

RECENT LITERATURE ON LEPIDOPTERA

(Under the supervision of PETER F. BELLINGER)

F. BIOLOGY AND IMMATURE STAGES

- Allen, H. W., "Nosema disease of *Gnorimoschema operculella* (Zeller) and *Macrocentrus ancylivorus* Rohwer." *Ann. Ent. Soc. Amer.*, vol.47: pp.407-424. Sept. 1954. Biology of this microsporidian disease in moth and parasite; control methods in culture work are described. [P.B.]
- Baeta-Neves, C. M., "A entomofauna das 'exóticas' em Portugal" [in Portuguese]. *Portug. Acta Biol. (B)*, vol.4: pp.191-196. 2 Oct. 1954. List, by foodplants, of insects on exotic plants in Portugal; records *Evetria tessellatana* on *Cupressus*, *Tbaumatopoea pityocampa* on *Pinus radiata* and *Pseudotsuga douglassi*, *Caccecia pronubana* on *Myoporum acuminatum*, *Dicranura vinula* on *Populus*, *Semasia minutana* on *Populus alba*, *Zeuzera pyrina* on *Quercus rubra*, *Sciapterion tabaniforme* on *Populus robusta*; *Mimas tiliae* on *Tilia* spp. [P.B.]
- Baird, R. B., "A species of *Cephalosporium* (Moniliaceæ) causing a fungous disease in larvæ of the European corn borer, *Pyrausta nubilalis* (Hbn.) (Lepidoptera: Pyraustidae)." *Canad. Ent.*, vol.86: pp.237-240, 5 figs. 9 July 1954. Discusses etiology, symptomatology, and pathology of this disease. [E.M.]
- Belosel'skaia, Z. G., "The moth *Argyresthia ephippella* F. as a pest of cherries and plums" [in Russian]. *Ent. Obozrenie*, vol.32: pp.86-92, figs. 1952. [Not seen].
- Belyea, R. M., "Death and deterioration of balsam fir weakened by spruce budworm defoliation in Ontario." *Canad. Ent.*, vol.84: pp.325-335, 7 figs. 28 Nov. 1952. Discusses seasonal histories and habits of 7 spp. of Coleoptera and 3 spp. of Hymenoptera breeding in severely defoliated and dead trees. [E.M.]
- Bennett, William H., "The effect of needle structure upon the susceptibility of hosts to the pine needle miner (*Exoteleia pinifoliella* (Chamb.) (Lepidoptera: Gelechiidae)." *Canad. Ent.*, vol.86: pp.49-54, 5 figs. 10 March 1954. States that large or numerous resin canals tend to reduce favorability of a *Pinus* sp. as a host for this insect. [E.M.]
- Bennett, Wm. H., "The metamorphosis of the pine leaf miner (*Exoteleia pinifoliella* (Chamb.)) (Lepid. Gelechiidae)." *Canad. Ent.*, vol.86: pp.310-311, 1 fig. 20 Aug. 1954. Describes pupation, pupal cell, and emergence of adult. [E.M.]
- Blais, J. R., "Effects of the destruction of the current year's foliage of balsam fir on the fecundity and habits of flight of the spruce budworm." *Canad. Ent.*, vol.85: pp.446-448. 31 Dec. 1953. Complete defoliation is associated with reduced egg production, and with massive flights into adjoining areas. [E.M.]
- Bourgogne, J., "Le venin de vipère utilisé comme nourriture par une tinéide (Lep.)" [in French]. *Bull. Soc. Ent. France*, vol.59: pp.74-75. 1954. The desiccated venom of *Vipera aspis* used as food by *Tineola bisselliella* in the Institut Pasteur, Paris. [P.V.]
- Brandt, H., "Massenaufreten von *Biston zonarius* Schiff. (Lep., Geometridæ) an Luzerne" [in German]. *Nachrbl. Bayer. Ent.*, vol.3: p.64. 15 June 1954. Caterpillars were numerous on alfalfa. [N.O.]
- Brandt, H., "*Procris pruni* Schiff. (Lep., Anthroceridæ) an Erdbeere" [in German]. *Nachrbl. Bayer. Ent.*, vol.3: p.64. 15 June 1954. Strawberry as a new foodplant. [N.O.]
- Brooks, A. R., "Identification of bombyliid parasites and hyperparasites of Phalænidæ of the Prairie Provinces of Canada, with descriptions of six other bombyliid pupæ (Diptera)." *Canad. Ent.*, vol.84: pp.357-373, 46 figs. 31 Dec. 1952. Describes, keys, and figures larvæ, pupæ, and/or adults of 11 spp. associated with Phalænidæ. [E.M.]
- Buresh, I., "Die Nonne *Ocneria monacha* als Schädling in der Wäldern Bulgariens" [in Bulgarian, German summary]. *Izv. Zool. Inst. Bulg. Akad. Nauk*, vol.2: pp.3-54. 1953. [Not seen].
- Campbell, I. M., "Morphological differences between the pupæ and the egg clusters of *Choristoneura fumiferana* (Clem.) and *C. pinus* Free. (Lepidoptera: Tortricidæ)." *Canad. Ent.*, vol.85: pp.134-135, 2 figs. 15 April 1953.
- Chapman, John A., John I. Romer, & John Stark, "Ladybird beetles and army cutworm adults as food for grizzly bears in Montana." *Ecology*, vol.36: pp.156-158. Jan. 1955. *Chorizagrotis auxiliaris*; moth may estivate in numbers in high mountains. [P.B.]
- Cumming, Margaret E. P., "Notes on the spruce needle miner, *Taniva albolineana* Kft. (Olethreutidæ: Lepidoptera)." *Canad. Ent.*, vol.86: pp.457-460, 2 figs. 5 Nov. 1954. Briefly describes life history; enumerates various spp. of spruce known to be hosts; lists 2 ichneumonid and 5 braconid parasites. [E.M.]

dense stands of the saw palmetto. Many fragments of this association can still be found. In the late spring and summer, the Tar Flower (*Befaria racemosa*) puts up flower heads above the palmettos, and many butterflies are attracted to them. Some of the more open areas are the best of collecting places for skippers. (March-August, excellent; December, poor.)

COASTAL AREA NORTH OF MIAMI BEACH: It is almost hopeless to try to collect on the Miami Beach peninsula, but by driving north along Florida A1A the open beach and natural dunes can be reached in places. Stands of *Ecastophyllum ecastophyllum* often grow between the dunes and the mangroves along the bayshore, and should be examined for *Phoebis statira floridensis*. *Eurema lisa* sometimes appears in migratory swarms similar to those observed in the Bahamas. Migrations of *Ascia monuste* and *Agraulis vanillae nigrior* may also be observed in this area from March through May. (See Erik Tetens Nielsen & Astrid Tetens Nielsen, *American Mus. Novitates*, No. 1471, 1950, for an interesting account of migration in *Ascia*.) (July, excellent.)

FORT LAUDERDALE AND VICINITY: MARSTON BATES collected around Fort Lauderdale for a number of years, and recorded many interesting species. West of the city, and along U. S. 441, are pinelands and hammocks where northern and tropical plants intermingle. *Papilio palamedes* and other species may be more abundant here than farther south. *Isoparce cupressi*, the cypress sphinx, may be found rarely around cypress ponds or swamps. East of Fort Lauderdale, Florida Highway A1A parallels the Atlantic beach for some distance. Hammocks and dunes may be good collecting places. (July, good; August-September, fair.)

At West Palm Beach, U. S. 441 turns inland to Belle Glade and crosses the great Loxahatchee Slough of the northern Everglades. Here as along other roads through the Everglades, the roadside weedbeds will probably be the best collecting spots.

And so we say goodbye to the land of the Everglades. In the words of the Seminoles, "Wa lox-ee-ojus!" Good hunting!

APPENDIX: SOME GENERAL HINTS

Camping: Camping in southern Florida is somewhat difficult, but throughout the northern part of the state many excellent campsites are available. A list of state parks with camping facilities can be obtained from the Florida Board of Parks and Historical Monuments at Tallahassee, Florida. In many areas, however, campsites on unposted ground can be found almost anywhere. I usually take an Army Surplus jungle hammock with a light blanket for summer camping, and a light sleeping bag with mosquito net and frame and a tarapaulin for winter. Tourist courts are, of course, everywhere, and summer rates are usually reasonable.

Poisonous Snakes: The dangers from rattlesnakes and other poisonous serpents is greatly over-rated, but it pays to look where you are walking. A snake bite kit may be comforting to play with while you are getting to

the nearest hospital in case you are bitten. Stop off at Ross Allen's Reptile Institute at Silver Springs if you want to be sure to see Florida rattlesnakes.

Mosquitoes: On the Florida Keys, Cape Sable, and in other southern areas mosquitos are often very bad during the summer months. Repellents, such as 612 or dimethyl pthalate, should be used freely. Oil of citronella is practically useless. Mosquito-borne diseases are not important in Florida today. Sandflies may be annoying in places, but can be inhibited with 612. An aerosol bomb to spray the inside of your mosquito net or tent if you are camping is highly desirable.

Mites and Venomous and Urticating Arthropods: The liberal application of 612 or benzyl benzoate to ankles and pants legs, cuffs, neckbands and other openings in the clothing will usually prevent the unpleasant effects produced by "red bugs" or "chiggers." Urticating caterpillars and venomous arthropods are not very common. Spirits of ammonia or household ammonia is useful in reducing pain from bites of scorpions, wasps, bees, etc. Ammonia is particularly valuable in relieving the itching and pain of stings of the little fire ants which are bad in some areas.

Hints on Collecting: The best seasons for collecting in Florida are, unfortunately, the wettest, and you must protect your specimens from molds and ants. A convenient method of drying specimens is to place them in cigar boxes which can be suspended above your car motor until thoroughly dried. Specimens put into tight containers without drying are usually covered with mold and ruined in a few days. Naphthalene flakes seem to be somewhat more effective in inhibiting molds than paradichlorobenzene, but the latter gives better protection against ants. Cyanide bottles often get very damp and ruin many specimens, so that I prefer to kill butterflies with xylol carried in a small vial. They can then be immediately placed in small drug envelopes and stored in cigar boxes. This obviates much tedious sorting in the evening also. Nets should be as large and as sturdy as you can make them. They will take a terrific beating in the dense vegetation. An extension handle is often needed to reach some of the high-flying species.

Baiting: Baiting and sugaring are not as effective in south Florida as in many northern states, but a mixture of molasses, rum, and bananas often attracts swarms of the giant noctuid, *Erebus odora*.

A Word of Caution: If you cannot come to Florida yourself and are contemplating buying specimens for your collection, be sure that you are dealing with reliable people. In former years some unscrupulous persons made a practice of selling South American and West Indian species as being from Florida. Be wary of anything marked "Chokoloskee, Florida." Chokoloskee is an island south of the town of Everglade, near the western edge of the Everglades National Park. It is a fair collecting place, but hardly worth the expense of a visit. Similar conditions can be found at many places along the west coast from Naples south.

BOOK REVIEW

MOTHS. By E. B. Ford. xix + 266 pp., 56 pls. (32 colored). 1955. Publisher: Collins, London. Available from E. W. Classey, 91 Bedford Lane, Feltham, Middlesex, England, and other British booksellers, at 35s, plus postage. (Also published in America by The Macmillan Co., 60 Fifth Ave., New York, N. Y., U. S. A., at \$7.50.)

This is a continuation and supplement of the work entitled "Butterflies", by the same author and publisher. It likewise is intended to present all those biological problems which can be properly shown by the Lepidoptera, but in this case assuming that specifically *moths* are the material of study, and that the interested reader will turn back to the volume on butterflies for the details already presented in it. But enough background is given here so that one can get a clear picture with this volume alone.

In the butterfly volume it was possible to illustrate all the few British forms, incidental to the more biological discussion, but with the many times larger moth fauna this clearly cannot be done; the plates do manage to show a great many of the British moths, both common and rare, — but only those large enough to be shown well by natural size photographs, either in color or in black and white. The micros, while a few are mentioned in the text, do not appear in the pictures.

I might say that the late CLYDE FISHER had made preliminary arrangements with me to prepare a corresponding work based on the American moths. After his death we heard nothing more, and looking on the present volume, I say frankly that I couldn't have done it!

While the butterfly volume illustrated all the British species, the present one only covers a hundred or two of the moth species, so that they serve to a more definite degree as illustrations of the biological laws discussed, than of the fauna as such. The text, as with the preceding volume, is definitely devoted to the laws and the known biological facts: "Moths" means definitely 'the known laws of biology as illustrated by the *British* moths'. Physiology, genetics (including polymorphism), protective devices, pests, geography, melanism and population and extinction are taken in turn, but the two fields presented richly and almost exhaustively are genetics and geography. In these two fields no other work can give anything like so clear a picture of what we know, and so clear a hint of what we can next hope to find out.

Now for a few more specific comments. The first is aimed at the editors: why could not the plates have been given a single numbering? With the double numbering and the irregular placing (no doubt due to the problem of binding) one has to refer back to the two lists of plates every time he wishes to turn from the mention of a moth to its illustration, and to the index every time he makes the reverse shift. There is nothing new about this, we have to do it with almost every book, but it is always a new irritation. Incidentally the plates are beautifully reproduced, and only occasionally the colored ones show the tinted veil so common in three-color work, or the black and white plates less sharpness of detail than we could hope for.

In the author's statement of the reason for neglecting the micro-Lepidoptera, he writes: "less suitable for these studies, being more difficult to handle". I feel this is the reverse of the fact; at least one group of micros (the stored food pests) are on the whole easier to handle, and *Ephestia* at least has been used several times for genetic work just for that reason. There are other reasons that no doubt are the real ones, — they are less often collected by the amateur, with the result that we lack records of distribution and are more often plagued by misdetermined records. If you consider the related fact that many manuals omit them, I think you have two thirds of the story. I grant the other third: they are difficult to handle . . . as dried adults.

I am sorry that the Kloet & Hincks check list was followed for the scientific names. It may be closer to the present rules than names previously used, but none of the familiar works on European moths have used it, and unless one has a popular

English work that gives the more standard English names, he is often completely lost. At least the traditional scientific names should have appeared as synonyms. In the case of "Caradrinidæ" (instead of the traditional names of Noctuidæ, Agrotidæ, or even "Phalænidæ") the word "noctuid" appears on p. 233, but even there there is no indication that the "Plusiidæ" are also noctuid moths, *Plusia* in fact differing from *Caradrina* probably far less than either differs from such a "Plusiid" as *Zanclognatha*. Incidentally both larva and adult show that *Callimorpha* is not a Hyspid but a slightly aberrant Arctiid, hardly more than a subgenus of the American *Haploa*, which all workers put in the Arctiidæ. The superfamily "Notodontoidea" is also a complete mess, for the Notodontidæ themselves are close to the Noctuidæ in egg, larva, and tympanum, while the geometers are something quite different (FORD lists the latter as five families); and the Polyplocidæ which are here listed in the Notodontoidea are hardly more than a subfamily of the Drepanidæ, which stand as a superfamily by themselves. I also see GEOFROY'S misprint of "*Tinea*" preferred to the Linnæan and classical Latin "*Tinea*". Incidentally the Psychidæ, which give the name to his Psychoidea, are much closer to the Tineidæ than to the Zygænidæ, which he groups with them. A very little study of *Solenobia* shows the situation.

I think when Dr. FORD discusses the relative uses of collections and studies, he should have emphasized the value of a collection as a *record*. Some one may later ask what you were really studying; a good photograph may tell the story, but a few specimens saved from a genetic study are much safer in such a genus as *Ephestia*. If ancient specimens had not been saved, who would have guessed that the "Army Worm" of western Europe is not one of the Asiatic or South American kinds, but actually the one from North America?

There is a good chapter on industrial melanism; but I wish some one would give us a similar picture of the same phenomenon over here, known for many years about Pittsburgh, but now showing in hundreds of species well over the Northeast.

I am not clear why the compound eye should be considered "rather inefficient." Considering its size and the size of insects in general, it could hardly be more efficient.

I should hardly say that butterfly antennæ usually end in a "knob"; much more often there is merely a gradual swelling, and even this may be slight in some Satyrs. The combined character of swollen antenna and no frenulum will doubtless define a butterfly in Europe and the U.S., but I have often been embarrassed by some beginner who had got hold of a specimen of *Urania*.

I think the question of bright colored hind wings and under sides, concealed at rest, is much more complicated than FORD would make it. Consider the Catocalas, night fliers but some of them easily flushed by day, and even more the yellow-winged Agrotids, so common in Europe, and so nearly absent in America, with no obvious explanation.

Note that a couple of moths from Kerguelen Island alone have lost their wings in both sexes. They are only micros, but are believed to belong to at least two families winged in other parts of the world.

The production of diffraction colors seems somewhat misstated or at least will be almost certainly misunderstood; for the bright structural colors, such as the blues and the green Foresters, are produced not by the minute striation, but by piles of thin superimposed plates; the striation colors are never conspicuous, and usually overlooked. They can be seen however in some species by illuminating a specimen with a narrow beam of light, such as a ray of sunlight, in a dark place. It is easily distinguished by the fact the color changes with a small change of angle, while the thin-plate type remains about the same unless actually glancing viewing and illumination are used.

As to killing, I understand that conditions are quite different in England, where it is traditionally hard to get cyanide, but I find it safe even with such very delicate greens as our *Dichorda iridaria*, while ammonia kills erratically and changes many other colors.

The *Colias* "blue" mutant is called bright blue; in fact it is merely blue-green, rather than the usual grass-green. My impression is that there is merely a failure to deposit carotin-type pigments.

is in fairly natural condition, and you will probably want to stop here to look for *Papilio aristodemus ponceanus*. Don't worry about KLOTS' admonition on conservation too much. You will probably be happy if you SEE even one specimen. *Brephidium pseudofea* is common in the salt flats on both Upper and Lower Matecumbe, and many other things will be found on *Bidens* and other flowers. *Danaus eresimus* is a rarity which should be looked for on the Keys. MARSTON BATES suggests that the way to find it is to capture every *Danaus gilippus*-like butterfly possible and examine them carefully before letting them go. (June-July, good.)

KEY VACA: Key Vaca in the Middle Keys is now so built up that collecting places are becoming scarce. Recent clearings are productive if they can be found. *Metamorpha stelenes* is occasionally found, probably as a stray from the Bahamas. *Eurema daira palmira* occurs on Key Vaca, and the true *elathea* may also turn up someday. (July-August, good.)

BIG PINE KEY: Big Pine, the largest of the Lower Keys, is my favorite collecting place, but it is not particularly enticing to the lepidopterist. The peculiar pinelands are productive of some interesting things, however, and Bahaman and West Indian species may be expected. The island formerly had several well-developed hammock systems, but these have been all but destroyed by recurrent fires. Little Pine Key, which can only be reached by boat, probably shows the conditions which formerly prevailed on Big Pine, No Name, and the other large keys. It is so densely grown up with palms, hammock, and other plants that it is all but impossible to walk across it. The wonderful cactus growths along the southern point of Big Pine are interesting, and the beach hammock association here might harbor unsuspected prizes. (June-July, good; August-September, fair.)

KEY WEST: Key West itself is not very good for collecting since there is practically no open ground, but just to the north the botanical garden and edges of the golf course on Stock Island are good to fair. There is also a new road which runs across the outer edge of Boca Chica, the Saddlebunch Keys, and Sugarloaf where hammock, salt marsh, and other conditions may be encountered. A number of rare strays have been recorded from Key West and vicinity, but in general the collecting is inferior to that to be found farther north. *Papilio aristodemus ponceanus* has been recorded from Key West, in fact the late AUSTIN CLARK informed me that JOHN W. CADBURY, 3rd, checked the specimen in the Philadelphia Academy, and it proves to be the specimen figured by HOLLAND (Pl. LXX) and labelled "*Papilio ponceanus* Schaus, typical from Miami, Florida." If there were not a specimen in the Museum of Comparative Zoology at Harvard, collected in Coconut Grove by G. B. FAIRCHILD and his sister, this in my mind would throw doubt on the occurrence of *ponceanus* on the mainland. (June-July, good; September, fair.)

On returning to Miami, you may want to go north by way of U. S. Highway 1. Most of the area along this road is urbanized, but collecting places can be reached by turning off either to the east or west.

PINELANDS BETWEEN MIAMI AND DANIA: The pinelands north of Miami between U. S. 1 and U. S. 441 used to be grown up with extremely

for teaching or museum purposes, but most collectors, like the writer, do not qualify.

The hammock has many fine "jungle trails" along which species similar to those noted for Brickell Hammock can be found. Among the rarities to look for is *Diathria clymena*, the "88" butterfly, collected there in 1944 by P. G. HOWES. This is probably the only authentic record for this species in the United States. Another interesting species is *Eurema nisa perimede* (determined by W. D. FIELD) which was collected in the hammock by Mrs. C. N. GRIMSHAWE in December, 1946. It closely resembles *neda*, but differs in lacking the black border of the hind wing, the border being replaced by small black spots at the juncture of the veins with the margin. (March-August, fair to excellent.)

LONG PINE KEY: At the western edge of Royal Palm Hammock, a rock road turns northwest and leads onto Long Pine Key. This was one of the Everglades Keys which were islands before the drainage of the Everglades. Most of the area along the road is outside the park, and hammock edges, pinelands, and deep marshy sloughs are possible collecting places. It was in the pinelands on this island that *Eumæus atala florida* was last found about 1935. *Euptrychia areolata* is often abundant in the damper pinelands, and *Limenitis archippus floridensis* is nearly always abundant. *Syntomeida ipomœa* may also be found at flowers of the Buttonbush along the edges of the marl prairies. (January, fair; June-July, excellent; November-December, poor.)

CAPE SABLE REGION: Returning toward Royal Palm Hammock, the southwest fork of the road leads to Cape Sable. All of the Cape is now within the park. Collecting on the salty marl prairie near Flamingo used to be very good. *Brephidium pseudofoea*, *Precis lavinia zonalis*, and many other butterflies and skippers are abundant. I have seen literally clouds of *Ascia monuste* over the prairie, and *P. l. zonalis* guards its little territory as jealously as does our familiar *coenia*. (June-July, good.)

KEY LARGO: In order to continue on to the Florida Keys, you will have to return to Florida City and follow U. S. 1. The first large island, about 21 miles southeast of Florida City, is Key Largo. There is generally good collecting almost anywhere along the road here, but I suggest that you get away from the traffic by turning north on the old highway and going to the north end of the island. The roadsides through the great Key Largo hammock probably offer the richest collecting place for Lepidoptera in Florida. *Dryas julia nudeola* (March-June?) is one species which you should find in abundance. *Composia fidellissima vagrans* sometimes almost swarms along with other day-flying moths. Many West Indian skippers and other butterflies have been recorded only from this area in Florida. (March-July, fair to excellent; August, fair; September-February, poor to good.)

UPPER AND LOWER MATECUMBE KEY: Going on down U. S. 1, you will cross a series of keys. Most of them are labelled by road signs so that you can locate yourself easily. Lower Matecumbe lies just north of the first long "overseas" bridge. The hammock on the north end of the island

- Dondale, C. D., "Biology of *Agathis laticinctus* (Cress.) (Hymenoptera: Braconidae), a parasite of the Eye-Spotted Bud Moth, in Nova Scotia." *Canad. Ent.*, vol.86: pp.40-44, 6 figs. 29 Jan. 1954. Describes larvæ, life-cycle, and habits, and lists several predators and hyperparasites. [E.M.]
- Doutt, Richard L., "The teratoid larva of polyembryonic Encyrtidae (Hymenoptera)." *Canad. Ent.*, vol.84: pp.247-250. 29 Aug. 1952. The asexual larvæ of *Copidosoma* spp., parasites of *Plusia* larvæ, are discussed. [E.M.]
- Graham, Violet E., "Notes on the life histories of some butterflies of B. G." *Timebri*, no.33: pp.17-22, 2 pls. Oct. 1954. More or less extensive notes on British Guiana Lepidoptera: *Papilio anchisiades* (lime), "*Catopsilia*" *eubule*, "*C.*" *philea*, "*C.*" *statira* (*Cassia* spp.), "*C.*" *argante* (*Pithecolobium*), *Pieris monuste* (*Cleome*, *Gynandropsis*), "*Dione*" *vanillæ* (*Passiflora*), *Anartia jatrophae* (*Ruellia*), *Hemiargus zachæina* (*Vigna luteola*), *Thecla* sp. (*Cordia cylindrostachya*), *Helicopus cupido* (*Montrichardia*), *Eudamus dorantes* (*Desmodium*), *Mænas laboulberi* (sic!) (*Cabomba* & other water weeds, feeding beneath the surface) (foodplants in parentheses). [P.B.]
- Harcourt, D. G., "A species of *Tetrastichus* new to North America." *Canad. Ent.*, vol.85: p.251. 23 July 1953. Records *T. sokolowskii*, a hymenopterous parasite of *Plutella maculipennis*, previously known from Russia and southern India. [E.M.]
- Harris, Lucien, Jr., "An account of the unusual life history of a rare yucca skipper (Megathymidae)." *Lepid. News*, vol.8: pp.153-162, 3 pls. 7 Jan. 1955.
- Henson, W. R., R. W. Stark, & W. G. Wellington, "Effects of the weather of the coldest month on winter mortality of the lodgepole needle miner, *Recurvaria* sp., in Banff National Park." *Canad. Ent.*, vol.86: pp.13-19, 1 fig. 29 Jan. 1954. Notes correlation of zones of extremely low temperature with zones of high winter mortality. In general, in the Bow valley, regions of extremely low temperature are at high or low elevations, middle altitudes tending to have more moderate temperatures and to act as centres of reinfestation after periods of severe winter kill. [E.M.]
- Jovancevic, M., "Pine caterpillar (*Cnethocampa pityocampa*) found on strawberry trees (*Arbutus unedo*)" [in Serbian]. *Sumarski List*, vol.77: pp.414-426. Sept./Oct. 1953. [Not seen.]
- Kasy, Fritz, "*Phytometra* (*Plusia*) *zosimi* Hbn.: über die ersten Stände, Biologie und Züchtergebnisse" [in German]. *Zeits. Wiener Ent. Ges.*, vol.38: pp.321-333. 15 Dec. 1953. Immature stages, biology, and feeding experiments. [N.O.]
- Kurir, A., "Vergrosserung der Zahl der Raupenstadien und Verlängerung des Raupenlebens durch die Nahrung" [in German]. *Bodenkultur*, vol.6: pp.355-382. 1952. [Not seen.]
- Leclercq, J. & M., "Sur *Euproctis chrysoorrhæa* L. (Lep. Lymantriidae). Parasites - cas d'urtication" [in French]. *Lambillionæa*, vol.54: pp.53-55. 25 Aug. 1954. On the parasites of *E. chrysoorrhæa* and indication of a case of skin rash cured by the antihistaminic substances. [P.V.]
- Lindsay, I. S., "Influence of temperature on embryonic development of the pale western cutworm, *Agrotis orthogonia* Morr. (Lepidoptera: Phalaenidae)." *Canad. Ent.*, vol.86: pp.557-561, 2 figs. 7 Jan. 1955. Developmental rates at 10, 15, 20, 25, and 30°C. are plotted. A morphological key to stages of development is presented. Development is not completed at 5° or 35°. [E.M.]
- McGuffin, W. C., "Description of larvæ of forest insects: *Syngrapha*, *Autographa* (Lepidoptera: Phalaenidae)." *Canad. Ent.*, vol.86: pp.36-39, 6 figs. 29 Jan. 1954. Describes and distinguishes last-instar larvæ of *S. selecta*, *S. alias*, *S. epigæa*, and *A. ampla*. [E.M.]
- McGuffin, W. C., "Notes on life histories of some Ennominae (Lepidoptera, Geometridae)." *Canad. Ent.*, vol.87: pp.41-44. 28 Jan. 1955. Gives brief notes on *Semiothisa granitata*, *S. sexmaculata*, *Eufidonia discospilata*, *Melanolophia canadaria*, *Campæa perlata*, *Selenia alciphearia*, and *Caripeta divisata*. [E.M.]
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- MacKay, Margaret R., "The larvæ of *Choristoneura fumiferana* (Clem.) and *C. pinus* Free. (Lepidoptera: Tortricidae)." *Canad. Ent.*, vol.85: pp.128-133, 14 figs. 15 May 1953. Describes, figures, and compares larvæ of the two spp. [E.M.]
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A CORRECTION

Mr. E. L. BELL of New York has drawn my attention to a very serious mistake in my recently published *Catalogue of the American Hesperiidæ*, Volume 4. I have placed the name *otho* Abbot & Smith as a synonym of *Polites coras* Cramer and replaced it in the genus *Wallengrenia* by *pustula* Geyer as a subspecies of *druryi* Latreille. I checked up and found I had entered on my card for *otho* that "the upper figure on Abbot and Smith's plate was to be taken as the type and that it represented *coras*", dated 4th November, 1941. I cannot understand how I came to make this utterly incorrect decision. I can of course think of the further checks I ought to have made. But it is no good crying over spilt milk, and I would ask all possessors of the book to eliminate *otho* as a synonym of *coras*; to place *otho* as a specific name in place of *druryi* and as a subspecific name in place of *pustula*, which name becomes a synonym of *otho*; to alter in the index the reference number for *otho*. In a book of this nature there are certain to be a number of additions and amendments, which can be announced in due course, but in respect of this major blunder I feel that immediate action is needed.

W. H. EVANS
Honorary Associate, British Museum (Natural History)

NOTICES

Would like to exchange Japanese butterflies for those from anywhere in the world. Correspondence invited. Yoshiharu Jingo, 1478 Nippori-3, Arakawaku, Tokyo, JAPAN.

Boloria distincta Gibson, *Erebia youngi berscheli*, etc., from Yukon, N.W.T. border, for sale. Colin Wyatt, Cobbetts, Farnham, Surrey, ENGLAND.

Wanted: Papered Rhopalocera, esp. Nymphalidæ and Pieridæ (*Colias*) from all parts of North America, esp. mountains. Material from foreign countries also desired. Will exchange for the above species from the Formosan Central Mts., Europe, and Wisconsin. Exchange list on request. Donald L. Baber, 1511 Drake Ave., Burlingame, Calif., U.S.A.

I need urgently the following for study: adult specimens, pinned or papered, with full data, of all species, subspecies, and forms of North American *Limenitis*. Also need living pupæ of the above. Will purchase or exchange extremely limited stock of District of Columbia and adjacent Maryland butterflies; will have many more specimens for exchange this summer. Ward Watt, 1206 Parker Ave., Hyattsville, Md., U.S.A.

For sale: *Eneis*, *Erebia*, *Colias*, and *Boloria* from far Northern Canada at reasonable prices. R. J. Fitch, 2235 Pandora St., Vancouver, B.C., CANADA.

For sale: Barnes, McDunnough, and others: *Contributions to the Natural History of the Lepidoptera of North America*: Vols. 1-4, half leather; Vol.5, paper covers. Excellent condition. Inquiries to Prof. B. Hocking, Dept. of Entomology, University of Alberta, Edmonton, Atla., CANADA.

For sale: 1955-56 *ex larva*, carefully papered adults of *Triodes* (= *Ornithoptera*) *urvilliana*, *victoria*; *Papilio woodfordi*, *rbadamantus*; *Atacus atlas lorquini*. Max Richter, Butterfly Farm, East Durham, N.Y., U.S.A.

Have several thousand European butterflies and moths, papered, named, with full data, about 300 different species, for exchange against butterflies from the Americas, Asia, Australia or Africa. Will help build up representative coll. of European Lepidoptera. T. W. Langer, Royal Library, Copenhagen, DENMARK.

Needed urgently for study: all species and subspecies of North American *Polygonia*. Will offer in exchange New England Rhopalocera in quantity, and a limited amount of material from Florida and Colorado. IMPORTANT: Only the abdomens of *Polygonia* need be in A-1 condition. Other North American Rhopalocera will be accepted in exchanges. Richard S. Smith, Delta Sigma, Wesleyan Station, Middletown, Conn., U. S. A.

Wanted: living noctuid pupæ for forced emergence during winter months 1955-56. Any species acceptable, but Northern Army Worm (*P. unipuncta*) and Spotted Cutworm (*G. c-nigrum*) preferred. A. E. Treat, The City College of New York, New York 31, N. Y., U. S. A.

Alaskan butterflies for sale: *Parnassius eversmanni* ♂ A \$5.00, ♂ B \$4.00; *Papilio machaon alaska* ♂ A \$4.00, ♂ B \$2.75; *Eneis jutta alaskensis* ♂ A \$3.00, ♂ B \$2.00, ♀ A \$4.00, ♀ B \$3.00. "B" specimens have small nicks or tails missing. All specimens have complete data including altitude. Will consider exchange for desired Nearctic *Erebia* (Arctic material only). P. R. Ehrlich, Dept. of Entomology, University of Kansas, Lawrence, Kansas, U. S. A.

EMPLOYMENT NEEDED

An expert preparator and breeder of Lepidoptera is seeking an entomological position. He has also had many years' experience in Europe as manager of a plant protection experiment station. Interested persons please write: Mr. George Pronin, 516 Cole Street, San Francisco 17, Calif., U.S.A.