms of subgenera, sections, and species groups. I might, I must confess, be tempted to separate as a third and monotypic genus the one ecologically tropical species, hyperbius, which differs markedly from the other large fritillaries in general facies. To split apart, however, such really close species as paphia, pandora, and childrenae, aglaia and eurynome, or myrina and aphirape is a very different thing, and can lead only to disregard of our efforts by all but butterfly specialists.

Intrinsic evidence of over-splitting is in fact presented in the classification outlined by Grey in Lep. News 2: 46; for Grey's subfamily Argynniinae must be equated with a tribe in Clark's classification of the Rhopalocera, which is summarized in Lep. News 2: 73. When it is noted that an extra category, the "group", has had to be introduced into Clark's scheme in order to avoid raising the Papilionoidea to subordinal rank, the discrepancy between the restricted Argynnidine genera and the ordinary zoological values can be very clearly seen. This is a pale shadow, however, of the colossal disproportion which appears in Nabokov's classification of the "Blues", to which we may now briefly refer. Here we find that five subfamilies are recognized in a group that Clark lists as a SUBTRIBE! If the proper heirarchy is to be followed, this subtribe becomes a family, and the group Lycaenae becomes an order. I do not for a moment imagine that Professor Nabokov would actually follow this course, but suppose rather that he would interpolate supplementary categories between the subfamily and the family levels. Why not, however, interpolate such categories between the genus and the species? Thus at one

stroke a multiplicity of induplicable generic names could be avoided, and the genus retained as an entity intelligible to the general entomologist. Taxonomic clarity would in no way be sacrificed, and simplicity would be definitely furthered.

Having reached the end of this perhaps somewhat tendentious discussion, I should repeat that I wish in no way to criticize the taxonomic judgment or findings of the authors whose work I have cited. For these I have the highest respect: I differ only on a question of nomenclatorial practice. I have selected these particular revisions less as specific targets than as widely read examples of an increasingly prevalent tendency, which I regard as regrettable. I hope, therefore, that if some of my remarks have been a little too heavily barbed, they will nonetheless be forgiven, as having been made in a constructive, rather than a destructive, intent.

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REPORT ON WAR DAMAGE IN EUROPE- IV. POLAND

by S.G. Kiriakoff
Ghent, Belgium

There unquestionably has been much damage to lepidopterology in the eastern European countries. Unfortunately, there is not much hope of obtaining extensive and precise information on that subject for various reasons. So I feel very glad to be able to give the readers of the Lep. News a few data regarding Poland, which have been kindly sent by Dr. S. Adamczewski of the Warsaw Zoological Museum.

The Polish lepidopterists deceased or killed during the war are: Dr. Jerzy Kremky, keeper of Lepidopterology in the Warsaw Museum; Mr. Marjan Maslowski of the same institution; Ledwig Maslowski, M.Sc., brother of the scientist just named; Zawercie, Silesia; Mr. Jan Romaniszyn, Cracow; Zdzislaw Stuglik, keeper of Zoology, Silesian Museum, Katowice.

The Polish collections of Lepidoptera destroyed are: that of the Warsaw Zoological Museum, burnt on November 1, 1944, and which contained about 500,000 specimens; those of several Warsaw lepidopterists: S. Teplicki, J. Klenner, M. Hajkowicz, C. Nieniewski and others. As is known, the city of Warsaw has suffered probably more than any other during the war.

BOOK REVIEWS

10. "The Lepidoptera of New York and Neighboring States, Part II, Geometridae, Sphingidae, Notodontidae and Lymantriidae" by William T.M. Forbes¹

"The Lepidoptera of New York and Neighboring States" is a work, which when completed, will treat all the species of Lepidoptera occurring in North-eastern North America. The area covered is roughly outlined as follows: the boundary on the east is the Atlantic Ocean, on the south it is the southern boundaries of the states of Virginia and Kentucky, on the west it is the Mississippi River and a line drawn northward from its headwaters, and on the north the boundary is vague, but usually includes the Arctic regions. Part I of this work was issued in 1923; it covers all the "Micro" families and the so-called Primitive and Specialized Bombyces, this last a heterogeneous assemblage of not too closely related families. (See review in Lep. News 1: p.63.)

After an interlude of a quarter of a century, the much awaited and promised Part II appeared in August 1948. This part will have an instant appeal because it treats families of moths with which most collectors are familiar, and about which they have often expressed the wish, that there were some work to help the serious student identify his material. The manual is preëminently written for this purpose, and it succeeds most admirably in accomplishing it. The make-up follows the same format as Part I. The keys are as simple as the circumstances will permit. There are more illustrations of genitalia; this is necessary because we are dealing with groups where some of the close species can only be identified with certainty by the genitalia.

The Geometridae are handled in a very praiseworthy fashion, and all stages are used in the system of classification employed. We have in this group a more modern view than any which has been presented thus far. The Sphingidae follow the Classical treatment of Rothschild & Jordan. The Notodontidae have undergone some revision, all of which contributes to a better understanding of the family. The Lymantriidae are treated in the conventional manner, and are still much in need of revisional studies.

While Dr. Forbes makes some exceptions for his nomenclatorial usage, it is on the whole correct. I should, however, like to bring out some points wherein I disagree with him.

Lycia Hübner [1825] (page 65) is given precedence over Biston Leach 1815, though the tribe is called Bistonini. The placing of cognataria Gn. with the remainder of the species, as Dr. Forbes does, is essentially incorrect; there exist tangible differences in the larvae and adults of both these groups, and these are too basic to permit this association to endure. Biston (with type prodromaria Schiff.) should be for cognataria and its Eurasian allies (Amphidasis Treitschke 1825 - isogenotypic synonym); Lycia (type, hirtaria Linn., a species very close to ursaria) may be used for the remaining species so grouped by Dr. Forbes. Harrison, who has done considerable work on the group, divides it further.

Cabera Treitschke 1825 (page 71) is used instead of Deilinea Hübner [1825]; for the latter name one has Hemming's deductions that signature 20 of the "Verzeichniss bekannter Schmettlinge" appeared between January and September 1825; the former name appeared in part ii of volume 5 of the "Schmetterlinge von Europa". Part ii of volume 5 is reviewed in "Isis von Oken", xix, 1064, 1826, and part i is reviewed in "Isis von Oken", xviii, 53, 1826. I have not been able to determine whether the signature of the "Verzeichniss" containing Deilinea was issued first or Treitschke's work containing Cabera. In this case I am inclined to follow Dr. Forbes' usage of Cabera, though McDunnough may be right in using Deilinea.

Lithina Hübner [1825] (page 88) is not correctly applied; Lozogramma Stephens 1831 should have been used. The latter name was proposed for the single species petraria Hbn. (very close to subaequaria), while Lithina was proposed with two included species, avenacearia Schiff. and petraria Hbn.; Prout in 1901 chose avenacearia Schiff. as the type of Lithina and thus preserved the traditional usage of Lozogramma. The tribal name Lithinini will have to be changed to Lozogrammini as Lithina falls in the Itame-complex.

The use of the name Therina Hübner, [1832]² (p.100) for American species is without any nomenclatorial basis. When the name was proposed, the names of two species were included, fasciaria Linn. and perfidaria Hbn.; this last, a nomen nudum, was never connected with any description or figure, thus the genus is virtually monobasic and a synonym of Ellopia Treitschke. If all the species listed by Dr. Forbes are to be placed in one genus, then the name used should be Lambdina Capps. I, however, prefer to adhere to Mr. Capps' divisions of the American species in this group.

With reference to Sabulodes Guenée (page 108), I do not think this all-inclusive use should be advocated. The use of Antepione for arcasaria and Prochoerodes for transversata should be adopted, as McDunnough has done in his Check List. There are too many discrepancies between these concepts to unite all under one name.

Hemitheinae (page 110) should be suppressed in favor of Geometrinae; the type of Geometra was designated by Duponchel in 1829 as papilionaria Linn.

Haemorrhagia Grote & Robinson 1865 (page 195) with type thysbe Fab. should be suppressed in favor of the older name Hemaris Dalman 1817 with type fusciformis Linn.

Oligocentria delicata Dyar (page 226) is not a race of lignicolor Walker, but a distinct species; it is browner and if anything slightly larger, not smaller, than the average lignicolor.

²Therina Hbn. is used in the "Zutr. z. Samml. Exot. Schmett." III, 8, 1825 for the new species fervidaria Hbn. and fasciaria Linn., but this is later than the usage in the "Verz. bek. Schmett." 283, [1823].

¹Pp. 263, 255 text figs. 1948. Cornell University Agricultural Experiment Station Memoir 274.

The names used in the Lymantriidae (pages 239-245) call for the most comment. The argument over Euproctis Hbn. [1819], Porthesia Stephens 1829 and Nymgia Hübner [1820] centers around the moot question of misidentified types of genera. I believe in accepting as the type of a genus what the author said he had; Dr. McDunnough in his Check List has done this, though in The Canadian Entomologist, volume 53, page 45, 1942, he severely criticised my stand on this question. I would use the names Euproctis and Nymgia as in the Check List. I cannot agree with the use of Lymantria Hübner 1819 (with type dispar Linn.). The differences between the two species of Byrdia Schaus 1927 (type rossii Curtis) and the type of Gynaephora Hübner 1819 (selectitica Esp.) are of a very minor nature; in fact fascellina Linn., the type of Dicallomera Butler 1881, is also extremely close, all these species forming a very compact group. I do not consider pubibunda Linn., the type of Dasychira Hübner 1806, and tephra Hbn. the type of Dasychira Hübner [1809], congeneric. With the 97th Opinion of the International Commission on Zoological Nomenclature in effect, the name Dasychira Hübner [1809] would be applicable to our species, if tephra Hbn. could be satisfactorily determined. Parorgyia Packard 1864, the traditional name for our species, should be used. The East Indian Olene mendosa Hbn. is related to our species, but the differences which exist preclude the inclusion of our species in a genus with that species. In this genus, Dasychira (or better Parorgyia), the specific names employed call for comment also. The study I have made of the group leads me to believe that the correct application of names for this work should be as follows:

Species 1. achatina J.E. Smith
 meridionalis Barnes & McDunnough
 race basiflava Packard

Specimens of both races come with and without the black basal dash.

Species 2. vagans Barnes & McDunnough

Species 3. dorsipennata Barnes & McDunnough

As Dr. Forbes says, this is the species most like Hübner's figure of tephra, but the locality is wrong!

Species 4. leucophaea J.E. Smith

Species 5. cinnamomea Grote & Robinson
 race aridensis Benjamin

Species 6. obliquata Grote & Robinson
 atomaria Walker 1856 nec. 1855
 form parallela Grote & Robinson
 form atrivenosa Palm

The correct name for this species is obliquata Grote & Robinson, as Dasychira atomaria Walker 1856 ("List Specimens Lepid. Ins. Brit. Mus.", vii, p.1739) is a homonym of Dasychira atomaria Walker 1855 ("List Specimens Lepid. Ins. Brit. Mus.", iv, p.866). The type female of atomaria Walker 1856 is damaged and poorly spread, and thus gives an erroneous impression of the species, but it is referable to obliquata.

Species 7. plagiata Walker
 pini Dyar
 pinicola Dyar
 race manto Strecker
 form montana Beutenmueller

The oldest name in this complex is plagiata Walker, and pini Dyar and pinicola Dyar are synonyms; manto Strecker may be held as a weak southern race, of which montana is the melanistic form.

Notolophus Germar 1812 should be suppressed in favor of Orgyia Ochsenheimer 1810; both names have the same genus type, Phalaena Bombyx antiqua Linn. The question of whether to treat the species commonly listed under Hemerocampa as a distinct genus or not is a matter of personal preference; differences exist, but they are slight.

The biological notes given in this work will be of the greatest assistance to those collectors who have some interest in rearing moths. I have studied them carefully, and I have found a few notes which are at variance with what Laurence Rupert and I have found in our experiences in rearing the species noted. While Campea perlata has two broods a year, the first is from larvae which feed to maturity more rapidly, grow less, pupate the same year as that in which the eggs were laid and produce smaller moths. Lozogramma (Lithina) subaequaria is restricted to bracken (Pteris aquilina). Abbottana clemataria does not hibernate in the egg stage, but in the pupal stage; the moth emerges early in the spring. The second brood in the southern part of its range is smaller and darker.

I suspect that rearing will prove that Pero barnesi and Pero marmorata are the spring and summer broods respectively of one species. Any June records for marmorata are undoubtedly referable to morrisonarius. Here at Arlington, barnesi flies with the first brood of honestarius and marmorata with the second brood. This same condition holds true at Ithaca, New York.

While the criticisms I list may seem lengthy, this is a work of over 250 pages, and I checked it through rather carefully. I cannot see how any collector or working lepidopterist can afford to be without the work; it is the only handbook of its kind in America, and I am sure that most other field entomologists, no matter what their field of interest may be, will want to have a copy for ready reference.

There is no free distribution of the work, but it may be purchased by sending the sum of one dollar and fifty cents (\$1.50) to: The Mailing Room, Roberts Hall, New York State College of Agriculture, Ithaca New York. The supply of Part I is exhausted.

Dr. Forbes is at present working upon Part III, which will cover the large family Noctuidae. Part IV will cover the families Arctiidae, Euchromiidae, and Nolidae in the moths as well as all the families of the Rhopalocera.

John G. Franclemont
Arlington, Virginia



A SEASON OF LEPIDOPTERA COLLECTING IN THE AUSTRIAN TYROL

by Dr. Hermann Wilcke
Kössen, Tyrol, Austria

When the snow first melted in the alpine regions Biston isabellae Wheel. was beginning to fly. It lives in the extensive larch-tree woods of the Wipp valley between the Brennerpass and Innsbruck. The males of this interesting species are to be found a little earlier than the apterous females. These wingless ones rest hidden in the bark of larches and are not easily discovered. B. isabellae lives exclusively in larch-tree woods at about 900-1100 meters above sea level. The flying time of the hibernated Cidaria miata L., C. siterata Hufn., Lobophora polycommata Hb., L. carpinata Bkh. and L. sexasilata Hb. did not begin until some time later. These Geometrid moths are to be caught only at light. They fly at an altitude of 600 meters a.s.l., (as in Kössen, for instance) preceding Phigalia pedaria F. or Anisopteryx aescularia Schiff., the earliest moths of the plains. Also Hibernia marginaria Bkh., deeper colored here than in the plains, appears later and was this year extraordinarily rare in consequence of the great drought of 1947.

In the first days of April the invasion of the different species of Taeniocampa began, such as T. gothica L., stabilis View., gracilis F., munda Esp., the rare miniosa F. and the very variably coloured incerta Hufn. The great dark-splashed males of Biston stratarius Hufn., sometimes almost black, and the males of B. hirtarius Cl., resembling Phigalia pedaria F., came to my 1500 kilowatt lamp in numbers some evenings. You can catch the females of these Geometrids only in alder woods, where they are sitting on the trees.

In the middle of April I got 2 specimens of the very rare Notodonta phoebe Sieb. and Odontosia carmelita Esp. and, 2 evenings later, 2 males of the Saturniid Endromis versicolora L. In Tyrol E. versicolora flies regularly by day in alder woods and comes to the light only when disturbed in the evening wind. It is interesting that here the caterpillars of versicolora feed only on alder, instead of on birch as in the plains regions.

The first Rhopalocera are Anthocharis cardamines L. with the orange-yellow apical patch on the forewings, Leptidia sinapis L., a fragile Pierid, and Pieris napi L. All these butterflies are fresh, but Gonepteryx rhamni L., Aglais urticae, Nymphalis io L., and N. polychloros L. are very damaged after hibernation. They all suck greedily on flowers of Heath (Erica). You will also find the Clear-wing Sphingids Hemaris fuciformis L. and, a little later, Hemaris scabiosae Z., when they are feeding at flowers of Primula. In the beech woods the swift Saturniid Agria tau L. is flying, and less commonly Saturnia pavonia. Among alder woods will be Brephos parthenias L., but very rarely Brephos puella.

At the end of April Agrotis cinerea Hb., plecta L., exclamationis L., and the first Dianthoecia species were beginning to fly, besides the Drepanids Drepana falcataria L. and D. cultraria F. Now and then I found Notodonta trepida Esp., N. ziczac L., often N. dromedarius L., Dicranura vinula L., and

finally Pterostoma palpina L., outfitted with long palpi. You can sometimes catch D. vinula on the posts of the fences or on wooden bridges near the mountain rivers, whereas Dicranura erminea Esp., having a design like embroidery of laces, and the related Cerura bifida Hb., C. furcula, and C. bicuspis are found only at light. I was able to collect D. erminea for the first time this year in Kössen, where I have been exploring the fauna for four years. But in the other regions of Tyrol D. erminea is also caught only rarely. The great number of Geometrids appearing included Cidaria variata Schiff., suffumata Hb., nigrofasciata Goeze, capitata Hb., berberata Schiff., the beautiful badiata Hb., autumnalis Ström, Eucosmia certata Hb., Selenia tetralunaria Hufn., Bapta bimaculata Esp., living in beech woods, Deilinia pusaria L., D. exanthemata Sc., Eupithecia oblongata Thnbg. and Chloroclystis rectangulata L.

The first males of Parnassius mnemosyne var. hartmanni L. appeared on 12 May, the females 10 days later. This very interesting Parnassius appears in Tyrol only at 3 places, far apart from one another, and none wider than 2000 qm. Like all Parnassius species, P. mnemosyne is protected by the Government. Because of their sailing and slow flying one would not suppose that Parnassius mnemosyne is so difficult to catch. But if mnemosyne realizes that it is being chased and the habitat is on a steep slope, you cannot follow it. There is danger that both P. apollo and P. mnemosyne will be rooted out, especially since the caterpillars, which feed on Sedum, are collected in great quantities, and butterflies are becoming rare in some places.

On the meadows Papilio machaon L., P. podalirius L., and crowds of little Blues, Lysandra bellargus Rott., Polyommatus icarus Rott., arion L., Flebejus argyrognomon Brgstr., and Lycaena hippothoe L. were enjoying themselves at this time. Celastrina argiolus L. flies only in glades 3 m. above the ground. At the same time Melitaea aurinia Rott., athalia Rott., dictynna Esp. and phoebe Knoch were to be observed with Boloria euphrosyne L. on the flowers of Compositae and Scabiosae.

At the end of May I travelled some days to the Northern Chalk Mountains of Innsbruck. There I collected, at an altitude of 2100-2300 m., under stones near the snow banks, Biston alpinus Sulz. and, flying in sunshine, Oreopsyche plumifera O. O. plumifera appears a little earlier than Scioptera schiffermilleri, another uncommon Psychid of the mountains. The Noctuid Anarta melanopa Thnbg. was to be seen in very rapid flight from flower to flower. Only 5 specimens of Biston alpinus, which often passes 3-5 years in the pupa, were noticed this year. However, Anarta melanopa, funebria, and nigrita B., the rare and highly prized Noctuids of the highest regions, were to be caught more often on Silene acaulis and Dryas octopetala. Anarta cordigera Thnbg., with its yellow hind wings, could be seen at lower altitudes on Heath (Erica). On meadows of Erica at a level of 2000 m. I observed the webs of the Lasiocampid Eriogaster lanestris var. arbusculae Frr. with some young

caterpillars, but only twice the males. This moth has a great enemy in the mountain thrushes, which, in the absence of other food at this high altitude and at this time, eat the caterpillars and the females. Thus far I have seen four females of this species which were carried away from me by these birds. At the foot of a steep slope I found the Noctuid Hydrilla gluteosa Tr., which is rarely taken.

In the meantime in Kössen the rare Odezia tibiale Esp. was flying near the woods, and on the meadows Colias hyale L. and C. phicomone L., Noctuids such as Mamestra reticulata, pisi L., periscariae L. and Cucullia prenanthis Hb., scrophulariae Cap., verbasci L., Toxocampa craccas F., Thyatira batis L., Habrosyne derasa Hb., and the Cymatophoridae Cymatophora or F., and Polyploca flavicornis L. The very rare P. ridens F. was to be gotten only at light.

In June appeared lone specimens of Stauropus fagi L., Hoplitis milhauseri F., Stilpnotia l-nigrum Hb., Lophopteryx cuculla, Dasychira pudibunda L. and, punctually at 3 o'clock in the morning, Dasychira fascelina L. and Phalaera bucephala L. In the high regions D. fascelina is one of the earliest moths in the evening, but in the plains it does not come to the sheet until after midnight. Also this year I was astonished to see how scarcely the females of this species came to the lamp; with 250 males of D. fascelina I found only one female.

I observed how uncommon this summer were Boloria thore Hb., B. ino Rott., Habrynthis scita Hb., beautiful green-colored Acronicta alni L., Diptera alpium Osbeck, Acronicta strigosa (I got only 2 specimens), Agrotis candelarum, Dianthoecia filigrana, D. marmorosa and Trachea striplicis L. You can hardly conclude from this fact that after a dry summer, as in 1947, some species are more frequent than after a humid one.

In the beginning of August I travelled to the Ötztal. It was unfortunate that the first weeks I had bad weather, so I collected chiefly at light. It was on certain nights in Zwiesselstein, situated at an altitude of 1400 m. at the fork of the roads to Obergurgl and Vent, very famous tourist centers, that the first rarities of the mountain moths came to the lamp. The evening began with Cidaria aqueata Hb., nobilitaria HS, infidaria Lah., tophaceata Hb., cyanata Hb., Acidalia contiguaris Hb., dimidiata Hufn., and a little later Cidaria adaequata Bkh., minorata Tr. and nebulata Tr. Soon appeared the first Noctuids: Hadena zeta Tr., H. maillardi Hb., Mamestra glauca Hb., Dianthoecia caesia Bkh. and D. proxima Hb. The blue-green D. caesia and D. proxima you will find by day on stones too. Only at midnight the first Arctia caja L. and the different Arctiids Endrosa auritax Esp., E. irrorella Cl., Diacrissia sannio L. entered the sheet; also Coscinia cribrum L. with her exclusive grey of the forewings, which by day sits sometimes with folded wings on stems of grass and under overhanging stones.

Back in Kössen I had caught the Arctiids Pericallia matronula L., Spilosoma urticae Esp., S. lutea Hufn., S. lubricipeda L. and Phragmatobia fuliginosa L., so I was glad to collect here Arctia flavia Füssl. The fauna of this region is not yet alpine and many species from the plains flew to me

from the Inn valley, such as Agrotis prasina F., oculta L. and janthina Esp. At Obergurgl was the first place the alpine moths were encountered. Here I placed my lamp above the village with the direction of the light down valley. The weather was rainy and warm. In a short time the wall of the house beside the sheet was covered with different Gnophos species, especially G. myrtillatus, ambiguatus, dilucidarius Hb., pullatus Tr. and glaucinaris Hb. Also there were Cidaria cognata Thnbg., C. caesiata Lang, with all its variations, and C. montanata Bkh.

The very scarce Leucania andereggi B. and Hydrilla kitti Rbl., discovered only 30 years ago, were attracted by the lamp. I hurried out to slip into the cyanide jar these swift-sailing guests and the clumsy Hadena monoglypha L. before they escaped. Little Mithymna imbecilla F., by day to be noticed on the flowers of Thistle (Carduus), sits in the evening not on the sheet but below in the grass. It slips deeper and deeper if you are trying to bring it into the cyanide jar. Like a bouncing ball Trichiura crataegi var. ariae Hb. were flying outside the collecting sheet, flicking it and finally settling down on it after some minutes. Two beautiful Hadena rubrirena Tr. and some H. gemmea Tr., with their white spots on the black or brown ground, the precious Agrotis wiskotti Stndf. and A. sobrina G., were fascinating and encouraged me a bit, since I had always before seen only the common alpine moths such as Mamestra serena F., M. dentina Esp., Acidalia incanata F., Ortholita bipunctata Schiff., and Cidaria truncata Bkh.

The first male of Arctia flavia came at 3 o'clock. This Arctiid alights mostly beside the sheet in its shadow in the grass or at the frame of the sheet, so that you may not notice it. Being fully occupied by trying to examine again and again all the specimens of the different Agrotis, hoping to find among them perhaps an Agrotis culminicola Stgr. or A. hyperborea Zett., you can very easily miss the great Arctia flavia and the shadow-preferring species of Amphipyra.

Especially commonly attracted to the sheet were: Agrotis polygona F., A. fimbria with its white venter, now and then A. candelarum Stgr., frequently c-nigrum L., rubi View., speciosa Hb., margaritacea Vill., cuprea Hb., ocellina Hbn. and alpestris B. (both flying on Silene by day too), lucerna L., helvetina B., birivia Hb., decora Hb., simplonia HG. and very frequently grisescens Tr., latens Hb., recessa Hb. and ypsilon Rott. Almost all these species have a grey ground-color like the stones, therefore it is difficult to distinguish them one from the other. Like forms of another world the species of Calophasia, Caloplusia, Phytometra and Plusia, such as variabilis Piller, chryson Esp., bractea F., gutta Gn., pulchrina Hw., jota L., ain Hochw., all rare, flew in and mixed themselves among the Agrotis. Only Plusia gamma L. was appearing too often, but here it is sometimes opalescent brown-colored and you cannot be angry about them any more.

During the daytime I was searching for Arctiids on the mountain-chains nearly to the Karlsruher Hütte at an altitude of 3000 m. One will find first only Erebia, such as manto, pharte, epiphron, melampus, or nerine Frr., then Pieris callidice Esp. restlessly moving their wings in flight along the stony slopes. Further you will find Parnassius phoebe F.,

living in small scattered colonies and, sucking on cushions of Silene acaulis, Plusia hohenwarthi Hohenw. and Anarta melanopa. Also you will observe exceptionally Psodos alticolaria Mn., alpinata Sc., trepidaria Hb. and coracina Esp., quickly scurrying over the screes. As you approach the glaciers, Dasydia tenebraria Esp. are frightened out from among the stones and Gnophos zellerarius Frr., whose females are always sitting not like its brothers under or beside stones, but UPON stones which are covered by another plain stone. These females also do not fly away, if you remove or let down the covering stone. If you keep silent some minutes zellerarius flies away. The males of this species, which are taken more rarely, fly much more quickly and a longer distance, and they sit down among the rocks, where you cannot catch them. The males very rarely come to the light, but never the females.

Having enough of the above Erebia, we tried to get E. lappona Esp. and glacialis Esp., gorge Esp. and pronoe Esp. All these Erebia fly unusually quickly and don't permit the collector to approach near enough so that he can get them when resting. You must catch them during their flight. Even more wary is Oeneis aello Hb., which rests only on stones and never on flowers and is very difficult to distinguish from the stone color and which escapes at once if it hears the least noise.

Some years ago it was reported in the literature that the Arctiid Orodemias cervini Bütt. would be found only in Switzerland, near the Gornergrat. But this very interesting species is also indigenous in the highest Ötztal near the South-Tyrol frontier at about 3000 m. They usually live under stones by day and are not very difficult to collect. There you will also see the caterpillars and pupae at almost the same time as the moth. But the area where O. cervini lives includes hardly 2500 qm. and few collectors know it. It is easier to get the other Arctiid of these regions, O. quenselii Payk., which, like Parasemia plantaginis, flies quickly in the afternoon hours on Erica slopes. But you can see the females of quenselii on stalks of grass in the early morning. In the same habitat the lepidopterist will find the Arctiid Endrosa ramosa F.

In these days in Obergurgl I had good luck with the weather and hence collected Colias palaeno O., Plebejus orbitulus Prun., and Lycaena dorilis var. subalpina Spr. (without the characteristic orange-yellow spots on the underside of the hind wings).

In the beginning of September I travelled in the Stubai valley. This valley does not extend as far to the south as the Ötztal, but shows a very different fauna. Here you can get the beautiful Agrotis fatidica Hb., Leucania vitallina, and the rare Hepialus carna Esp. and H. ganna Hb. The Geometrid moths are the same as in the Ötztal and give no variety. Certain moths, such as Lobophora sabinata Hs., Phibalapteryx calligrapharia Hs., Plusia v-argenteum Esp. and Cidaria dolomitana B., are to be caught only in the Ötztal and are scarce even there.

However, the Stubai valley is the locality for Omia cymbalaria Hb. and rare species of Caradrina, such as gilva, pulmonaris Hb., respersa Hb., and exigua Hb., coming over often from the Wipp valley.

One night I experienced an invasion of Plusia gamma. We counted 40-50 gamma on each 10 qm. of every part of the lighted sheet. At 3 o'clock I had to stop the lighting, for it was impossible to distinguish any moths in this throng or to take moths in the cyanide jars without great damage. The sheet was governed by gamma and only the Sphingids like Herse convolvuli L., Deilephila gallii Rott., and D. euphorbiae L., or other heavy-bodied moths did not seem to be disturbed, but they soon resembled the Trichoptera (caddis-flies), which have scaleless wings.

Some nights I have lighted about 1500 m. above Innsbruck in the limestone mountains (the Stubai and Ötz valleys are of granite and slate-stone) and collected Agrotis vitta G., multifida Led., musiva Hb., praecox L., forcipula Hb., flammatra F., depuncta L., baja F., Hadena platinea Tr. and the beautiful Xanthia aurago F., citrago L., fulvago L., and gilvago Esp. Just beginning to appear were Polia chi L., Catocala fraxini L., electa Bkh., mupta L., fulminea Scop. Little by little the Geometrids, species of Ennomos and Conistra, heralded the autumn.

In September it was possible to catch this year not uncommonly the splendid Jaspidea celsia L., appearing at the light punctually at 23 o'clock, and the great loam-yellow Calamia lutosa Hb., which was also found on the reed-grass flowers in the evening. For some years we have not had the chance to get them as we did this year. On the meadows some Zygaenids, such as exulans Hohenw., transalpina Esp. and angelicae O., were still flying.

After a change of the weather accompanied by snow at an altitude of 1400 m. the flying-time of Orthosia orrhodia, Diloba caeruleocephala L., Dasypolia templi Thnbg., Miselia oxyacanthae L., Brotolomia meticulosa L., Calocampa solidaginis Hb., and Dichonia aprilina L. was beginning. In Tyrol the species of Calocampa, Dasypolia, and Xylina fly more abundantly in the spring after hibernation. Only in a warm late autumn, like 1948, can you observe these species on the bait.

In October/November I was hunting in the high Stubai valley for Poecilocampa populi var. alpina Frey (distinguished from P. populi L. by the white-grey forewings) and for Hibernia fumipennaria M. in larch-tree woods at an altitude of 1100 m. Both species were uncommon, whereas the abundance of Hibernia aurantiaria Esp., Cheimatobia brumata L. and boreata Hb., Cidaria miata juniperata L., and Agrotis saucia Hb. was extraordinary. Ptilophora plumigera L. (with its long-plumed antennae) was present at the same time.

I hardly need to mention that species such as Scoliopteryx libatrix L. and Scopelosoma satellitia L., whose caterpillars eat other larvae, were at the lamp as frequently as Orrhodia vaccini, Orthosia lota Cl., circellaris Rufn., helvola L., macilentia Hb. and Xylina socia Rott. Altogether it is impossible to name all Lepidoptera observed and caught during the season. I have mentioned only the characteristic and the uncommon ones.

When the first frosty nights arrived and by day the mountains showed their snow-caps, 2 males of the Death's-head Moth (Acherontia atropos L.), the greatest Sphingid of Middle-Europe, appeared at the sheet. Then, some days later, the season was finished.

Under this heading are listed each month recent papers from all the scientific journals which are accessible to us and our cooperating abstractors. It is hoped eventually to make our coverage of the world literature as complete as possible. Members outside North America are urged to send us references of Lepidoptera papers from journals unavailable to us. Papers devoted entirely to economic aspects will be omitted. Reprints are solicited from all publishing members. Abstracts not initialed are by the Lep. News editor. Initials of cooperating abstractors are as follows: (P.B.)- P.F. Bellinger, (A.D.)- A. Diakonoff, (C.D.P.)- C.F. dos Passos, (T.S.)- T. Shirōzu.

1. Bracke, Robert, "Quelques aspects de la faune des Lépidoptères du Pays Gaumais." (In French). Biol. Jaarboek, vol.15: pp.144-166, 2 figs. 1948. Account of butterflies observed in one season in region of Belgium near Luxembourg. Calendar of flight periods given.
2. Corbet, A. Steven, "Revisional notes on Oriental Lycaenidae: I." Proc. Roy. Ent. Soc. Lond. (B), vol. 17: pp.93-97. 16 August 1948. Notes on a number of species. Describes as new: Arhopala myrtale epibapta (Singapore, Sumatra); A. sintanga (Borneo); Jacoona anasuja nigerrima (Burma); J. gamamaga (Burma); J. hypoleuca birminia (Burma); Chliaria amabilis lisba (Malay Peninsula). Renames the Sumatran race of C. amabilis- C.a. martini. (P.B.)
3. Corbet, A. Steven, "Revisional notes on Oriental Lycaenidae: II." Proc. Roy. Ent. Soc. Lond. (B), vol. 17: pp.98-102, 1 fig. 16 August 1948. Notes on a number of species; a revision of the parana group of the genus Nacaduba. (P.B.)
4. Harrison, J.W. Heslop, "A new race of Coenonympha pamphilus, L., from the Hebrides." Ent. Rec. & Journ. Var., vol.60: pp.111-112. Nov. 1948. Describes as new C. pamphilus race rhoumensis (Hebrides). No figs., no mention of genitalia. (P.B.)
5. Hinton, H.E., "Sound Production in Lepidopterous Pupae." Entomologist, vol.81: pp.254-269, 8 figs. Nov. 1948. Lists species whose pupae are known to produce sound by knocking against substrate or walls of pupal cell, or by stridulating in various ways. Describes and figures stridulating mechanisms. Discusses possible function of sounds (appears to be defensive). (P.B.)
6. Mukerji, S., & T.V. Venkatraman, "Studies on Epipyrops melanoleuca Fletcher (Lepidoptera: Epipyropidae), an ectoparasite of the sugarcane leaf-hopper, Pyrilla spp., (Homoptera: Fulgoridae)." Proc. Zool. Soc. Bengal, vol.1: pp.91-102, 9 figs. Sept. 1948. Detailed observations on biology. Found that E. melanoleuca feeds on juices of host, not on waxy secretions; that it does not kill host unless host is very young and does not affect fecundity; that it secretes its own waxy fluff, like the host; that it cannot find new host if dislodged or its host dies; that position of parasite is along host abdomen with head fastened near terminalia and anus fastened near host wings; that all stages of host are attacked at random. Describe eggs, larvae, mouthparts, pupa, cocoon, adult; figure all stages and mouthparts and wax glands. Extensive bibliography on Epipyropidae. A valuable paper.
7. Patel, G.A., & A.C. Basu, "Bionomics of Leucinodes orbonalis Guen., (Lepidoptera) and Epilachna spp., (Coleoptera), the important pests of the brinjal, Solanum melongena L. in Bengal." Proc. Zool. Soc. Bengal, vol.1: pp.117-129. Sept. 1948. L. orbonalis is worst pest of brinjal fruits in Bengal, but long, narrow type of fruits less susceptible than spherical type. Life history described.
8. Rindge, Frederick H., "Lepidoptera: Rhopalocera" in "Contributions toward a knowledge of the insect fauna of Lower California." Proc. Calif. Acad. Sci. (Ser.4), vol.24: pp.289-311. 12 Mar. 1948. Lists 81 spp. of butterflies, including 3 Papilio, 21 Pieridae, 1 Danaus, 1 Coenonympha, 13 Nymphalidae, 1 "Li-bytnea", 1 Lymanas, 3 Riodinidae, 16 Lycaenidae, 21 Hesperiidae. The only species known only from L. Calif. is Myscelia streckeri. Only 9 of the 81 are not known from the U.S.A. An interesting record lists Lycaena hermes from Ensenada in May. An example of a well-done regional list.
9. Teale, Edwin Way., "Scourge of the Monarch." Nat. History, vol.57: pp.356-359, ill. Oct. 1948. Parasitism of Danaus plexippus by Achaetoneura ar-chippivora; good photos. (P.B.)
10. Titschack, Erich, & Hans Schmalzfuss, "Was befähigt die Kleidermotte Wolle zu verwerten?" (In German). Biochem. Zeitschr., no.318: pp.393-400. 9 June 1948. Wool can be used by clothes moths if the fibers can be grasped by the jaws of the larva or if some other substance is present which apparently makes it available. The nature of the substance is known, but not its exact identity. Lists are given of mixtures which contain this substance (milk, blood, etc.), and of compounds which have been tested which are not the required substance. (P.B.)
11. Travassos, Lauro, "Contribuição ao conhecimento dos "Arctiidae". XV. Sobre o gênero "Bertholdia" Schaus, 1896." Rev. Brasil Biol., vol.8: pp.341-360, 16 figs. Oct. 1948. Lists species, with complete synonymy and distribution; for those (5 spp.) of which specimens were available, gives complete redescription, with figs. of male, female, and genitalia. (P.B.)
12. van Son, G., "A New Species of Mylothris Hb. (Lepid., Rhop., Pieridae) from Southern Rhodesia." Entomologist, vol.81: pp.203-204, 1 fig., pl. I: figs. 6, 7. Sept. 1948. Describes as new M. carcassoni (S. Rhodesia), with photos of type. Type in Transvaal Mus. Valves of M. carcassoni, trimenia, sagala figured.
13. Viette, P., "Sur le genre Depressaria Haworth. (Lépid. Oecophoridae)." (In French). Rev. franç. d'ent., vol.15: pp.19-29, 30 figs. 1948. Characterizes genus. Gives keys to male genitalia of 30 spp., figuring most. Separates Agonopteryx and Depressaria but sinks Schistodepressaria under latter. No biological or distributional notes, no description except genitalia.
14. Viette, P., "Catalogue des Microlépidoptères de Madagascar et des archipels environnants." (In French). Mém. Inst. Scient. Madagascar (A.), vol.1: pp.31-75. 1947. Gives references to species recorded from Madagascar and nearby islands in families as follows: Incurvariidae- 1, Tineidae- 30, Lyonnetiidae- 51, Plutellidae- 4, Epermeniidae-1, Gracilariidae- 7, Coleophoridae- 1, Hyponomeutidae- 3, Ethmiidae- 4, Blastobasidae- 2, Glyphipterygidae- 12, Schreckensteiniidae- 8, Aegeriidae- 6, Copromorphidae- 4, Carposinidae- 2, Xylorictidae- 19, Oecophoridae- 15, Cosmopterygidae- 13, Metachandidae- 50, Gelechiidae- 27, Eucosmidae- 37, Tortricidae- 24, Phalonidae- 3, Pterophoridae- 9, "Crambidae"- 163.
15. Viette, P., "Répartition géographique et genitalia de Phycodes minor Moore (Lep. Glyphipterygidae)." (In French). Bull. Soc. ent. France, 1948: pp.92-93. 1948. P. minor male and female genitalia described and figured. First record of this Asiatic species from Africa (Ivory Coast) and Mesopotamia. Reared on Ficus.
16. Williams, C.B., "The Rothamsted Light Trap." Proc. Roy. Ent. Soc. London (A), vol.23: pp.80-85, pl.1. 15 Sept. 1948. Describes in detail with drawings and photos this famous and highly successful light trap.



PERSONALIA

ROBERT H. WHITTAKER received his Ph.D. from the University of Illinois in 1948 and is now on the faculty of The State College of Washington, as an instructor in the Department of Zoology.

J.W. TILDEN has received his Ph.D. from Stanford University and is now on the faculty of San Jose State College in California. His doctor's thesis was on the insect fauna of the shrub, Baccharis pilularis, and in the course of his research he recorded the astonishing number of 256 species of insects on the one plant.

Dr. WALFRIED J. REINTHAL, an Estonian who recently emigrated to the U.S.A. from Austria, has accepted an appointment as Assistant Professor in the Department of Zoological Sciences at the University of Oklahoma. Dr. Reintal's research for many years has centered on ecology and geography of European Lepidoptera. Although he lost his collection in Estonia during the war, he was able to bring 15,000 specimens from Austria.

Dr. T.N. FREEMAN was made Co-Ordinator of the new Northern Insect Survey. In the summer of 1948 he had 8 parties in Arctic and Sub-Arctic Canada. He personally collected in Labrador and Baffin Island. We hope to present in the Lep. News several reports on Lepidoptera studies by the Survey.

FREDERICK H. RINDGE, who is now completing his Ph.D. thesis at the University of California at Berkeley, has been appointed Assistant Curator in charge of Lepidoptera at the American Museum of Natural History in New York. His appointment fills the vacancy left by Dr. C.D. Michener's move to the University of Kansas (see Lep. News 2: p.88).

Dr. GEORGE W. RAWSON recently visited Donald EY and collected Lepidoptera with him around Boulder, Colorado. He also collected in the Santa Rita Mts. of Arizona with Dr. Ernest R. Tinkham of Tucson and saw Harry K. Clench at Ann Arbor, Michigan.

The Aug. 21, 1948, issue of the New Yorker magazine contained an excellent article about Dr. ANDREY AVINOFF. Dr. Avinoff, who retired a few years ago as Director of the Carnegie Museum in Pittsburgh, has recently received favorable attention from art critics for his painting.

Dr. CARL BÖRNER, the distinguished German entomologist whose Lepidoptera classification is perhaps the most significant one of recent years, is continuing his systematical research in spite of his advanced age. Dr. Börner writes that he needs urgently a few adult individuals of both sexes and, if possible, larvae and pupae of species of: Prodoxidae (Yucca Moths), Epipyropidae, Mimallonidae, and Pyromorphidae (such as Harrisina). He notes that specimens with torn wings or lacking scales (and thus not very good for cabinet specimens) will be very satisfactory for his anatomical work. Any collector who provides specimens will be materially aiding important research and will have the pleasure of contact with one of the finest living lepidopterists. Dr. Börner's address is: Naumburg-Saale 19a, Jenaerstrasse 22, Russische Zone, GERMANY.

QUESTIONS AND ANSWERS

Professor W.T.M. Forbes, of Cornell University, has kindly consented to prepare answers to questions submitted by members on any aspect of Lepidoptera study, if extensive library research is not necessary. Questions are to be sent to the News editor.

Q. "Prof. Forbes, I have heard of some work which you did with aquatic Lepidoptera, and would appreciate a few instructions on how to rear and collect them and exactly which species in North America are aquatic."

A. I have reared only one type of aquatics, those that feed in still water, externally on floating vegetation. I used deep china pudding dishes, containing about 2 inches of water, tying a piece of cheesecloth over the top when I expected moths to emerge. Put in a place getting plenty of light (even sunlight) so long as the water does not get very warm. In good light the green plants will oxygenate the water and keep it sweet. For running water forms (Argyrectis) one would have to set up a slanting stone (or perhaps a board would do) and circulate pure water over it. Treated city water cannot be used, but chlorine can be got out of city water by circulating it a day or so before putting in the specimens.

The chief fully aquatic Lepidoptera are the normal Nymphulinae, - Argyrectis on stones in running water, Elophila proper and Nymphula in the broadest sense case-makers on vegetation in still water; Acenotropus (Schoenobiinae) has a completely wingless female that remains under water, and is known in eastern Canada and northern New York as well as Europe. There are also many borers in aquatic plants more or less at home under water. The best adapted of these is the Arzama group (Arzama in cattails and Bellura in water-lilies). These live below the water level in late stages, have the last pair of spiracles enlarged, and so need only to back up the burrow till the tail is out of water in order to breathe. Most of these are Noctuidae, but Pyrausta penitalis, a Pyralid, bores in water lily and is at home below water. Various other caterpillars are enough adapted to water so that they do not drown themselves. E.g., the salt-marsh caterpillar (Estigmene acraea) first turned up as injurious on marsh plants, and could swim from plant to plant. Some South American Arctiidae (especially Palustra) live wholly thus. The sphinx, Darapsa versicolor, is often found on button-bush growing in water, and must somehow manage to find a place to pupate, but I have no idea how it does it.

Q. "Is it true that there is a group of moths which are able to raise their body temperature enough to fly later in the fall and earlier in the spring than other Lepidoptera?"

A. I have no information on actual body-temperatures, but most moths with this habit are so small and delicate that it is much more likely that they are able to use their muscles efficiently at lower temperatures. They are a biological, not a taxonomic group, for they belong to many families, also containing more normal species. E.g., the three canker-worms (fall, spring and Bruce's) each belong to a different subfamily, but are still very similar in habits, appearance and adaptive structures such as wingless female, delicate wings and so on.

W.T.M. Forbes

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 TWO consecutive issues.

Offer FRENCH BUTTERFLIES and MOTHS in papers in exchange for exotic ones except Microlepidoptera. F. Gaillard, 5 Cité du Midi, Paris 18, FRANCE.

JAPANESE BUTTERFLIES offered in exchange for American species, esp. Lycaenidae, Satyridae, Nymphalidae. S. Murayama, Shinjocho 744, Ibaraki-shi, Osaka, JAPAN.

Wanted for cash: SPEYERIA DIANA and S. LETO, female specimens with full data. J.A. Evey, Benson, Illinois.

For sale: over 500 STRYMON from all over North America collected over 17 yrs., at 6¢ each; other groups, such as Catocala, skippers, and 100 mostly So. Florida specimens at 8¢ each. D.F. Berry, Box 146, Orlando, Fla.

WISH TO PURCHASE to fill out sets:

- Proc. Ent. Soc. Philadelphia: vols.1-6
- Proc. California Academy of Sciences: vols.1-7
- Bull. Buffalo Soc. Nat. Sciences: vols.2,3
- Psyche: vols.11, 13, 15 (pref. unbound)
- Proc. Acad. Nat. Sci. Philadelphia: vols.1-20
- Trans. Am. Ent. Soc.: vols.1-10
- The Entomologist: vol.1

C.F. dos Passos, Washington Corners, Mendham, N.J.

SPEYERIA DIANA and many other scarce Lepidoptera available for exchange for desired spp. Will also trade Lepidoptera for beetles or vice versa. No specimens wanted without full data. William F. Duhlmeier, 2535 Indian Mound Ave., Norwood 12, Ohio.

Wanted: Argynniae, Papilionidae, diurnal swamp-loving moths. Offer in exchange RARE HUNGARIAN LEPIDOPTERA of any group. Dr. L. Gozmány, Budapest XII, Györi ut 1. II. 14., HUNGARY.

PAPILIO ARISTODEMUS PONCEANA for sale and exchange. All other south Florida and Fla. Keys Lepidoptera also for exchange. H.L. King, 4618 Abercorn St., Savannah, Ga.

DANISH LEPIDOPTERA offered in exchange for papered Rhopalocera, Sphingidae, and Arctiidae. A. Andersen, Odensegade F, Ø, Copenhagen, DENMARK.



LIVING MATERIAL



For sale: PUPAE and papered or pinned adults of So. Calif. Lepidoptera. Order single specimens, or quantity at special rates; or sign up for "Butterfly & Moth of the Month" or "Chrysalis of the Month" plan. W.H. Evans, 8711 La Tuna Canyon Rd., Sun Valley, Calif.

Wish to purchase, exchange, sell Lepidoptera ova for rearing. Mrs. Hazel Chase, 272 N. Union St., Galion, Ohio

Living PUPAE of Eacles imperialis and Papilio troilus offered in exchange for other specimens, including papered Papilio, or for sale at 25¢ each. Mrs. Vonta P. Hynes, 152 Meachem Ave., Battle Creek, Mich.

For sale: COCOONS of Telea polyphemus, Callosamia promethea (10¢ ea., \$1 doz.), Automeris io (15¢ ea., \$1.60 doz.), Actias luna (25¢ ea., \$2.50 doz.), Attacus Cynthia (20¢ ea.), Anisota rubicunda (5¢ ea., 59¢ doz.), Ancana mylitta (50¢ ea.). Bombyx mori eggs (50¢/100). E.A. Ferguson, 1213 Bellflower, S.W., Canton, Ohio.



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ADDITIONS TO THE LIST OF MEMBERS

Arntz, Arnold, 110 Spring St., Syracuse, N.Y. MACRO:
 N.A. Sphingidae, Catocala. Tropical LEPID.
 Karp, Ben, 3148 Foothill Blvd., La Crescenta, Calif.
 Lengyel, Julius F. (Dr.), Budapest XII. Budakeszi ut
 38. HUNGARY. European RHOP: esp. Melitaea; European
 MACRO: esp. Noctuidae (Cucullia). Distribution, Zoo-
 geography. Coll. Ex.
 Phillips, G. Lylle, 2746 Adams St., Salt Lake City 6, Utah.

CHANGES OF ADDRESS

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Mailing date for Lep. News, Vol. 3, no. 9 (December, 1948): 25 January 1949.

Separates of the pages of listings of "Recent Literature on Lepidoptera" are available for members who may wish to clip the references for their card files. Two copies of each listing (one for subject file, one for author file) will be sent as each issue is mailed, for \$0.50 for Volume 3. A back set of the 441 listings in Volume 2 may be obtained for the same price. As in 1948, members outside of the Americas may receive these pages at no cost merely by requesting them.

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Membership is open to all persons interested in any aspect of the study of butterflies and moths. The 1949 dues, including subscription to the NEWS, are \$2.00 for Regular Membership and \$4.00 or more for Sustaining Membership. Please make remittances payable to Charles L. Remington. Price for Vol. 2 is \$2.00. No complete sets of Vol. 1 are available.