The Lepidopterists' News

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COLIAS IN CANADA

LEPIDOPTERA HIBERNATION

by Paul F. Bruggemann

"One fact which does not easily escape the notice of a collector who has been working in regions with milder winters than those of the Canadian west, is the difficulty of finding hibernating pupae and coccons. To escape the dangers of sudden and often very great temperature changes and the, perhaps more detrimental, effects of low humidity and high winds, the caterpillars have to select well sheltered locations in which to transform or hibernate. A few of their hiding places were discovered by sheer accident, others after long and diligent search, while many more have eluded detection, e.g. <u>Papilio</u> glaucus canadensis.

"During late summer and early fall the striking black and orange caterpillars of <u>Halisidota maculata</u> are very conspicuous on willows, poplars and Manitoba maple. On the latter one can also easily find those of <u>Acronicta americana</u>. The imagoes, however, are not often taken. Attempts to rear them were none too successful, but in the end I discovered that they pupate under fallen trees and bits of lumber lying on the ground, often gnawing half of the cell into the decaying wood. The "woolly bear" caterpillars of <u>Diacrisia virginica</u>, <u>Isia isabella</u> and <u>Estigmeme acrea</u>, which hibernate nearly fully grown, I have often found in mid-winter in oats sheaves, stacked for stock-feed.

"The snuggest hiding place I found one cold winter day while splitting some aspen firewood. Many of our poplars are literally riddled with the burrows of buprestid larvae. From one of their tunnels, laid open by the axe near the centre of the log, protruded two tiny black hairpencils, which turned out to belong to a barely half-grown liparid larva. I managed to rear it to maturity on <u>Populus</u> tremuloides and from the cocoon, spun between the leaves of the foodplant, emerged in July a female <u>Olene vagans</u>. ...

"In some instances our scale-winged beauties choose the wrong place for their winter quarters, as for example, <u>Nymphalis antiopa</u>, which appears to have a predilection for grain shocks with disastrous consequences to themselves in threshing time, especially on cold mornings when they are too torpid to fly. <u>N. californica</u>, which appeared in enormous numbers during 1945 in British Columbia and western Alberta, seems to share this habit. My only specimen of <u>N. j-album</u> was found hibernating in the folds of a gunny sack in an open shed." The season summary report kindly forwarded by Dr. William Hovanitz (NEWS, I: p. 96) also included several other exceptionally significant notes on <u>Colias</u> in northwestern Canada: "Food plants tentatively identified for these three species were: <u>Salix</u> sp. in grassy muskegs for <u>Colias gigantea</u>, <u>Hedysarum</u> sp. in prairie areas for <u>Colias christina</u> and <u>Trifolium</u> sp. for <u>Colias philodice</u> in meadows." At Ft. Smith, <u>gigantea</u> was "found fairly plentiful in <u>Salix</u> muskegs. Only one specimen of <u>C</u>. <u>christina</u> was taken here at this time and that one near some <u>Hedysarum</u> growing on the edge of the Wood Buffalo Park. ... Additional legumes were found to be utilized by <u>C</u>. <u>christina</u> for larval food plants but <u>C</u>. <u>gigantea</u> was always restricted to <u>Salix</u>."

"In order to compare the <u>Colias</u> of the alpine zones of the Rockies with those of the true arctic, study was made of <u>C. meadi</u>, <u>C.</u> <u>pelidne</u>, and <u>C. nastes</u> in Alberta. <u>C. meadi</u> was found at elevations of 6500 to 9000 feet on arid hill slopes in connection with <u>Astragalus</u>, <u>C. pelidne</u> was found at 7000 to 9000 feet in wetter areas laying eggs on <u>Vaccinium</u> sp. (dwarf) and <u>C. nastes</u> was found at 8000 to 9000 feet in elevation. .., <u>Colias christina</u> were studied at lower elevations ranging from 3000 to 5000 feet."

"On July 24th to 26th, <u>Colias gigantea</u> were noted to have nearly disappeared in the vicinity of Fort Smith but now Colias christina were most abundant. Evidence for hybridization between these two species at this place was obtained. ... Evidence of hybridization between these species in one locality Jasper, <u>C. christina</u> was found in large num-bers and evidence of probable hybridization between this species and <u>C. philodice</u> was found. Considerable additional work is required in order to understand the nature of the hybridization between these species of Colias. Field work alone cannot answer all questions of course. <u>Colias boothi</u>...appears to be a product of hybridization between <u>C</u>. hecla and <u>C. nastes</u>. Whether it is or not still remains to be shown. The food plants, often the best diagnostic character of these species, are unknown as yet. Local collectors can be of tremendous help in population problems such as these by obtaining data on food plants of the larvae, on retaining data on copulating pairs, on collecting data on the etc." Collectors who wish to be of help are urged to get in touch with Dr. William Hovan-itz, University of Michigan, Ann Arbor, Mich.

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ago he and Mrs. Cockerell returned from one year at Tegucigalpa, Honduras.

Cockerell always referred to himself as a naturalist, and he had tremendously broad interests. He devoted himself most intensively to work on bees and fossil insects, but Lepidoptera,molluscs, living and fossil plants, scale insects and mealy bugs, sunflower genetics, fishes, and to a lesser degree other groups of animals were the subjects of his very numerous published papers. He wrote two wellknown books: a textbook on general Zoology, and <u>Zoology of Colorado</u>. In addition to scientific works, he wrote innumerable poems and at least two plays.

Most of Cockerell's work with Lepidoptera was done very early, but he always retained an interest in the group, and only recently published a review of Ford's <u>Butterflies</u>. A New Mexico race of <u>Speveria nokomis</u> was named by the Cockerells, as will be seen in the new dos Passos and Grey <u>Speveria</u> Catalogue.

It would be a most incomplete notice that did not include Mrs. Willmatte P. Cockerell, the Professor's devoted wife and inseparable companion from the time of their marriage. She undoubtedly is a primary reason for his long, constantly fruitful life.

In his delightful autobiographic "Recollections of a Naturalist" (<u>Bios</u> 1935 to 1939), Cockerell wrote: "The scientific man is always on the road, never at the journey's end. The road leads on and on, over hills and mountains, and he who travels on it knows that he will eventually faint and fall, his best hope being that some one will take up his burden and carry it another stage beyond."

Charles & Jeanne Remington

The Peterson formula for preserving larvae (called the "KAAD Mixture"), mentioned on page 2 (January issue) is as follows:

Kerosene	-	1	part
Ethyl Alcohol	-	10	parts
Acetic Acid(Glac.)-	1	part
Dioxin	-	1	part

The dioxin needs to be used only if the kero-sene is a type not miscible (freely mixing) with ethyl alcohol. This KAAD mixture should be used for killing and fixing specimens, so larvae should be dropped into the fluid while The solution kills quickly, prevents alive. blackening, and inflates the specimen slightly, so that all the important eversible glands (such as the osmaterium of <u>Papilio</u> larvae)are everted. It is important that the specimen be kept in a flat position while dying and hardening. Otherwise, twisted specimens result. It is usually most satisfactory to carry the fluid into the field and drop the larvae in it as soon as found. If internal dissections are planned, the amount of kerosene given a-bove should be doubled. Otherwise, if inflation is too great, reduce the percentage of kerosene until results are satisfactory. Larvae may be kept in the fixative preferably for 1 or 2 hours, but up to 2 days, and then moved into 95% ethyl alcohol for permanent preserving.



Then D. A. Cakerell

THEODORE DRU ALISON COCKERELL (1866-1948)

Just as this issue was being prepared for printing we were deeply grieved to learn of the passing of Professor Cockerell at the end of January. Like hundreds of entomologists in all parts of the world, we are glad to have had him as a personal friend, and it seems unbelievable that he has passed away. He had become almost a legend of indestructibility. Last summer we stopped briefly at Boulder, Colorado, to pay our respects. He was convalescing from a hospital siege and was vigorous and clear-minded then, describing one new species of bee each day. He and Mrs. Cockerell were at their winter home in San Diego, California, at the time of his passing.

He was born and passed his childhood in England, at Beckenham and Margate, spending much of his time outdoors delving into natural history. He wrote: "My own interest in natural history began as early as I can remember anything." At the age of 12 he went to Madeira, and there made what he calls his "first scientific discovery" - the previously unknown larva of the butterfly <u>Pyrameis indica occidentalis</u>.

At the age of 21 he was forced by failing health to give up a commercial position in London and moved to Colorado. He lived there for three years in Wet Mountain Valley and took up the study of Colorado biology, specializing in Lepidoptera and flowers. Returning to England, he worked in the British Museum for a year. He then spent two years as museum curator in Jamaica, a position he was forced to abandon, again from ill health, and returned to the Rocky Mts. In 1904 he moved to Boulder,Colorado, where he began his association with the University and eventually became Professor of Zoology. He retired in 1935.

While Professor Cockerell worked especially with the insects of the southwestern U.S.A., he also traveled extensively, his trips including South America, much of Africa, Europe, Siberia, Japan, and Australia. Only a year

THE LEPIDOPTERISTS' NEWS THE NOMENCLATURE OF THE SPECIFIC COMPLEX

by Sergius G. Kiriakoff Zoological Laboratories University of Ghent,Belgium

Under the existing International Rules of Zoological Nomenclature there is only one way to name intraspecific complexes. Art. 2 of the Rules states: "The scientific designation of animals is ... trinominal for subspecies", and Art. 17 of the same: "If it is desired to cite the subspecific name, such name is written immediately following the specific name, without the interposition of any mark of punctuation".

This is quite obviously insufficient. Indeed, taxonomic practice recognizes several kinds of intraspecific (corresponding partly to the official "subspecies") and circumspecific (so far without official recognition) complexes of different natures. It seems to me very important that a scientific name should be so composed as to give a clear indication of the nature of the given complex. The following scheme is one I have drawn up, largely according to the views of Professor J.S. Huxley (Evolution, London 1942), who was, as far as I am aware, the first to propose the use of capital letters to distinguish between the different aspects of intraspecific variations.

- A. INTRASPECIFIC CATEGORIES:
 - 1. <u>Geographical race</u> The name of such a race follows the specific name and is preceded by a capital G.
 - 2. Ecological race As above, but preceded by a capital OE.
 - 3. Cytological race As above, but preceded by a capital C.
 - 4. <u>Micro-race</u> (Huxley prefers the term "microsubspecies" to this term, which is from Dobzhansky)- Should not be named. However, if it should later be preferred to name a micro-race, the use of quadrinomials could not, it seems, be avoided. Such quadrinomials become eventually quinquenomials if a subgeneric name is cited;
 - 5. <u>Cline</u> Composed of the names of the two peripheric (initial and terminal) races which the cline includes, this combination being preceded by the abbreviation Cl (proposed by Huxley). Each of the peripheric races is named as under 1 or 2 above.

The arrangement of 1, 2, and 3 is the one proposed by Huxley, only I substitute an OE for the E of Huxley; it stands for "intraspecies oecologica"; Ecology is spelled in many languages with an initial OE.

- B. CIRCUMSPECIFIC CATEGORIES:
 - 1. Species proper Named binomially.
 - 2. <u>Semi-species</u> The name of the first described form included in a semispecific complex precedes that of each of the remaining forms involved and is placed in parentheses. If the semi-specific name is that of the first described form involved, this last is of course repeated and parentheses used as above.
 - 3. <u>Ultra-species</u> Named binomially; the name used is that of the first described form, preceded by a capital U. The name of each form included in an ultra-species is written following the name of the first described form in the complex. The prior form is placed in ordinary parentheses- () if the included form is a race or a semi-species, and in square parentheses- [] if it is a good species.

I do not think it best to restrict the term "ultra-species"(super-species of Mayr)to sympatric forms, but to include in it the semi-species and the sibling-species. The reason is that I cannot see why, if geographical isolation should be selected to serve as the basis for a superspecific complex, ecological and physiological isolation should not. If, however, it seems necessary to make a distinction between sympatric and allopatric ultra-species, the term "ultra-species" could be applied to the first, with "super-species" as a geographical subgenus.

For the proposed terminology of intra- and circumspecific categories, my article "On the So-called "Lower" Taxonomic Categories" should be consulted. (Lep. News II:3-4).

The writer's work is under the direction of Prof. Dr. P. van Oye of the Zoological Laboratories of Ghent State University, Belgium.

Too little is now known of the genetics of American or any other butterflies immediately to endorse or discard M. Kiriakoff's system. However, it does have attractive possibilities as an easy shorthand for expressing genetics in taxonomy. In order to permit NEWS readers to understand it more clearly, an attempt has been made to apply the scheme to a group of well-known American butterflies. First it is necessary to emphasize the fact that the following situation is hypothetical, having no breeding evidence known to the writer to support it. It is used mainly to arrange a realistic background on which to apply Kiriakoff's scheme.

<u>HYPOTHESIS</u>: The American <u>Papilios</u> including <u>ajax</u> L. (<u>asterius</u> Cram), <u>brevicauda</u> Saund., <u>bairdii</u> Edw., <u>nitra</u> Edw., <u>zelicaon</u> Luc., <u>machaon</u> L., and <u>indra</u> Reak., etc., are all closely related, having relatively recently become separated. So all members of this group produce at least a small percentage of fertile offspring when cross-mated. 5% of the following cros-ses are fertile:(<u>ajax x machaon</u>), (<u>machaon x indra</u>), (<u>ajax x indra</u>);70% of the offspring of the following are fertile:(<u>ajax x brevicauda</u>), (<u>ajax x bairdii</u>), (<u>brevicauda x bairdii</u>); 90% of the offspring of the following are fertile:(<u>ajax x americus</u>), (<u>brucei x bairdii</u>), (<u>bairdii x rud-kini</u>), (<u>rudkini x brucei</u>), (<u>rudkini x oregonia</u>), (<u>brucei x oregonia</u>), (<u>bairdii x oregonia</u>).

CONCLUSIONS: Using inter-specific sterility as the primary taxonomic criterion, it is clear that the above complex should be designated the ultra-species machaon. This ultra-spe-



cies contains 3 species: machaon, indra, and ajax (using the oldest name in each group). The species ajax contains three semi-species: ajax, <u>bairdii</u>, and <u>brevicauda</u>. <u>P. ajax</u> includes two geographic races: ajax and americus. P. bairdii includes the geographic races: bairdii, brucei, rudkini, and ore-gonia; and bairdii is also, in some parts of its range, the lowland (ecological) race with the highmountain brucei and rudkini. For the present examples the semispecies and races of machaon and indra will not be considered.

HYPOTHETICAL DIAGRAM OF THE ULTRA-SPECIES PAPILIO U.MACHAON with the components of the species ajax shown in detail

APPLICATION: Using Kiriakoff's scheme, names of the above organisms would be written in the following ways, in a series of sample combinations:

- a. <u>Papilio</u> U.[<u>machaon</u>] <u>indra</u> Reak. b. <u>Papilio</u> U.[<u>machaon</u>] <u>brevicauda</u> Saund. c. <u>Papilio</u> U.(<u>machaon</u>) <u>brevicauda</u> Saund. c. <u>Papilio</u> (<u>aiax</u>) <u>aiax</u> L. c. <u>Papilio</u> (<u>aiax</u>) <u>c.oregonia</u> Edw. c. <u>Papilio</u> (<u>Battus</u>) <u>philenor</u> <u>c.acauda</u> <u>c.oregonia</u> Edw. c. <u>Papilio</u> (<u>Battus</u>) <u>c.oregonia</u> Edw. c. <u>C.acauda</u> <u>c.oregonia</u> Edw. b. <u>Papilio</u> U.[<u>machaon</u>] <u>machaon</u> L. d. <u>Papilio</u> U.(<u>machaon</u>) <u>G.oregonia</u> Edw. f. <u>Papilio</u> (<u>ajax</u>) <u>bairdii</u> Edw. h. <u>Papilio</u> (<u>ajax</u>) <u>OE.brucei</u> Edw.

In the above examples, <u>P.machaon</u> is written as an ultra-species (a-d, j) or a species (b). <u>P.indra</u> is written as a species (a); <u>P.brevicauda</u> (c) as a semi-species; <u>P.oregonia</u> (d,g), <u>P.americus</u> (i), and <u>P.acauda</u> (k) as geographic races; <u>P.ajax</u> as a species; <u>(e-h,i,j)</u>, a semi-species (e), and a geographical race (i); <u>P.brucei</u> as a geographical race (j) and as an ecological race (h); <u>P.bairdii</u> as a semi-species (f,j); and <u>P.philenor</u> as a species (k). The amazing amount of information that can be expressed briefly by the Kiriakoff system is shown in (j) and (k). The former shows that <u>machaon</u> is highly intersterile with <u>ajax</u>, that <u>ajax</u> has a higher fertility in crosses with <u>bairdii</u> but is still quite well isolated repro-ductively, and that <u>bairdii</u> and <u>brucei</u> are highly interfertile. There <u>machaon</u> is written as an ultra-species, <u>ajax</u> as a species, <u>bairdii</u> as a semi-species, and <u>brucei</u> as a geographical race, and all are in the subgenus <u>Papilio</u>. The last example (k) shows <u>philenor</u> as a species, with <u>acauda</u> as a geographical race, and both in the subgenus <u>Battus</u>.

CATEGORIES BELOW CLINE: As Kiriakoff emphasizes (NEWS II:3-4), varieties, seasonal, sex-ual, and other "forms", and aberrations (incl. "transition forms") should not be named and are entitled to no protection under the legal Code of Nomenclature. If Lepidopterists insist on using them, his suggested system would be applied as follows:

- 1. Papilio glaucus Linné (?f. "turnus")

- 2. <u>Colias</u> U.(chrysotheme) philodice Latr. (ab."nigridice")
 3. <u>Colias</u> (Zerene) caesonia Stoll (f.autum."rosa")
 4. <u>Speyeria</u> (<u>Semnopsyche</u>) aphrodite G.manitoba Cherm.& Cherm. (tr.f."mayae")
 5. <u>Everes comyntas Godt.</u> (\$f.vern."meinersi")
 6. <u>Strymon falacer</u> Godt. (ab."heathi")
 C.L. Ren

C.L. Remington



A Radcliffe moto

BRIEF BIOGRAPHIES

10. Augustus Radcliffe Grote (1841-1903)

In the summers around 1854 Brooklyn Lepidopterists became accustomed to sudden visits from three small boys, who had been eagerly collecting insects in the wild areas which were still abundant around the city. The boys were especially interested in identifying their captures and of learning the methods of preparation as well as the biology of the species. One of these boys, Augustus Grote, later became an acknowledged authority on Lepidoptera. He had been born in England, in the Liverpool suburb called Aigburt, on Feb. 7, 1841, but came to the United States in early childhood with his parents, and grew up in Brooklyn. Around 1870-71 he resided in Alabama,where he became interested in the Southern insect fauna and studied some of the lepidopterous economic pests. In 1873 he returned north to become the curator of the Buffalo (N.Y.)Society of Natural Scienceş and remained there for nine very active years. In 1882 he moved to Brighton, Staten Island,New York, but after two years he left for Germany, his father's home, and resided in Bremen. In 1895 he moved to Hildesheim, Germany, where he was Director of the Roemer Museum until his death on Sept. 12, 1903.

Grote was a serious student of Lepidoptera and did careful, accurate work. He published about 100 papers on the order and described over 1000 species, mostly Phalaenidae (Noctuidae). He was the first North American to work up this family, and his "Checklist of the Noctuidae of North America" appeared in 1876. He also studied other families of moths

such as the Sphingidae and Zygaenidae, on which his catalogues were published in 1873. One of Grote's contributions to the whole field of moth study was his comprehensive checklist of all North American moths (1882), and the identification of species described by Guenée and Walker. In much of his work. especially while in Buffalo, he cooperated with Coleman T. Robinson, a wealthy New York broker, and the "G. & R." team described many species of moths together. (Most of the Grote and Robinson types are now in the American Museum, while Grote's valuable personal collection was sold to the British Museum at his death.) He also contributed to the econ-omic field, through a series of fine papers on the southern cotton caterpillar (<u>Alabama</u> <u>argillacea</u> Hbn.) and the pine <u>Nephopteryx</u>. In 1871 he went to Washington to advise a government appropriation for the investiga-tion of the cotton pest, and was among the foremost to advocate the migration theory in regard to the insect. Other papers of Grote reveal his interest in wing and antennal structure and "genealogy" of Lepidoptera.

Grote was an excellent writer and was connected with three entomological journals, all of which were unfortunately short-lived. He founded and edited the first volume (1879) of the <u>North American Entomologist</u> while at the Buffalo Society, and was co-editor of <u>The Practical Entomologist</u>, founded in 1865 by the American Entomological Society in Philadelphia. He also served on the publication committee for <u>Papilio</u>, and was thereby associated with Henry Edwards, its editor.

Personally, this Lepidopterist must have been an interesting individual. His numerous non-scientific avocations enriched the life of his family (including six children) with such cultural accomplishments as poetry and music, and a number of his poems were pub-lished. He would often relax in spare hours to write opera music, or practice the programs for his position as church organist. He was a philosopher and theologian, and even an authority on ancient Rome. With these numerous sidelights it is small wonder that his friends described him as a delightful companion and good conversationalist. The portrait shown above is apparently unpublished. It is presented through the courtesy of the Museum of Comparative Zoology at Harvard University. It was made by H.L. Bliss of Buffalo, N.Y. On the back is written: "A.R. Grote June, 1874" in Grote's hand. The signature below the portrait is a facsimile from a letter also in the M.C.Z. files written to Alexander Agassiz Nov. 18, 1897, from Hildesheim, Germany, re-questing for the Roemer Museum a publication on American Paleontology.

A bit of Grote's unassuming, knowledgeseeking attitude towards biological work is seen in the following, an apt comment on scientific progress, in one of his papers correcting another Lepidopterist's work: "While it is proverbially human to err, it is a wise dispensation of Providence that out of all our errors there comes light - if not for us, then for those who come after us."

J.E.R.

- 29. Beaufoy, S., "British hairstreaks." <u>Coun-</u> try Life (London), vol. 102: pp. 376-377. 22 Aug. 1947. Includes: <u>Callophrys rubi</u>, <u>Thecla quercus</u>, <u>T. betulae</u>, <u>Strymonidia</u> <u>w-album</u>, <u>S. pruni</u>. Not seen by us. 30. Beebe, William, "Scale Adaptation and Ut-
- 30. Beebe, William, "Scale Adaptation and Utilization in <u>Aesiocopa patulana</u> Walker(Lepidoptera, Heterocera, Tortricidae)." <u>Zoologica</u> (N.Y.), vol. 32: pp. 147-152, figs.
 1-6. 12 Nov. 1947. Specimens taken at Rancho Grande, Venezuela, identified by J. F.G. Clarke and T.N. Freeman. An interesting detailed account of a challenging habit pattern and structure adaptation in this moth, which laid 300 eggs in a round mass and erected an upright "palisade" of sharp scales completely surrounding the eggs, apparently protecting them from predators. Clear photographs and drawings.
- 31. Beirne, Bryan P., "The Origin and History of the British Macro-Lepidoptera." <u>Trans.</u> <u>Royal Ent. Soc. London</u>, vol. 98: pp. 273-372, 45 maps. 23 Oct. 1947. The fact that the British Lepidoptera are far better known than those of any comparable region in the world permits a biological historian like Dr. Beirne to view the fauna and to attempt to reach conclusions regarding its origin and history. Beirne concludes that all the "existing species of Macrolepidoptera became established ... by migration from abroad", and that the five species of moths still known only from Britain will be found elsewhere eventually. He bases his reasoning on ecological, taxonomic, and zoogeo-graphical evidence, and maintains that nearly all the species arrived via land connections, with a few others introduced by man or established by overseas migra-The British Macrolepidoptera are tion. traced back 120,000 years, during which fime they arrived in six waves, three waves from cold regions alternating with waves from warmer regions as climatic changes occurred. One wave, the last, following the last glacial period and preceding the sea barrier between England and the Continent, brought 46% of the present species. Beirne notes that <u>species</u> of Lepidoptera must re-quire <u>over</u> 120,000 years to evolve, that strong <u>subspecies</u> develop in about 50,000 years, <u>weaker races</u> in 25,000, and <u>small</u> highly <u>endemic</u> races (such as <u>Lycaena d</u>. <u>dispar</u>) in about 8,000 years. The work is concluded by references and an index to spp 2. Bentinck G.A. "Permene spelleneas mibi
- concluded by references and an index to spp. 32. Bentinck, G.A., "Pammene snellenana mihi nov. spec." Tijdschrift v. Ent. (Netherlands), vol. 88: pp. 155-156(1945). 1 Oct. 1947. Describes as new P. vernana(of Snellen, nec. Knaggs), actually giving no shred of description, referring instead to Snellen's book. Says the genitalia are distinctive but does not show how or give figures.
- 33. Blathwayt, E.C.H., "Effects of the Severe Weather on Spring Lepidoptera at Weston-Super-Mare up till End of April 1947." <u>Ent.</u> <u>Rec. & Journ. Variation</u>, vol. 59: p. 120.
 Oct. 1947.
- 34. Blom, W.L., "Een nieuwe vindplaats van <u>Polyommatus optilete</u> Knoch." (In Dutch). <u>Tijdschrift</u> v. Ent. (Netherlands), vol.88: pp. 331-333 (1945). 1 Oct. 1947. Describes and names six new varieties from Norway.

- 35. Bourgogne, Jean, "Quelques observations relatives au 'procès de l'année 1945'." (In French). L'Entomologiste (Paris), vol. 3: pp. 55-58. March 1947. A summary of the 1947 Lepidoptera season in France, dealing almost entirely with butterflies.
- 36. Bourquin, Fernando, "Metamorfosis de Tolype pauperata (Burmeister), 1878." (In Spanish). <u>Rev. Soc. Ent. Argentina</u>, vol. 13: pp. 301-308, 1 fig. 10 June 1947. Life history, with descriptions of larva and pupa and figures of latter. Two spp. of parasites found.
- 37. Busck, August, "Family Prodoxidae. Synoptic Table of Genera." in Susan Delano McKelvey, "Yuccas of the Southwestern United States", pt. 2, 192 pp., 65 pls. Arnold Arboretum, 1947. Kindly brought to our at-tention by Prof. I.M. Johnston. This monograph of the Yucca plants is indispensable to anyone working on Yucca insects. Mrs. McKelvey collected yucca moths during her years of travel and sent them to Mr. Busck for identification. Pp. 180-185 of the mo-nograph report the results of his careful study of the 2000 specimens of Prodoxidae. Busck wrote: "The small number of species represented was disappointing, because we had somehow suspected, that each species of Yucca would harbor a different species of each of the two genera involved." Actually, there are only 5 <u>Tegeticula</u> and 9 <u>Prodoxus</u>, mostly on the California <u>Yuccae</u>. Busck synonymizes Riley's intermedius under T. yuccasella, finding it to be a rather common abnormality in which the females have the tentacles on the maxillary palpi undeveloped. Busck considered <u>T.</u> apicella and <u>extra-</u> nea as color varieties of <u>T.maculata</u>. Thus, of the ll spp. in the family accepted by Busck, 10 were named by C.V. Riley in his remarkable studies on the group prior to 1893. The collection included the first T. paradoxa, P. pulverulentus, and P. sor-didus since Riley's time. The synoptic table gives the generic and specific syno-nymy of the family, with the primary reference for each name, the distribution, and detailed listing of all the host spp. of Yucca, the latter prepared by Mrs. McKelvey. Eleven other species of moths found on the yuccas are listed, but no mention of Megathymus.
- 38. Cherian, M.C. & M.S. Kylasam, "Studies on the Spotted Bollworms of Cotton - <u>Earias</u> <u>fabia</u> S., and <u>E. insulana</u> B." <u>Journ. Bombay Nat. Hist. Soc.</u>, vol. 46: pp. 658-667. Apr. 1947.
- 39. Corbet, A. Steven, "Papers on Malaysian Rhopalccera: II. The Type of <u>Papilio leucostictos</u> Gmelin, 1790." <u>The Entomologist</u>, vol. 80: pp. 228-229, pl. IV, fig. 1. Oct. 1947.
- 40. Darlow, H.M., "Observation on the Butterflies of Ceylon." <u>The Entomologist</u>, vol. 80: pp. 204-205. Sept. 1947. 41. Darlow, H.M., "Collecting Notes for 1947."
- 41. Darlow, H.M., "Collecting Notes for 1947." Ent. Rec. & Journ. Variation, vol. 59: pp. 117-119. Oct. 1947.
- 42. Daviault, L., "L'anisote de l'erable." (In French). <u>Fôret Québeccise</u>, vol. 12: pp. 495-496. Sept. 1947. <u>Anisota rubicunda</u> and maple. Not seen by us.

- 43. Diakonoff, A., "A Caterpillar occurring in Nepenthes pitchers (Lepidoptera: Noctuidae)." idae)." <u>Proc. Royal Ent. Soc.</u> London (A), vol. 22: pp. 70-71. 20 Sept. 1947. Studies made while author was Japanese prisoner on Sumatra. Nepenthes is a genus of pitcher plants - plants trapping insects in water caught from rain in modified leaves. Diakonoff found larvae of the noctuid, <u>Eu-</u> blemma radda Swinhoe, resting in the tiny pitcher, with half the body (either half) immersed in the water for many hours at a time. The larvae grew and pupated without damaging the plant at all, so he concludes they fed on the insect remains "heaped in abundance on the bottom of every pitcher." Relatively few Lepidoptera are known to feed on animal matter, so every example is of special interest.
- 44. Dillon, Lawrence S., "Some New Subspecies of Butterflies from Dominica, B.W.I." Bull. of Butterflies from Dominica, B.W.I." <u>Bull</u>. <u>Brooklyn Ent. Soc.</u>, vol.42: pp.97-102. "June" (Dec.) 1947. Describes as new: <u>Appias (Glutophrissa)drusilla</u> subsp.<u>comstocki</u>, <u>Phoebis agarithe subsp.pupillata, Eurema</u> <u>venusta subsp. emanona, Panoquina nyctelia</u> <u>subsp. agari</u>, all from Dominica. No fig-uresi Brief notes on <u>Eurema nise</u> and <u>E.</u> <u>venusta (selecting Colombia as type local-ity on flimsy grounds). 45. Doets, C., "Zimmermannia heringiella nov. spec. Nepticulidae (Lepidoptera)." <u>Tijd</u>-<u>schrift v. Ent.</u> (Netherlands), vol.88: pp. <u>504-506, 5 figs. (1945).</u> 1 Oct. 1947. Careful description. Male genitalia de-scribed and figured. Reared from mines in oak in Holland. Adult and mine figured.</u>
- scribed and figured. Reared from mines in oak in Holland. Adult and mine figured.
 46. Downes, J.A., "Notes on <u>Herse convolvuli</u>
 L., <u>Pararge aegeria</u> L. and other Uncommon Scottish Lepidoptera." <u>Ent. Monthly Mag.</u>, vol.83: pp.217-218. Sept. 1947.
 47. Eliot, Nevill, "More on Continental Drift, Procise Jevinia the ord R. willide E." "The
- Precis Lavinia Hb. and P. villida F." The Entomologist, vol.80: pp.230-234. Oct. 1947. 48. Federley, Harry, "Die Konjugation der Chromosomen bei den Lepidopteren." (In Ger-
- man). <u>Commentationes Biologicae</u> (Helsing-fors, Finland), vol.9, no.13: 12 pp., 8 figs. 1947. This author is one of the few ever to study Lepidoptera chromosomes and is probably the most active of all in this respect. The present paper describes and figures meiosis in <u>Trichiura crataegi</u> L. (Lasiocampidae). The haploid number is 28 (rarely 29). The figures show chiasmata and the location of centromeres in these Lepid-
- optera chromosomes. 49. Federley, Harry, "Polyploidie und Non-Disjunction in der Gametogenese einiger Lepid-opteren." (In German). <u>Commentationes Bio-logicae</u>, vol.9, no.17: 9 pp., 4 figs. 1947. Discusses and illustrates both diploid and haploid metaphase plates of spermatogenesis of <u>Poecilocampa populi</u> (n=36), <u>Dasychira</u> <u>selenitica(n=22)</u>, and <u>Dicranura</u> <u>vinnula</u> (n= 21). Especially interesting and <u>significant</u> is a series of six metaphases of the offspring of a cross between vars. femnica and germanica of <u>D.vinnula</u>, showing 27, 39, 41, 39, 42, 42 in different cells studied. 50. Fleming, Henry, "Sphingidae(Moths) of
- Rancho Grande, North Central Venezuela." Zoologica (N.Y.), vol.32: pp.133-145. 12

Nov. 1947. 67 spp. taken at light. Annotated list, giving dates and abundance. Commonest was Erinnyis ello. Many of the species are also North American. In general best collecting hours were 7 to 11 and 4 to dawn. Makes excellent point that explanation of abundance of moths at light during rain must not be that the rain produces emergence, since the swarms coming in during very sudden, brief tropical showers would not have time for expansion and flight.

- 51. Ford, E.B., "A Murexide test for the re-cognition of pterins in intact insects." <u>Proc. Royal Ent. Soc.</u> London (A), vol.22: <u>pp.72-76.</u> 20 Sept. 1947. The white and yellow pigments of pierid butterflies are known as pterines and are formed by utilizing uric acid which is normally a poisonous waste product. Dr. Ford found a simple test to detect these pterines even in a small spot on a wing, by exposing the specimen to chlorine. The white pterine is leucopterin (C6H502N5) and the yellow is xanthopterin (C6H502N5). Ford tested 17 spp. of 4 subfamilies of Pieridae and found all positive. Tests on 20 spp. of ten other families of butterflies were all negative.
- 52. Ford, E.B., "Studies on the chemistry of pigments in the Lepidoptera, with reference to their bearing on systematics. 5. <u>Pseudo-pontia paradoxa</u> Felder." <u>Proc. Royal Ent.</u> <u>Soc. London(A)</u>, vol.22: pp.77-78. 20 Sept. 1947. This very strange tropical African butterfly is placed in its own subfamily of Pieridae, but it appears to be a pierid since the Murexide test (see#51) is positive. Among other peculiarities, P. paradoxa has no club on the antenna.
- <u>doxa</u> has no club on the antenna. 53. Ford, L.T., "The Psychidae." <u>Proc. &</u> <u>Trans. S. London Ent. & N.H.Soc., 1945-46:</u> pp.103-110, pl.11, col. 23 Nov. 1946. Discussion of family, with descriptions of adults, cases and larvae of the 18 spp. in <u>Distain</u> Cool colored plate of adults of Britain. Good colored plate of adults of
- 13 spp. and cases of 15 spp. 54. Ford, R.L.E., "The use of common salt for keeping down vegetable and other moulds during breeding experiments." Proc. Royal Ent. Soc. London (A), vol.22: pp.86-88. 20 Sept. 1947. Found that moulds in breed-ing pans permitted only about 15% of larvae to produce adults, but spraying a solution of 1 part table salt to 50 parts water on the leaves and soil of the pans resulted in about 80% adult production. This method may apply only to microlepidoptera breeding in rolled leaves, flower buds, leaf mines etc. It will also help control mould in debris and excrement on the bottom of breeding cages for any Lepidoptera and has no harmful effect on species which burrow
- into the soil to pupate. The exact salt concentration of the spray is important. 55. Fox, Richard M. & Jean W., "Ithomiinae (Lepidoptera) of Rancho Grande, Venezuela, Including Two New Species." <u>Zoologica(N.Y.)</u>, vol.32: pp.173-178, 1 pl. 29 Dec. 1947. Annotated checklist of 30 spp. of 19 genera found in 800 specimens. The new spp. are: found in 800 specimens. The new spp. are: <u>Pteronymia</u> <u>beebei</u> and <u>P. nubivaga</u>. The ho-lotypes and \mathcal{J} genitalia of both spp. figur-ed, with \mathcal{J} genitalia of <u>P. artena</u> (Hew.).

- 56. Gallay, Henry, "Une remarquable aberration: <u>Melanargia galathea</u> ab. <u>coronae</u> nov. (Lep.,Satyridae)." (In French). <u>Mitt.</u>
 <u>Schweiz. Ent. Ges.</u> (Switzerland), vol. 20: pp. 594-596, 4 photos. 8 Oct. 1947. It happens in Switzerland, too!
 57. Huggins, H.C., "<u>Anania nubilalis</u> (Lep. Pyralidae) in South Essex." <u>The Entomologist</u>, vol. 80: pp. 206-207. Sept. 1947. Species appears to be establishing itself in England.
- in England.
- 58. Jackson, R.A., "Causes for Seasonal Variation in the Numbers of Lepidoptera." Proc. & Trans. S. London Ent. & N.H. Soc., 1945-46: pp.43-51. 23 Nov. 1946.
- 40: pp.42-91. 29 Nov. 1940.
 59. Krogerus, Harry, "Die Veränderungen der Schmetterlingsfauna des Lojo-Gebietes in Südwestfinnland Während der letzten Jahrzehnte." (In German). <u>Acta Soc. Pro Fauna & Flora Fennica</u> (Helsingfors), vol. 65, no. 1: 52 pp. 1945. Detailed report on population fluctuations of various butterflies and moths in S.W. Finland.
- and moths in S.W. Finland. 60. Landsman, H., "<u>Argynnis aglaja</u> L. uit de Krimpenerwaard." (In Dutch). <u>Tijdschrift</u> v. Ent. (Netherlands), vol. 88: pp. 395-396 (1945). 1 Oct. 1947. 61. Lempke, B.J., "<u>Cabera exanthemata</u> Scop. and its forms." <u>Tijdschrift v. Ent</u>. (Neth-erlands, vol. 88: pp. 347-352, figs. 1-12 (1945). 1 Oct. 1947. Careful treatment of the 14 "forms", including 6 new, with all but 2 sketched. Genetics would seem the
- the 14 "forms", including o new, with all but 2 sketched. Genetics would seem the most successful approach to these forms. 62. Lepesme, P., "Les Insectes des Palmiers." (In French). 904 pp., 638 figs. Paris, 1947. An elaborate treatise on the ecological, systematic, and economic aspects of the insects of the palms. Most of the Lep-idoptera are phytophagous and attack the leaves, although a few are saprophagous and a few eat the flowers and fruit. The sys-+ smatic portion on Lepidoptera is on pp.283-429, with figs. 208-312, and was prepared by J. Bourgogne. This is largely a compilation of the records in the literature, but contains some redescriptions and numerous original drawings and photographs. 161 spp. are described (none new) and others briefly mentioned. There are 55 Tineoidea, 18 Pyraloidea, 40 Psychoidea (Limacodidae called Heterogeneidae), 9 Bombycoidea, 14 Hesperioidea, 24 Papilionoidea. Conspicu-ously absent are Geometridae, Phalaenidae, and Lycaenidae.
- 63. Matthews, J.K., "Lepidoptera of the Coastal Sandhills of Lancashire." <u>Proc.& Trans.</u>
 <u>S. London Ent. & N.H.Soc.</u>, 1945-46: pp.72-78. 23 Nov. 1946.
 64. Mellumo. Doubled D. "Witter an Wellumo.
- 64. McElvare, Rowland R., "Notes on Heliothi-inae." <u>Bull. Brooklyn Ent. Soc.</u>, vol. 42: p. 96. "June" (Dec.) 1947. Resurrects <u>He</u>liosea fasciata Hy.Edw. from synonymy and places it in genus <u>Heliothodes</u>. Agrees with Benjamin, placing <u>Melicleptria</u> sabulosa as synonym of <u>Heliosea pictipennis</u>. Brief
- notes on <u>H. pictipennis</u>. 65. Meyer, A., "Untersuchungen über die Bekämpfung des grauen Lärchenwicklers. (Sema-<u>sia diniana</u> Gn.) in den Wäldern des Ober-Engadins." (In German). <u>Mitt. Schweiz.</u> <u>Ent. Gesell</u>. (Switzerland), vol. 20: pp.

452-474, 5 figs. 8 Aug. 1947. Principally deals with factors of pest control, but includes biological notes and photographs of

- the species, a tortricid moth. 66. Michener, Charles D., "A Four-legged Butterfly". <u>Natural History</u> (N.Y.), vol.57: p.27, 2 photos. Jan. 1948. Authoritative popular account of nymphalid butterfly legs, with good photos.
- 67. Murray, H., "Some Rare Lepidoptera from Southern Ireland." <u>Irish Naturalists</u>: Jour-nal (Belfast), vol.9: pp.77-78. July 1948. Annotated list of 42 spp. of rare Macrolepidoptera.
- 68. Nunberg, Marian, "First contribution to the knowledge of the native insects, mining the leaves." (In Polish). Fragmenta Faunistica Musei Zoologici Polonici (Warsaw), tom.5, nr.6: 27 pp. 21 Aug. 1947. Anno-tated list including 4 Eriocraniidae, 39 Nepticulidae, 1 Incurvariidae, 2 Leucopter-idae, 1 Lyonetidae, 5 Tischeriidae, 4 Buc-culatrigidae, 1 Phyllocnistidae, 33 Gracilariidae, 5 Coleophoridae, 1 Heliozelidae, 1 Momphidae, 2 Gelechiidae. Includes a list of host plants with all miners found. 19 references listed.
- 19 references listed.
 69. O'Farrell, A.F., "Lepidoptera in Northern Ireland, 1943-45." <u>Irish Naturalists' Jour-nal</u> (Belfast), vol.9: pp.76-77. July 1947. Merely a list of species taken.
 70. Oiticica Filho, Jose, "Revisão dos Nomes Genéricos da Familia Sphingidae (Lepidopte-Debenericos da Catalia Sphingidae)
- ra). Parte 1. Subfamilia Sphingidae (Lepidopte-ra). Parte 1. Subfamilia Sphingidae Butler, 1877." (In Portuguese). <u>Bol.Museu Nacional</u> (Rio de Janeiro), no.66:57 pp. 15 June 1946. Gives a list of all the generic names of the World Sphingidae, with the genotype of each, and a very extensive bibliography.
- Important for all workers in the Sphingidae. 71. Parfitt, R.W., "<u>Eulia formosana</u> Geyer (Lep. Tortricidae): a Species New to the British List." <u>The Entomologist</u>, vol.80: pp.225-227, pl.IV, figs.2-4. Oct. 1947.
- 72. Pendlebury, H.M., "Lepidoptera (Heterocera)" and "Lepidoptera (Rhopalocera)" in "Contributions to the Natural History of Christmas Island, in the Indian Ocean." Bull. <u>Raffles Museum</u> (Singapore), no.18: pp.58-80. Oct. 1947. Pp.58-73 contain an annotated list of 76 spp. of moths. Pp.74-80 deal with the 14 spp. of butterflies considered as residents of the island. A-
- considered as residents of the island. A-bout 100 other spp. of moths have not yet been positively identified. 6 Sphingidae, 16 Noctuidae, 15 Geometridae are included.
 73. Petersen, B., "On the difference in species between <u>Boloria pales</u> Schiff. and <u>Boloria arsilache Esp." Uppsala U. Zool. Bidr.</u> (Sweden), vol.25: pp.335-343. 1947. Not seen by us.
 71. Ramos. J.A. "The Insects of Mona Island
- 74. Ramos, J.A., "The Insects of Mona Island (West Indies)". Journ. Agr. Univ. Puerto Rico, vol.30: pp.1-74, 2 pls. 17 July 1946. The island is mid-way between Puerto Rico and Hispanicla. Lists 526 spp. of insects, incl. 87 Lepidoptera in 20 families. Most moths det. by W.T.M. Forbes, most butter-flies by W.P. Comstock. Forbes describes as new: <u>Ptychopoda</u> monata (Geometridae).
- 75. Rawlins, J.W., "Notes on Some Butterflies from Penang and Province Wellesley, Malaya." Journ. Bombay Nat. Hist. Soc., vol. 46: pp.687-691. Apr. 1947. Annotated list of 87 spp.

- 76. Romieux, Jean, "Migrations de Lépidoptèr-es observées dans la région de Genève en 1946." (In French). <u>Mitt. Schweiz. Ent.</u> <u>Gesell.</u> (Switzerland), vol.20: pp.551-564. 8 Oct. 1947. Discusses the 1945 migrations of <u>Celerio</u> <u>lineata livornica</u>, <u>Colias</u> <u>edusa</u>, Pyrameis cardui, Laphygma exigua, Heliothis peltigera, Plusia gamma, Pionea ferrugalis. 77. Romieux, Jean, "Opisthodontia rotundata
- Berio et Stenophatna denticulata Rmx." (In French). <u>Mitt. Schweiz. Ent. Ges.</u>, vol.20: p.606. 8 Oct. 1947. Synonymizes latter under former, but transfers <u>rotundata</u> to
- genus <u>Stenophatna</u>. 78. Scholten, L.H., "Het <u>Atalanta-bos</u>. Herin-nering aan de Bevrijdingszomer 1945." (In
- nering aan de Bevrijdingszomer 1949." (In Dutch). <u>Tijdschrift v. Ent</u>. (Netherlands), vol.88: pp.489-492 (1945). 1 Oct. 1947. On <u>Pyrameis</u> (= <u>Vanessa</u>) <u>atalanta</u>.
 79. Sevastopulo, D.G., "Tukdah Diary, September and November 1945." <u>Ent. Rec. & Journ. Variation</u>, vol.59: pp.121-122. Oct. 1947. Continuation of notes from India.
 80. Morgany H. "Expected duptelle Herd
- 80. Thomann, H., "Exapate duratella Heyd. (Lep. Tortr.) ein spätfliegender Wickler der Graubündner und Walliser Alpen." (In German). <u>Mitt. Schweiz. Ent. Gesell</u>.(Swit-zerland), vol.20: pp.475-483, 5 figs. 8 Aug. 1947.
- 81. Townsend, A.L.H., "An Introduction to Moth Collecting." <u>Nature in East Africa</u>, no.3: pp.19-21. Sept. 1947.
- 82. Toxopeus, L.J., "<u>Nephele didyma</u> F. in Ja-va (Lep. Sphing.)." <u>Tijdschrift v. Ent.</u> (Netherlands), vol.88: pp.345-346 (1945). 1 Oct. 1947. First clear record for Java, from reared specimen. Details of habits and larval and pupal characters given. Host - Carissa Carandas. A really informative paper.
- 83. Turner, A.H., "Immigrant Lepidoptera at Bickenhall, Somerset, and the Occurrence of <u>Catocala nupta</u> Linn. in Derbyshire." <u>Ent</u>. Rec. & Journ. Variation, vol.59: p.114. Oct. 1947.
- 84. Van der Meulen, G.S.A., "Over het kweeken der rups van <u>Araschnia levana</u> L." (In Dutch) <u>Tijdschrift v. Ent.</u> (Netherlands), vol.88: pp.327-328 (1945). 1 Oct. 1947.
- 85. Van Wisselingh, T.H., "Araschnia levana L." (In Dutch). <u>Tijdschrift v. Ent.</u> (Ne-therlands), vol.88: pp.323-326 (1945).
 1 Oct. 1947.
 86. Vari, L., "Biologische Aanteekeningen o-ver Fomorie werveri Stt. (Stimmelliden)."
- ver Fomoria weaveri Stt. (Stigmellidae)." (In Dutch). <u>Tijdschrift v. Ent.</u> (Nether-lands), vol.88: pp.521-523, 8 figs. (1945). 1 Oct. 1947. Figures larval mines and ad-ults clearly. Says Stigmellidae = Nepticulidae. Describes new aberration.
- 87. Varin, G., "Nombreuses captures d'<u>Heodes</u> <u>Dispar</u> race <u>Rutilus</u> dans la Côte-d'Or."(In <u>Dispar</u> race <u>Rutilus</u> dans la Cöte-d'Or."(In French). <u>L'Entomologiste</u> (Paris), vol.3: pp.122-123. May 1947. Gives records of <u>rut-ilus</u> and a few other butterflies in France.
 88. Verhey, C.J., "Twee zeldzeme Nederland-sche Macrolepidoptera." (In Dutch). <u>Tijd-schrift v. Ent.</u> (Netherlands), vol.88: p.276 (1945). 1 Oct. 1947.
 89. Viette, P., "Contribution à la faune lép-idoptèrologique de la Sologne." (In French) L'Entomologiste (Paris). vol.3: pp.117-122.
- L'Entomologiste (Paris), vol.3: pp.117-122.

May 1947. Lists, with dates, 181 spp. of moths (& 1 skipper) taken at Sologne (in north-central France).

- 90. Wilcke, J., "Nieuwe gegevens over de Biologie van <u>Lycaena</u> <u>alcon</u> F." (In Dutch). <u>Tijdschrift v. Ent</u> (Netherlands), vol.88: pp.537-542, 6 figs. (1945). 1 Oct. 1947. Describes in detail life history of this ant tended lycaenid butterfly with figures. We wish we could read Dutch for this paper.
- 91. Williams, Carroll M., "Physiology of In-sect Diapause. II. Interaction between the brain and prothoracic glands in the metamorphosis of the giant silkworm, <u>Platysam-</u> <u>ia cecropia</u>." <u>Biol. Bulletin</u>, vol.93: pp. 89-98, 13 figs. Oct.1947. Prof. Williams' remarkable discoveries on the hormones of saturniids are further reported here. He finds that adult development of the pupa requires chilling and then warming to break the diapause, and that the brain after chilling activates the "prothoracic gland", which then produces the hormone affecting the body tissues and causing full matura-tion. The action of the brain is not thru
- nerves, but "by an indirect mechanism." 92. Wiltshire, E.P., "Middle East Lepidoptera, VIII: Some More New Species and Forms from VIII: Some More New Species and Forms from Iran." <u>Ent. Rec. & Journ. Variation</u>, vol. 59: pp.109-111,125-127, pl.V, figs.A,B. Oct.,Nov. 1947. Describes as new: <u>Hadena</u> nana f. monotona, Harmodia gladys, Archanara sparganii ssp. algaeoides, Ennomos ? ef-fractaria subsp. fraxineti and its ab. effuscaria and subsp. zandi, Ethmia chosroes, E. cambyses, E. bipunctella subsp. grisei-costella, all from Iran. Photos of all but the aberration. Figs. of & valves of <u>H.gla-dys</u> and <u>H. hyrcana</u>. Plate also shows lar-vae of 4 spp.of moths, but no text appears.
- 93. Wojtusiak, R.J. & W. Niesiolowski, "Lep-idoptera of the Central Caucasus, Collected during the Polish Alpine Expedition in 1935, with ecological and zoogeographical Remarks. I. Part. Macrolepidoptera." (In English). <u>Polska Akad. Umiej. Prace Muz.</u> <u>Przyrod.</u> (Cracow), nr.6: 74 pp., pls.11-13. 25 Aug. 1946 (1947). Annotated list of 73 butterflies, 102 moths. Described as new butterfiles, 102 moths. Described as new are: <u>Pieris</u> <u>napi</u> ssp. <u>balcarica</u>, <u>Melitaea</u> <u>aurelia</u> ssp. <u>albimacula</u>, <u>Lycaena</u> <u>coridon</u> f. <u>sokolowskii</u>, <u>Coscinia</u> <u>striata</u> ssp. <u>wisniew-</u> <u>skii</u>, <u>Haemorrhagia</u> <u>titius</u> f. <u>karaugomica</u>, <u>Chaemaepora</u> <u>euphorbiae</u> ssp. <u>garbowskii</u>, <u>Coenonympha</u> <u>tiphon</u> <u>chatiparae</u> ab. <u>albocinc-</u> <u>ta</u>, <u>Crymodes</u> <u>zeta</u> f. <u>caucasia</u>. Latter two do not seem to deserve names. Dr. Wehrli's description ss new of <u>Grophos</u> centistus sen description as new of <u>Gnophos</u> certiatus ssp. bezengicus given. Photographs of all nov-elties except the pierids, and of 4 habitats. Analyzes collection and presents generalities on origin and age of macrolepidoptera fauna of Caucasus.
- 94. Woytkowski, Felix, "Las Catastictas del Perú (Lepidoptera-Pieridae)." (In Spanish). Bol.Mus.Hist.Nat. "Javier Prado" (Lima, Pe-ru), vol.10: pp.91-98. "1946". Reports on a collection from 5 Peruvian localities of Catasticta of 29 spp. and 2 races, with relative numbers of the species found. A total of 1394 specimens. Determinations ap-parently by F.M. Brown. No taxonomy in the paper.

GENERAL NOTES

EARLY SPRING COLLECTING IN KENTUCKY .- On the first warm days of spring there is a certain place where I like to go collecting for butterflies. It is an old, unused, overgrown road that winds its way through a deep oak woods. There I have spent some of the most enjoyable hours of my life, wandering along with net in hand, pausing here to swing the net at a passing <u>Euchloe olympia</u> or <u>Anthoch-</u> <u>ris midea</u>, there to swish at a flitting <u>Eup</u>tychia gemma. Or perhaps, try to stalk Anaea andria, only to see a flash of its brilliant orange wings an instant before I get near enough to swing, and watch it alight again on the ground amongst the dry, brown leaves safely out of my reach.

The old road winds on out across pastures dotted here and there with isolated clumps of dotted here and there with isolated clumps or red cedar, each with its own pair of <u>Mitoura</u> <u>demon</u>, and finally through an old peach orch-ard whose blossoms rarely fail to yield the scintillating <u>Strymon m-album</u> and other choice things. Perhaps a specimen of the rare little elfin <u>Incisalia henrici</u> will be taken when it alights on a dead twig or spot of demo gnound of damp ground. Finally I come to a saucer-shaped depres-

sion of something more than an acre in area, and covered, over most of that area, with a dense growth of grass-like plants; here and there are mud-bottomed pockets of open water with a scanty growth of cat-tail about their margins. The road through here is nearly bare of vegetation and is always damp, in some spots almost saturated with water. It was here, at one of these wet spots in the road, that I first chanced on the elusive Erora lasta one April afternoon in 1941. <u>revenue to the second </u> I did not expect to find <u>laeta</u> this year either. Even the usually common species were scarce or entirely absent. And so it was with little hope of ever seeing that rare species again, that I started out for a few hours' collecting on May 6th, 1947. But there at a wet spot in the road near the place that I had seen my first <u>lacta</u>, was an unusual hair-streak. I looked closer, - it was <u>Erora lacta</u>: A lucky stroke with the net brought it <u>in</u>. At last, I had become one of the select few who had collected the living lasta! -Carl Cook, Crailhope, Kentucky.

J.A. Keji, of Ithaca, N.Y., notes that in a brood of about 80 cocoons of <u>Telea</u> polyphemus, which he reared from one female, one large coccoon did not produce the adult, a dark male, for two years. (See NEWS, vol. I, p.41, #31).

Richard Guppy writes that the 1947 season on Vancouver Island was the reverse of that in nearby Washington, at least as regards Papilios. He states: "Hereabouts the most note-worthy feature of the past season was the unusual abundance of this same genus."

PHYCIODES BEHAVIOR IN MISSOURI .- "Phyciodes gorgone (Hbn.) appeared plentifully here this year(1947), in late June and early July. Previously, I have seen this species only singly in occasional years. The butterflies fed mostly on the flowers of Erigeron ramosus, E. annuus, and Asclepias tuberosa. On the last of these, I watched courtship activity for some time on the afternoon of June 28: a male would flutter over a feeding female, who would respond with vibrating wings and upturned abdomen. No copulation took place, however, apparently because of disturbances by other males; one of them would chase the attentive one away and immediately take his place above the female. This occurred again and again; but most noteworthy was the behavior of a much-worn male of <u>Phyciodes</u> nycteis (Dbl. & Hew.),fluttering above a female gorgone which responded as to a male of her own species. Males of gorgone chased him off repeatedly, and he treated them likewise. I watched this inter-species wooing for more than half an hour, until a thunderstorm ended the performance. In contrast to the actions of this nycteis, a male of P. tharos (Dru.) feeding at the same cluster of flowers appeared oblivious of the gorgone female and was unnoticed by the males."- Harold I. O'Byrne, Glencoe, Mo.

ALBINISTIC LIMENITIS IN ILLINOIS .- Alex K. Wyatt, of Chicago, reports that Frank Rutkowski caught an unusual <u>Limenitis</u> archippus at Peru, Illinois, Oct. 11, 1947. "This spe-cimen is a female of good size, but instead of the customary brown color, it is almost white, showing only a pale yellow shading in costal area of secondaries. The black cross band of primaries is narrowed, although the enclosed white spots are normal. The cross band of missing between veins 2 and 3. The under side is even paler, but the cross lines or bands are heavier than above."

Mr. Wyatt also mentioned finding in his yard a <u>Nymphalis milberti</u> in late September and several males of <u>Hylephila phylaeus</u> regu-larly for fully a month, even after the first light frost. Both species are generally uncommon in the Chicago area.

NOTES ON PHOEBIS IN FLORIDA .- "Philea will oviposit on <u>Cassia corymbosia</u> (foliage & bloom) and on the yellow bloom of <u>Cassia fis-</u> <u>tula</u>. Also on the <u>corymbosia P</u>. <u>eubule</u> and <u>E</u>. <u>nicippe</u> larvae may be taken while <u>Erebus odo</u> ra feeds on the leaves of <u>fistula</u>. The larvae of <u>philea</u> will feed on flowers in preference to the foliage and take on the color of their food, yellow on flowers and green on foliage. Likewise the chrysalids differ in color but these differences are not carried on to the adult. However by feeding the larvae at a low temperature the adults will be much darker than normal. I have only taken the albino form during hot weather. <u>Philes</u> is relatively free of parasites. The adult <u>philes</u> will travel long distances. It is interesting to see a large female flying high and fast suddenly drop to the ground as though being pulled by a suction; investigation will usually produce the food plant." - W.H. Schoenherr. (See notes by Berry in Vol. I, p.70).

NOTICES BY MEMBERS

BRAZIL MACROLEPIDOPTERA offered in exchange for North American <u>Papilio</u>s and Saturniidae. Will gladly collect Noctuidae and Geometridae for exchange. H. R. Pearson, Postal Box 2206, Rio de Janeiro, D.F., Brazil.

Can offer <u>Callosamia angulifera</u>, <u>Citheronia</u> <u>regalis</u>, etc. for uncommon Sphingidae and <u>Catocala</u> needed for my collection. A very large set of duplicates of commoner Lepidoptera available in exchange for commoner species from elsewhere. C.W. Baker, P. O. Box 455, Waynesburg, Ohio.

Mr. Heinz Jensen, 54 Hyltebjerg Alle, Vanlose, Copenhagen, DENMARK, wishes correspondence with U.S.A. Lepidopterists, especially in the Southeast. He is willing to collect any Scandanavian Lepidoptera and is interested in exchanging books and journals on Lepidoptera.

BUTTERFLIES & MOTHS OF THE HIGH ALPS - All Lepidoptera of the Austrian Tyrol offered. Special rarities are species such as <u>Colias</u> <u>palaeno</u>, <u>Argynnis thore</u>, <u>Erebia glacialis</u> and <u>epiphron</u>, <u>Orodemnias guenselii, Plusia</u> spp. Prices according to Staudinger & Bang-Haas List. Send list now of species desired. Some material on hand. Extensive collecting planned for the coming season.

Dr. H. Wilcke, Kössen/Tyrol, Nr. 199, AUSTRIA RHOPALOCERA AND ZYGAENIDAE OF SOUTHERN FRANCE offered in exchange for North American Rhopalocera, Zygaenidae (including <u>Procris = Ino</u>), etc. Write in English. F. Dujardin, 25 rue Guiglia, Nice (A.M.), FRANCE.

Will purchase <u>MORPHO MENELAUS</u>, <u>RHETENOR</u>, <u>SUL-</u> <u>KOWSKYI</u> by the hundred lot or whatever quantity available. The Butterfly Store, 77 Madison Ave., New York 10, N.Y.

WISH TO PURCHASE Canadian (esp. Arctic) <u>Boloria & Colias</u>. Dr. A.B. Klots, College of City of New York, New York 10, N.Y.

Large quantities of <u>Philotes</u> <u>sonorensis</u>, <u>An-thocaris</u> <u>sara</u>, <u>Speyeria</u> <u>macaria</u>, <u>Tharsalea</u> <u>arota</u> for exchange for N.Am. Rhopalocera, esp. Theclinae and Hesperiidae. Will exchange <u>Speyeria</u> <u>nitocris</u> for <u>S. diana</u>. D.E. Parker, 1033 S. Beacon Ave., Los Angeles 15, Calif. EAST AFRICAN BUTTERFLIES, for sale or exchange. Want American species, particularly South Am. R.W. Barney, Govt. African School, Kakamega, Kenya, East Africa.

NAMED INDIAN BUTTERFLIES and unnamed moths from districts of Poona, and Dehra-Dun for sale. E. Hug: airmail c/o Mrs. J.Graf, Zeughausstr. 8, Chur, Switzerland, or regular mail: Vaudrevange-Saar, Wilhelmstrasse 3, Terr. Saare, Via Saarlouis, France.

FOR SALE: Insect collection boxes, 9 x 13 x 2 1/2 inches, dovetailed corners, the finest composition pinning bottoms, sanded but not finished, beautiful redwood throughout, hinged, with latches -\$2.10 apiece, \$24 dozen, F.O.B. Beverly Hills. Bio-Metal Associates, P.O. Box 346, Beverly Hills, Calif. Papered MANITOBA RHOPALOCERA for exchange for tropical Lepidoptera. About 40 species, all with complete data. List available on request. C.S. Quelch, Transcona, Manitoba. GUADALCANAL Lepidoptera (esp. Rhopalocera), of almost every native genus, offered in exchange for needed N. American species. T.W. Davies, 9734 Castlewood St., Oakland, Calif. Wanted: <u>Philotes</u> of N. America for a systematic study, for purchase, examination, or exchange. Rudy Mattoni, Dept. of Entomology, Univ. of Calif., Los Angeles 24, Calif.

Will exchange WASHINGTON LEPID. & Coleoptera for N. American Rhopalocera, esp. <u>Euphydryas</u> & <u>Mitoura</u>. <u>Eu</u>. <u>taylori</u> available in large series. Many fine specimens from Olympic Mts. and Puget Sound Basin. D.P. Frechin, 1504 N. Lafayette, Bremerton, Wash.

Wanted for determination, exchange, or purchase: ARCTIIDAE of the Neotropical Region(especially Central America & West Indies), as well as North American ADELOCEPHALIDAE(Sissphingidae).

Correspondence invited.

Prof. Lauro Travassos, Laboratorio de Helmintologia, Instituto Oswaldo Cruz, Caixa Postal 926, Rio de Janeiro, D.F., BRAZIL.

FOR SALE - THE BERRY COLLECTION The results of 18 years in Florida of collecting and exchanging. Many very rare species. 2000-4000 mounted specimens; 6000-8000 specimens in papers. Over 1100 different named forms. Especially rich in Hesperiidae, Lycaenidae, Sphingidae, <u>Catocala</u>. For details write: Dean F. Berry, Box 146, Orlando, Florida.

LIVING MATERIAL AVAILABLE

Offer a new copy of Ford's "Butterflies" in exchange for several living coccons of <u>Platy-</u> <u>samia</u> cecropia. John B. Smartt, 36 Botanic Road, <u>Glasnevin</u>, Dublin, Ireland.

PUPAE OF PAPILIO ZELICAON and P. PHILENOR HIRSUTA from California, full data, offered in exchange for papered butterflies needed for our collections.

Thomas W. Davies, 9734 Castlewood St. William A. Hammer, 5300 Walnut St. Oakland, California

Citheronia regalis & Euparthenos nubilis pupae Catocala cara, concumbens, & amatrix eggs. Available alive. Herman Wilhelm, Buckingham Road, R.D. 1, Willimantic, Connecticut. DESIRE LIVING PUPAE OF LYCAENIDAE (esp. Theclinae). Offer in exchange papered Calif. spp. Graham Heid, 11745 Hesby St., N.Hollywood, Cal. What have you to offer in exchange for LIVING PUPAE of <u>Telea polyphemus</u>? R.J. Ford, 3266 Ardmore Ave., South Gate, Calif. Coccoons of <u>Platysamia euryalis,gloveri,columbia</u>, and <u>Callosamia angulifera</u> & calleta desired. Correspondence invited. R.L. Halbert, 444 N.Normandie Ave., Los Angeles 4, Calif.

QUESTION AND ANSWER COLUMN

Q. "How dependable are the male genitalia for Lepidoptera (especially butterfly) taxonomy?"

A. They are probably as dependable as any group of characters, and more so than most; but occasionally fail, probably in cases where species are of very recent origin, and where differentiation is largely physiological. The most notorious case is Argynnis (Speveria), where the Old-world species have excellent genitalic characters, while only a few of the American ones (e.g. <u>diana</u>, <u>idelia</u>) show even slight differences. <u>Phyciodes</u> is almost as bad in N. America, but in most genera species differences are clean-cut or even striking.

For grouping-characters above species they are probably no less and no more valuable than characters of other parts.

Q. "Can the female genitalia provide useful genus and species characters in butterflies as they do in many moth groups?"

A. They are almost as useful at the species level as the male characters, but differences are often less striking, and much more diffi-cult to describe and figure. For higher groups they serve at times but are highly treacherous. For instance, a set of four sco-binate bands in the bursa is characteristic of Trifid Noctuidae of each of the main subfamilies, but in each of them the bands are modified or lost in many and widely scattered genera or even species, which will be wholly normal in external and a characters. Another instance is <u>Maniola jurtina</u>, discussed in Pierce's"Genitalia of the British Rhopalocera."

Q. "What characters can be used in classifying larvae of the Hesperiidae?"

A. Most characters used in other larvae:shape of head (Scudder), setae on mouth-parts, relative thickness of neck (prothorax), develop-ment and number of hocks on prolegs, develop-ment of the plate-like primary setae; texture of skin; general form of body in life, etc. See especially Scudder's "Butterflies of Eastern North America"; a few further characters are given in "A Structural Study of Some Cat-erpillars" <u>Ann. Ent. Soc. Am.</u> 111, 105.

- W.T.M. Forbes

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Mervyn Plomley reports several Lycaena helloides from N.W. Georgian Bay, Paris, and Hamilton, Ontario, all taken in June. This appears to be the easternmost record in Canada. The identifications were checked by Dr. T.N. Freeman.

Since there is such a demand for back nos. of the NEWS, any 1947 members who do not wish to keep their copies of Vol.I are urged to return these to the Editors, who will refund postage, or to pass them on to a new member. Of course, all proceeds from the sale of back numbers are added to Society funds.

NEW MEMBERS

Dufrane, Abel, Curator, Musée d'Histoire Natu-relle de Mons, 69 avenue du Tir, Mons, BELGIUM. Dujardin, F., 25 rue Guiglia, Nice, FRANCE.

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- Church, Capulin, Colorado.

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All remaining copies of the first volume (1947) of the NEWS, including the 8 monthly issues and detailed Membership List, have been inventoried and the numbers in stock listed below. These copies are available to Society members at \$0.20 each. No complete volumes are left. In 4 issues, all remaining copies are imperfect due to the mimeographing process, but still completely usable. These imperfect issues are \$0.15 each. Prices include postage.

No.1(May) - All imperfect No.2(June) - All imperfect No.3(July) - Limited No.4(Aug.) - Out of stock; some separate pp. No.5(Sept.) - All imperfect No.6(Oct.) No.7(Nov.) - All imperfect No.8(Dec.) - (with Field Season Summary) Membership List, including addresses and special interests, complete to end of 1947.

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