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Presidential Profile

Jerry A. Powell, Professor of Entomology at the University of California, Berkeley, is president of The Lepidopterists' Society, after involvement in its activities for 35 years. He began attending Pacific Slope Branch meetings in 1954 and served as meeting coordinator several times, as well as for the 1987 national meeting. He became editor of the JOURNAL in 1964 and quickly brought it up to date and maintained its quarterly schedule for the next six years, while introducing many format and policy changes that enhanced its professional status. This had a strong stabilizing influence on the society; the membership had declined during 1962-64, for the first time, and this trend was dramatically reversed, with a 30% growth during 1965-70. Powell proposed and developed the Supplement series and was its editor in 1969-71. He is a past member of the Executive Council and has also been Vice-President.

Powell was born in southern California and grew up



in San Diego when the nearby natural areas were not yet destroyed by urban sprawl. In 1946 he was sentenced to summer natural history classes organized by Charles Harbison of the San Diego Natural History Museum. Influenced by "Harbie"'s infectious enthusiasm, an innate collector urge turned from military souvenirs and matchbook covers to natural history specimens. Soon Jerry was introduced to rearing moth larvae by an experienced junior naturalist, Paul Spade, and Jerry began carrying a killing bottle on his bicycle on his morning paper route, to collect arctiids and sphingids from storefront lights. By the end of the summer he was an incurable lepidopterist.

Jerry attended San Diego State College and the University of California, Berkeley. In 1954, R. M. Bohart of UC Davis was the instructor in a 5-weeks summer field course, and his interest in wasps kindled Powell's fascination for small insects. Together they published a paper on the behavior of a ground-nesting wasp, which was the subject of several of Powell's early works. This led to an emphasis on behavior and biology in his research.

Association with C. D. MacNeill and other graduate students during Powell's senior year exposed him to grim tales about problems inherent with large insects, of literature search, lost types, and reluctance of collectors to loan material. So, with essentially no collection resource available, he decided to take up study of microlepidoptera. His efforts were encouraged and assisted by the late H. H. Keifer, whose superb work on the taxonomy and biology of California Microlepidoptera in the 1930's served as a beacon.

After the completion of his Ph. D. in 1960, Powell obtained a research position with the Agricultural Experiment Station at Berkeley with a half-time commitment to the California Insect Survey. He became Associate Professor in 1967 and Professor in 1973, and teaches systematic entomology, immature insects, and field entomology.

Powell's research emphasizes integration of biological characters into systematics. This has led to long-term studies of oviposition behavior, hostplant specialization, larval biology, and diapause, of a broad spectrum of microlepidoptera, in addition to taxonomic research, primarily on Tortricidae and Ethmiidae. His career has included Visiting Research Associateships at the Smithsonian Institution, 1970-71, and C. S. I. R. O., Canberra, Australia, 1980-81, and fieldwork in Mexico, Costa Rica, and Australia.

Dr. Powell is a member of other societies, including The Entomological Society of America, Society of Systematic Zoology (President Elect), Xerces Society, and Pacific Coast Entomological Society (Assistant and Acting Editor, Pan-Pacific Entomologist, 1957-62, Editor of the Memoir series, 1965-70, 1973-78, President, 1964). In addition, he is co-chair of the Panel of Advisory Editors,

University of California Publications in Entomology. He is a Fellow of the California Academy of Sciences, and in 1982 was awarded the Karl Jordan Medal by our society in recognition of his studies of ethmiid moths.



Another year is upon us and from where I sit it looks like it will be a busy and exciting one. This coming summer will find the Canadians hosting the International Congress of Entomology and the Colorado Outdoor Education Center will be the site of both the Xerces Society Meeting and the Pacific Slope Section Meeting with preliminary workshops attendant to both meetings, while the Annual meeting of the Lep. Society will be held in Pittsburgh, Pennsylvania. Some overlapping of times does occur, but if one wishes to attend only 3 out of the 4 meetings there is not much difficulty in so doing, if one plans ahead. I have received several letters recently commenting on recent NEWS items. As always, the opinions expressed therein are solely those of the authors and do not in any way reflect any policies of the Lepidopterists' Society.

Dear June:

This is a response to the three recent NEWS commentaries on declining Saturniidae in the Northeast (Hansen, Shapiro, Bracher).

First of all, I agree with some of Shapiro's comments. There is no evidence at all of acid rain impacting these moths. I never bother to wash leaves unless they are from roadsides and, in fact, I sleeve-rear nearly everything outside. The larvae do fine.

However, while there is little truly scientific documentation of a Saturniid decline, the magnitude of it in some places is or was so extreme that the reality of this decline in parts of New England and adjacent states simply is beyond doubt. It has not been extreme in the Philadelphia area where Art Shapiro and I grew up. At present, I see no clear evidence that the decline is spreading and, in fact, the situation (as evidenced by cocoons seen without looking very hard) has clearly improved in parts of New England and in Chester and Montgomery counties in Pennsylvania.

I suspect increased birds in urban/suburban areas, especially in winter due to feeders and introduced starlings, English sparrows and now house finches, are impacting H. <u>cecropia</u>. The presence of these birds probably explains why this once abundant urban species is now uncommon, but stable and ubiquitous, in much of the Northeast. Chickadees congregate around suburban feeders and I have watched them open cocoons. On several occasions, I released up to 25 <u>Cecropia</u> larvae in small groups (one to six) around my former neighborhood in Hamden, Connecticut, as first, third and last instars. Small groups should receive more or less normal local predation, unlike Ray Bracher's massive releases that invited bird predation. None of mine remained in place more than five days. Starlings were seen eating the last instars. However, my sample was too small to really prove anything, but is mildly suggestive.

My interpretation of Ray Bracher's report would be that a survival rate of seven promethea cocoons from 300 larva concentrated on only two trees indicates that survival was much higher than should have been expected. Either he was lucky or his area has scarce and/or inefficient predators. While I, too, have seen over 80 promethea cocoons on a single thicket once and 10-20 every now and then, the larvae normally occur in densities of less than 10 per plant, and none on most plants. When numbers of prey are artificially inflated as Bracher did (and I have done, too), higher predatory animals capable of learning (which includes both Bracher's birds and yellow jackets) are well-known to discover and subsequently return and selectively search out such delicacies. The literature is full of predator-prey density studies. People releasing Saturniids should not release large numbers of eggs or larvae in small areas, unless their goal is to feed birds.

I have been keeping track of the Saturniid situation in the Northeast for a number of years. Perhaps someday I will have time to write a thorough review of the matter, but since there is apparently a lot of concern about these moths, I am sending this quick overview along now.

Dale F. Schweitzer, Ph.D. Zoologist, Eastern Heritage Task Force (ED. NOTE: The overview appears elsewhere in this issue)

Dear June:

Thomas Ashby (From the Editor's Desk, NEWS, Sept./Oct. 1987 issue) correctly surmises that if rare taxa were more readily obtainable, thefts of these from museums would cease. His emphasis is the birdwings, and I share what I know of this situation just to illustrate how close Mr. Ashby's idea is to being achieved, but for some bureaucratic bungling, that has worked against, not for, the conservation of the rare birdwing butterflies.

Papua New Guinea, which harbors seven <u>Ornithoptera</u> species, is the only nation that officially considers its insects as renewable natural resources. PNG's Insect Farming & Trading Agency markets butterfly and other insect specimens to collectors and supply houses world-wide. Most of the birdwing specimens passing through the agency are "ranched" by villagers. They propagate the <u>Aristolochia</u> foodplants in garden plots, taking care of the larvae that derive from eggs laid on these vines by passing-by wild females. Only the most abundant PNG species -- <u>Ornithoptera</u> priamus -- has been available for sale by the agency. But those who have carried out thorough assessments of <u>Ornithoptera</u> status in PNG, mainly Michael Parsons, feel that Q. goliath, Q. chimaera and Q. victoriae could be farmed and sold with no negative conservation side-effects. Q. paradisea and Q. meridionalis could probably be treated the same way; however, Parsons felt that further assessment of their status should come first.

These recommendations were made at least 3 years ago. Unfortunately, the trade of these species is prohibited under the provisions of the Convention for International Trade in Endangered Species (CITES) because persons unfamiliar with -- or oblivious to -current status information on PNG's <u>Ornithoptera</u> placed them on the "prohibited" lists. Definitely, <u>Q</u>. <u>alexandrae</u>, the world's largest butterfly, should have the strongest protection offered by CITES. And until the status of <u>Q</u>. <u>paradisea</u> and <u>Q</u>. <u>meridionalis</u> has been determined, trade regulation would be desirable. But there is nothing achieved by the listing of the other, nonendangered taxa on the CITES appendices.

In short, the rearing and specimen dissemination mechanism that Mr. Ashby envisions is already in place. In fact, if ranching and marketing of all nonendangered birdwings were allowed, this would do more to foster their conservation than any trade-barring legislation, simply because birdwings can't be successfully ranched if the surrounding natural habitat is destroyed. The fact that PNG's Insect Farming & Trading Agency insists on A-1 specimens favors rearing over collecting. Perhaps most germane to conservation in developing countries, the entire enterprise not only uses a natural resource in renewable fashion, but provides a rare source of income for rural dwellers. What could be better?

Yet, until the non-endangered birdwing species are removed from the CITES appendices, and until some person or organization decides to expend the funds to more fully assess the undetermined status of Q. <u>paradisea</u> and <u>Q</u>. <u>meridionalis</u>, this conservation potential will never be realized. The oil palm plantations will continue to reduce <u>Q</u>. <u>alexandrae</u>'s habitat. Logging the rain forests will continue to be a better source of income than protecting the forest so that the birdwings can be ranched and sold.

What I suggest (and perhaps other knowledgeable individuals can provide other, or better ideas) is to write the U.S. Office of Endangered Species, U.S. Fish & Wildlife Service, Washington, D. C. 20240, and ask why the Papua New Guinean <u>Ornithoptera</u>, apart from <u>O</u>. <u>alexandrae</u>, <u>O</u>. <u>paradisea</u>, and <u>O</u>. <u>meridionalis</u>, are on the CITES appendices, in view of strong evidence (on file in Papua New Guinea's Office of Environment and Conservation) that they are not threatened or endangered? Counteract any tendency to label your opinion as idle chatter from a zealous collector, emphasize your support for trade prohibition for truly endangered birdwing taxa. I, for one, cannot see how prohibiting trade in nonendangered butterflies offers anything positive towards their conservation, when it hogties the conservation-through-ranching option, and does nothing to slow the ever-increasing destruction of birdwing habitats.

> Sincerely, Larry J. Orsak



TIPSY BUTTERFLIES SIT OUT STORMS

From Reuters, dateline London, the following release appeared in the Los Angeles times on October 23, 1987.

Two rare butterflies that spend most of their lives in a drunken stupor, thanks to a diet of fermenting fruit, were safely back in a London zoo Thursday after surviving heavy storms.

Officials at the London Butterfly House said the two South American Owl butterflies, with six-inch wingspans, had miraculously survived temperatures well below that of their normal tropical habitat by taking shelter in a garden shed.

They fluttered to freedom from the London Butterfly House together with thousands of other rare specimens when a falling tree shattered the roof during a storm last week.

MORE ON <u>ARTOGEIA VIRGINIENSIS</u> (PIERIDAE) IN SOUTHERN INDIANA

This follows up a note on the discovery of Artogeia virginiensis (W. H. Edwards) in southern Indiana which appeared last winter in the Lep News [News of the Lepidopterists' Society, No. 1 (Jan/Feb) 1987, p. 2]. In that note I reported collecting two specimens on April 1, 1986, in Clark Country, Indiana, about 15 miles north of Louisville, Kentucky. I returned to the same creek-bottom site in Clark State Forest on April 11, 1987, accompanied by Ernest M. Shull, co-author of the 1971 Indiana checklist [Ernest M. Shull and F. Sidney Badger, "Annotated List of the Butterflies of Indiana, 1971", reprinted from The Journal of the Lepidopterists" Society, Vol. 26, No. 1 (21 March 1972), pp. 13-24] and author of a comprehensive book on the butterflies of Indiana [Ernest M. Shull, The Butterflies of Indiana (Indianapolis and Bloomington, IN: Indiana Academy of Science and Indiana University Press, to be published late 1987)] scheduled for publication this fall. This note reports additional observations in that area and the discovery of a second population in a very different habitat a few miles away.

In our visit on April 11 to the creek-bottom site described in the previous note we counted a total of eight specimens flying in the area. We also found many clumps of <u>Dentaria laciniata</u> (Brassicaceae) in full bloom scattered throughout the area, and we observed virginiensis specimens nectaring on it. In contrast, no specimens of <u>Dentaria diphylla</u> were found despite an extensive search for it. Therefore we concluded that <u>laciniata</u> rather than <u>diphylla</u> must serve as the larval food plant for <u>virginiensis</u> in this area, even though we did not observe any ovipositing activity.

This is of some interest since <u>diphylla</u> is usually considered to be the preferred larval food plant of virginiensis [Alexander B. Klots, A Field Guide to the Butterflies (Boston: Houghton Mifflin Company, 1951), p. 202; William H. Howe, ed., <u>The Butterflies of North</u> <u>America</u> (Garden City, NY: Doubleday & Company, Inc., 1975), p. 380; Robert M. Pyle, <u>The Audubon Society Field</u> Guide to North American Butterflies (New York: Alfred A. Knopf, Inc., 1981), p. 359]. Only the newest handbook [Paul A. Opler and George O. Krizek, Butterflies East of the Great Plains (Baltimore: The John Hopkins University Press, 1984) p. 59] lists both diphylla and laciniata. A study of virginiensis populations at three sites in New Haven County, Connecticut, by Cappuccino and Kareiva [Naomi Cappuccino and Peter Kareiva, "Coping with a Capricious Environment: A Population Study of a Rare Pierid Butterfly", Ecology, 66:1 (February 1985), pp. 152-161, especially pp. 153-157] found that eggs were laid far more frequently on <u>diphylla</u> than on <u>laciniata</u> when both were equally available. experiments showed that <u>virginiensis</u> One of their larvae thrived equally well on either plant species. But they found that laciniata aged and died down so quickly that larvae could not successfully complete their development on it. This raises the question of how virginiensis is able to use laciniata successfully in southern Indiana. Does laciniata age more slowly and remain edible longer in southern Indiana, or do virginiensis larvae develop more rapidly there?

While exploring other parts of Clark State Forest on April 11, Shull and I unexpectedly discovered a second <u>virginiensis</u> population in a very different habitat several miles distant from the first site. We recorded three specimens at this site. Unlike the creek-bottom site which has native second-growth deciduous forest the site of this second <u>virginiensis</u> population is an old plantation in a flat, non-creek-bottom, area. According to a nearby Clark State Forest roadside sign, ash and European larch were planted in the area in 1904, and elm, ash, and white pine were planted in 1909. The area where the <u>virginiensis</u> specimens were found is now dominated by pine.

The creek-bottom site is located in the Norman Upland physiographic unit which was characterized in the note published last winter [<u>News of the Lepidopterists</u>' <u>Society</u>, No. 1 (Jan/Feb) 1987, p. 2]. The plantation site is located in the Scottsburg Lowland physiographic unit a mile or so east of the Knobstone Escarpment which marks the boundary between the two units. The Scottsburg Lowland has been partially filled with glacial drift and has low relief [Allan F. Schneider, "Physiography" in Natural Features of Indiana, Alton A. Lindsey, ed. (Indianapolis: Indiana Academy of Science, 1966), pp. 44-45, map p. 41]. The plantation site is probably in the eastern edge of the area that is said to have been dominated by oak-hickory forests prior to European settlement but close to the edge of the area dominated by beech-maple forests [R. O. Petty and M. T. Jackson, "Plant Communities" in Natural Features of Indiana, map p. 281]. The discovery of a population in the area of an old plantation seems to show that, at least under some conditions, virginiensis can survive in or repopulate an area that has undergone significant alteration.

I would be glad to share information on the exact location of these two <u>virginiensis</u> populations with any lepidopterist who is prepared to study them more thoroughly than I can do. The Clark State Forest area should be surveyed more extensively for additional populations and the extent of each one estimated. These populations might also offer a good opportunity for someone to conduct studies similar to those carried out by Cappuccino and Kareiva as described in their article referred to above. Anyone wishing to conduct studies involving experimentation or the capture of many specimens should contact the manager of Clark State Forest and also the director of the Indiana Division of Nature Preserves which takes a special interest in the conservation of rare species in the state.

David L. Eiler 606 East Seventh Street North Manchester, IN 46962

THE PIPEVINE SWALLOWTAIL IN NEW JERSEY

Battus philenor (Linnaeus) the Blue Swallowtail is a common insect in our southern states. Though its range is listed (A.B. Klots, Field Guide to the Butterflies, Houghton, Mifflin 1951) as extending to Canada, it has not been commonly found in New Jersey. Recently, it has been more abundant.

Two years ago an excellent specimen visited our flower garden in Ridgewood (Bergen Co.) New Jersey in July but was not collected. This year, six individuals were noted in mid-July in the Newton (Sussex Co.) New Jersey area and two collected (July 18, 1987). An additional two specimens were collected in lower Rockland County, New York (July 12, 1987).

The known food plants of <u>philenor</u> are of the family Aristolochiaceae. Dutchman's pipe, <u>Aristolochia</u> <u>durior</u> is present though sparse in northern New Jersey. It is a porch ornamental on older homes. Virginia snakeroot, <u>A.</u> <u>serpentaria</u> and wild ginger, <u>Asarum</u> <u>canadense</u>, also mentioned as host plants, are found here but are not overly common.

It was interesting to observe two female <u>philenor</u> carrying out close food plant inspection of Virginia Creeper, <u>Parthenocissus quinquefolia</u>. They seemed very interested though I did not actually witness oviposition. John J. Bowe

Ridgewood, New Jersey

BEHAVIOR OF <u>Papilio</u> indra (near) <u>nevadensis</u> DISTURBED WHILE in <u>copula</u>

The range of the Short-tailed Black Swallowtail or Mountain Swallowtail [Papilio indra (near) nevadensis] in Utah is restricted to the lower southwestern portion of the state centered around the Pine Valley Mountains (W. H. Whaley, pers. comm.). On April 19, 1986, during a collecting outing in Washington County, Utah, I observed an interesting response to disturbance by a pair of Short-tailed Black Swallowtails. At approximately 1330 h while walking along a rocky ridge, I observed a pair of indra swallowtails while in copula. The pair was not seen until in flight, flying in copula. The larger of the pair (the male in this case, Fig. 1) was the carrying individual. According to Howe (1975, <u>The Butterflies of</u> <u>North America</u>, Doubleday and Company) the sex of the flying partner is consistently the same for most families, and Scott (1986, The Butterflies of North America, A Natural History and Field Guide, Stanford University Press) reports that females are the flying partner in Papilionidae. However, Shields and Emmel [1973. A review of carrying pair behavior and mating times in butterflies, J. Res. Lep. 12(1):25-64] reported that occasional alternation of the carrying sex develops when the pair is continually disturbed.

My initial disturbance of the pair resulted in their flying in copula for a distance of approximately 10 meters. I approached the landing area cautiously, only to cause the pair again to take flight while remaining in The second flight covered a distance of copula. approximately 20 meters. Again I approached the landing area, and again the pair took flight, remaining in copula. The third flight covered a distance of only 3 m before the pair was collected. The pair remained in copula in the net and continued so after being removed from the net. Total disturbance time lasted approximately 10 min. At each flush the individual being carried kept its wings stationary and in an upright position in typical fashion. As I was unable to directly



Figure 1. <u>Papilio</u> <u>indra</u> (near) <u>nevadensis</u> pair (male on the left), <u>collected</u> while flying <u>in</u> <u>copula</u> on 19 April 1986 in southwestern Utah.

observe the pair while perched, I assume their positions relative to each other were unchanged.

Duration of copulation in butterflies ranges from 25 minutes to several hours and may be associated with spermatophore transfer (Shields and Emmel op. cit.). The unwillingness of the pair to separate following repeated disturbance provides some indication of the tenacity of males to remain with a receptive female.

Boyce A. Drummond and Robert C. Lederhouse provided helpful comments on an earlier version of the manuscript. Sincere appreciation is extended to W. Levi Phillips for providing earlier references and for his hospitality.

Jimmie R. Parrish, Dept of Zoology Brigham Young University, Provo, Utah

STATUS OF SATURNIIDAE IN THE NORTHEASTERN USA: A QUICK REVIEW

There have been several recent commentaries on the decline of Saturniid moths in the NEWS of the Lep. Soc. Art Shapiro's response to one of them suggests he didn't notice such a decline when he lived in Philadelphia. I also grew up in that area and I likewise did not become aware of this problem until I moved to New England.

I simply do not have the time to write up a really adequate documentation of this decline now. Perhaps someone reading this will do so. Glenn Morrell made a good start at this in an undergraduate research thesis (Bowdoin College) a few years ago. Anyway, since I have been accumulating information on the subject, I suspect even the cursory review to follow might be useful.

I have had numerous discussions with local collectors about Saturnidae, plus my own field work. Collectors and collections visited (1982-1987) include: Lars Crabo, Tom Franks, Larry Gall, Chris Maier, Alexander Klots, Mark Mello, Glen Morrell, Charles Remington, Ted Sargent, Tim Simmons, Scott Smedley, Asher Treat and Dave Winter. The collections at Yale University-Peabody Museum were especially useful.

According to many people, all Saturniidae, and most Sphinx spp. crashed in the 1950's or early 1960's in Connecticut and eastern Massachusetts and probably adjacent New Hampshire at least. Similar crashes occurred in parts of northern New Jersey and on Long Island. Apparently, these crashes took less than five years in all cases. There is some documentation by Hessel (1976 in Atala) and by Glenn Morrell's study plus the overwhelming lack of specimens and the memories of several people.

Parts of Connecticut currently have few or no Saturniidae or Sphinx, e.g. L. F. Gall's 1987 Robinson trap samples at Stamford and the Russels' recent (late 1970's) R.T. samples from Greenwich (at Yale). There were none in the mid-1970's in R.T. samples from Guilford (at Yale). I ran blacklights, occasionally Mercury Vapor lights, at Southford throughout the 1975 season and got zero Saturniidae or Sphinx. I saw no cocoons there either. Concurrently, though, we know <u>C</u>. promethea was and is basically common, but fluctuating, in most other parts of Connecticut. <u>H. cecropia</u> is scarce, but holding its own--increasing since 1980--in urban areas and spottily elsewhere. From 1978 to 1982, tethered females would consistently attract one to three males in Hamden. Some Saturniidae began to recover noticeably in the late 1970's. <u>A. luna</u> became enormously abundant in Tolland and Windham counties in 1978-1979, but still has apparently not recolonized southwestern Connecticut. <u>A.</u> io has been very slow to recover, with virtually none from about 1958 to about 1982. Since 1982, I know of specimens or observations from Wethersfield and North Guilford and I have a report for Hammonasset.

<u>Citheronia regalis</u> and <u>Eacles imperialis</u> are both believed extirpated in Connecticut, no records for 30 years. Substantial use of calling female <u>C. regalis</u> in extensively forested parts of New Haven County in 1986 confirmed a lack of this species.

The current status of the other native Saturniidae in Connecticut is roughly: H. cecropia--uncommon but in most towns, increasing around New Haven; both Callosamia spp. doing fine in most places, though C. angulifera largely in New Haven County due to foodplant; A. luna recovering but absent in places, especially southward, to common in other places; A. polyphemus absent to very rare; A. io rare but probably recovering; D. rubicunda variable: absent to abundant; Anisota virginiensis, no information; A. senatoria still present (1982) in Tolland and Windham Counties and apparently was always confined to eastern, sandy counties; A. stigma, formerly local in sandy pine barrens, now extirpated. Hemileuca maia was largely probably eradicated by destruction of the pine barrens areas. The last site is about to be destroyed and probably couldn't sustain a long-term population anyway. Morrell's recent record for <u>H. maia</u> in Putnam Co. was <u>H. lucina</u>. <u>H</u>. lucina spread into northeastern Connecticut around 1978 from massive outbreaks in Worcester Co., MA. By 1982, it had reached Storrs. <u>Sphinx kalmiae</u> seems to have recovered substantially, but <u>S. chersis</u> is still apparently absent in most places. The situation in Massachusetts is roughly similar,

except that C. sepulchralis used to occur and since there are extensive protected pine barrens, H. maia and A. stigma are secure at a few places. They were always local. Anisota virginiensis is apparently verv widespread, but uncommon (as originally). E. imperialis survives on Martha's Vineyard, and in 1986 this turned up on the nearest mainland--South Dartmouth. A. io is abundant in some coastal areas, but local and rare inland for the most part. H. lucina is a weedy, often transient, colonizer, varying from extremely abundant to rare over time and space. <u>A. polyphemus</u> is taken (though usually rarely) at nearly all eastern collection sites, but apparently not in central or western counties, and can be common on the offshore islands. Other than C. promethea and H. maia, I don't know if Saturniidae still occur on mainland Rhode Island, but I would assume the situation is as in adjacent MA. On Block Island, RI, A. io, A. polyphemus and H. cecropia are sometimes a plague at light traps, so much so that I don't use traps there in June. There is no suitable habitat for most other Saturniidae there (and never was).

So what happened? With good hindsight, one can make a pretty good guess. Back in the 1950's, aerial spraying of DDT for gypsy moth and mosquito control was massive (and is well-documented) in southern New England, Long Island, northern New Jersey and the Poconos of PA. I don't believe it to be a coincidence that this is precisely the area of pervasive Saturniid decline, and that the decline was at the same time. DDT, unlike Sevin or Bt, but like Dimilin, persists for months on foliage.

Enthusiasm for aerial spraying waned in the early 1970's and, of course, DDT was banned. Dimilin has not been widely used in New England, never as far as I know in forests. Connecticut has very stringent regulations that in effect almost prevent such widespread spraying. In Massachusetts, some towns spray forested residential areas for gypsy moths during outbreaks, as in Rhode Island. But this spraying is on a drastically reduced scale compared to the 1950's. I also do not believe that it is a coincidence that recoveries of Saturniidae, and to a lesser degree <u>Sphinx</u> spp., were well underway by 1978 and are continuing in southern New England. While the situation isn't back to normal, it has obviously gotten better and the formerly common Saturniids (except <u>Eacles</u> and <u>Citheronia</u>) at least occur in most areas now, except apparently southwestern Connecticut.

Another line of evidence suggesting aerial gypsy moth spraying as the agent of Saturniid/Sphinx decline in New England is the total lack of decline on Block Island and apparently on Nantucket. The former was apparently never sprayed, Nantucket apparently was never sprayed before late August (for mosquitoes). Unfortunately, we don't know for sure that no decline occurred on Nantucket, but collections (at Yale Peabody Museum) from 1974 on show that Saturniidae and Sphinx spp. remained abundant on Block Island.

I have, so far, ignored the street light hypothesis put forth several times (e.g. see Hessel in Atala, 1976; Ferguson in M.O.N.A. 1971). For the most part, this simply doesn't fit the pattern well except perhaps for <u>Eacles</u> and <u>Citheronia</u>. To my knowledge, these two genera don't occur regularly in urban/suburban areas even where they are all three reasonably common (e.g. South Jersey). Much of New England was very rural and overwhelmingly forested in the 1950's, and some of it still is. Mercury Vapor street lamps are still widely used and a trend toward Sodium Vapor lamps really only became noticeable in the 1980's in New England.

A decline was evident in 1971 in the Poconos (another heavily sprayed region) when I spent a summer there collecting. Two blacklight traps from 20 June to 28 August at heavily forested Resica Falls yielded no Sphinx except S. gordius and only a few D. rubicunda and one each of A. luna and both Callosamia. I cannot determine when this decline began, but more recent samples (1985-1987) from elsewhere in Monroe County suggest A. luna and D. rubicunda are now common. No other Saturniidae except H. maia have been collected, however. No decline has occurred as of 1987 in southern New Jersey.

To summarize, there was a massive decline of the giant moths in and near southern New England involving at least all Saturniidae, all <u>Sphinx</u> (except <u>gordius</u>), and <u>Manduca jasminearum</u>. This decline took place mostly between 1952 and 1958 and extended from northern New Jersey into southern New Hampshire.

Recovery in New England has been variable, but probably all of the originally widespread species have re-occupied most of their 1940's range there, except that both <u>Citheronia</u> spp. are apparently extirpated from the region and <u>Eacles</u> is nearly so. <u>Antherea</u> polyphemus is guite rare, and shows up more eastward than west of the Boston suburbs. Such recoveries started soon after the ban on DDT. After the decline of aerial gypsy moth spraying, recoveries have taken about six to ten years to become noticeable and are probably continuing for some species. Some parts of southern Connecticut still have very few, if any, Saturniidae or <u>Sphinx</u>. <u>Manduca</u> <u>iasminearum</u> has not been seen in New England for about 35 years.



Dale F. Schweitzer, Ph.D. Eastern Heritage Task Force The Nature Conservancy

THE FIRST RECORD OF LETHE APPALACHIA IN SOUTHERN ILLINOIS

The Appalachian brown, <u>Lethe appalachia</u> Chermock, based on numerous records, occurs from Georgia north to Massachusetts and Quebec, and west to Tennessee, Missouri, South Dakota, and Minnesota (Carde, R. T., A. M. Shapiro, and H. K. Clench. 1970. "Sibling species in the <u>eurydice</u> group of <u>Lethe</u> (Lepidoptera: Satyridae)." Psyche 77:70-103.).

All previous Illinois records of L. appalachia are from Cook County. Irwin and Downey (Irwin, R. R., and J. C. Downey. 1973. Annotated checklist of the butterflies of Illinois. Illinois Natur. Hist. Surv. Biol. Notes No. 81:1-60.) listed seven of these records. The most recent collection from Cook Co. is from River Grove, July 16, 1950, Kistner, and is in the Field Museum of Natural History.

Sites and McPherson (Sites, R. W., and J. E. McPherson. 1980. "A key to the butterflies of Illinois (Lepidoptera: Papilionoidea)." Great Lakes Entomologist 13:97-114.) considered that L. appalachia once occurred in Illinois but may no longer.

The habitats of L. <u>appalachia</u>, which have been cited by Howe (Howe, W. H. 1975. The butterflies of North America. Doubleday & Co., Inc., Garden City, New York.) are wooded swamps, streams through woods, and in shrubby shaded perimeters of some bogs. Each of these habitats includes <u>Carex</u>, the larval host plant genus for this butterfly.

During 1984, I collected one specimen of <u>L</u>. <u>appalachia</u> in Randolph Co., Illinois, at Piney Creek Nature Preserve on September 2.

Two sedges grow in extensive colonies in and along this creek. These sedges are <u>Carex substricta</u>, and <u>Carex torta</u>. Both sedges have been considered to be rare plants for the region (Mohlenbrock, R. H. 1985. Illinois natural areas: Piney Creek Nature Preserve. ERIGENIA, Journal of the Illinois Native Plant Society, No. 6:17-23.). Mohlenbrock (personal communication), has said that <u>C. substricta</u> grows in large tracts on the banks of Piney Creek. L. <u>appalachia</u> was collected while resting on <u>C. substricta</u>. <u>C. torta</u> is found primarily in the creek.

The specimen of L. <u>appalachia</u> will be deposited in the Southern Illinois University Entomology Collection, Zoology Research Museum.

I would like to thank David F. Hess, Western Illinois University, Macomb, for sponsoring me in the writing of this material. I also wish to thank Ellis G. MacLeod, Department of Entomology, University of Illinois, Urbana, for confirming my determination; and R. H. Mohlenbrock, Southern Illinois University, Carbondale, for his help in identification of the sedge.

T. L. Wiley, Undergraduate in Zoology Southern Illinois University Carbondale, Illinois 62901



TIPS ON REARING CECROPIAS

Qva: Cecropia moths are not particular as to where they lay their eggs when they are confined. They will deposit eggs in groups of one to twenty on the top, sides or bottom of the cage. The eggs are white and are fastened in place by a reddish-colored "glue". Sometimes the moth will accidently get a mass of eggs glued to herself, usually to her legs. The mass can be removed carefully without harming the moth. The eggs in the cage can be dislodged with a chisel-like tool, or a thumbnail. One must be very careful about this operation since the eggs are released suddenly and the force used to dislodge them is transferred into a propulsive force and the egg cannonades off with alarming speed and can be easily lost. If the egg, while moving, encounters a hard surface, it will bounce like a miniature ping-pong ball making it doubly hard to find again. Usually, I put the eggs in a small cardboard

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container, 4"x4", and cover it with a thin cloth held in place with an elastic band. On one occasion, I put them into a glass bottle which must have been damp. A fungus grew on the eggs destroying them all. There is no need to dampen the ova. They are fine in a household atmosphere. At room temperature the eggs will hatch in about two weeks. They should be examined at least daily after the ninth day, so that fresh leaves can be supplied as soon as the small larvae emerge.

Food: Cecropias are very versatile as far as food is concerned and will eat Apple, Cherry, Birch, Lilac, Ash, Willow, etc. I have found they don't seem to eat Beech leaves. Newly emerged larvae have some difficulty initiating a "start" on the edge of the leaf (seemingly) and if one finds a suitable place and begins to eat, it is soon joined by others which take advantage of the freshly chewed surface. They line up, "shoulder to shoulder" and eat in unison.

At first, one can provide individual leaves as food, but after the second instar the larvae become "weighty" and compress the leaves in the bottom of the cage making the leaves unavailable as food. It is best then to supply twigs with leaves attached. The twigs can be positioned so that the weight of the larvae won't allow the twigs to pack on the bottom of the cage. If one raises 20 to 40 in a cage as I sometimes do, then branches must be wedged to allow the larvae to feed properly. The fourth instar larvae must be fed at least twice a day. They can eat a surprising amount. The Crabapple tree I use as a food source has all the lower branches and the top completely pruned by Aug 15th when most of the larvae start to manufacture their cocoons. One must be prepared to climb the tree daily to obtain fresh food. I usually use the new growth at the top, cutting shoots 1/2" in diameter at the bottom end and about 4' in length. These I wedge into the cage after first removing frass and stripped branches, which are added to my compost pile.

Larvae: The first instar larvae are about ¹/₄" in length, sooty black and entirely covered with short, black hairs. I suspect there is cannibalism at this stage since a proportion seem to disappear unaccountably. (See below). Second instar larvae are yellowish and the black hairs are fewer and farther apart. Third instar larvae are a nice Apple green as are the Fourth and Fifth instars, with rows of yellow and blue tubercles along the top and sides.

<u>Cannibalism</u>: As mentioned above, I suspect cannibalism among the tiny first instar larvae. Twice I observed cannibalism among third and fourth instars. A careful study of the problem showed larvae eating smaller, similar sized, and larger siblings. Prolonged scrutiny detected that the larvae's skin was loose, much like an elephants! I concluded that the larvae were suffering from lack of moisture. I found this strange since I had thought there was enough moisture in the leaves they ate. I wetted some leaves and put them into the cage. The caterpillars immediately crawled to the wet leaves and started to vacuum the moisture from the surface. Thereafter, before putting leafy branches into the cage, I soaked them with the hose. There has not been any cannibalism since.

Skin Shedding: When changing skin between instars, the larvae cling to a network of silk threads they have spun on a branch. They then seem to release a liquid through the skin which softens the old skin and allows the larvae to slowly creep forward, leaving the old skin behind. They are vulnerable at this time and must not be disturbed, else the old skin is liable to become stuck to the larvae, and shrinking as it dries, remain as a tight belt around the larvae. Even if noticed and carefully removed, the larvae don't thrive after being constricted by the "belt" for any length of time. <u>Disease</u>: A percentage (2% to 3%) of larvae will die

Disease: A percentage (2% to 3%) of larvae will die from some cause or other. Another 1% or so will not thrive and will mature slowly and remain small. Sometimes these small ones will spin a tiny cocoon, but usually the pupa dies.

Predators: When reared in a cage, predators are unable to get to the larvae, but if reared in the open, most of them will disappear in a short time. Stink bugs, birds, and spiders attack them. Tachinid flies and predatory wasps lay eggs on the larvae which hatch after the larvae pupate. The predator then consumes the liquids of the pupae, makes its own pupa and emerges as the adult fly or wasp. If larvae are to be reared uncaged on shrubs or trees, then, I have been told, it is necessary to enclose them in 2 separate sleeves of netting to prevent stink bugs from puncturing the larvae, through the mesh, with their proboscises.

Pupae-Cocoons: When ready to pupate, a percentage will become very active in their attempt to leave the food tree preparatory to making a cocoon. Some larvae are content to pupate on the food tree. The larvae are quiescent for about 24 hrs before making their cocoons. During this time they evacuate their bowels. After choosing a suitable site for the cocoon, the larvae extends the fore-part of its body as far as it can in all directions to weave a support network for the cocoon. Any leaves encountered at this time are drawn in to become part of the cocoon. Inside the support network of silk and leaves the cocoon is woven. A second. smaller, inner cocoon is then woven to enclose the pupa. About 2 days after the cocoon is completed, the larva pupates. The cocoon is adequate protection against against the severe winters of North America. Temperatures to -40° C. are endured and the pupa is able to withstand wind and ice and rain inside its cocoon. I store those I rear in a screen covered box in my garage. I suppose they must be guarded against mice and shrews (both of which frequent the garage from time to time), but I have never lost any to those sources. The moths emerge in late May or June in the Ottawa area (45 N latitude), when the nighttime temperature is area $(45^{\circ}N$ latitude), when the nighttime temperature is about 18 °C. As they have been stored in such a dry place as the garage, I wet the cocoons once or twice to soften them and to provide moisture to the pupa preparatory to the eclosion date.

Disorientation of Pupae: Many times I have seen moths attempt to emerge from the wrong end of the cocoon. The cocoon is constructed with an exit in one end only. The emerging moth cannot escape the cocoon if the pupa, and the larva before the pupa, is faced toward the closed end. After much thought, I concluded that it was my fault that the larva was oriented the wrong way. Each day when I emptied the box of frass and added fresh food, I first carried the boxes outside to a convenient work bench. Probably often the boxes became turned 90° or 180° when they were returned to the garage. A larva working on the inside of its cocoon is probably oriented by light from the garage window. If the box is reversed, the larva becomes disoriented in the cocoon and finished up in the wrong direction. This past year I marked the boxes with a large "N" and kept this side to the North. J hope, and expect the problem has been overcome and all pupae are "aimed" correctly.

Emerging Moths: Emerging moths must quickly find a verticle surface to climb, or a perch from which to hang, in order that their wings can hang free before being "inflated." If they cannot hang with wings free of obstructions, then the wings will not "inflate" properly and will be deformed. Usually I place cocoons on the bottom of a covered box. The moths crawl up the sides and suspend themsleves from the screen cover or the sides. Usually they maneuver themselves into a position free of obstruction. The time of emergence is usually between noon and 4:00 p.m. (in Ottawa). Males are dry and ready and able to fly by 7:00 p.m. They attempt to fly about dusk. If allowed, most males will fly away the same day they emerge. Females tend to emit pheromones to attract males from where they emerge, some the first night and others the second night after emerging. If they fail to attract a male after one or two nights, then females will fly to another area. Female Cecropias, in the Ottawa area, emit pheromones at dusk, 9:00 p.m. until 11:00 p.m., then again at or before dawn, 4:00 a.m. Moths raised as larvae in boxes will be smaller, as a rule, than "wild" moths, with smaller wingspans.

<u>General Observations</u>: There seems to be a mechanism to inhibit siblings from interbreeding?

Sometimes females do not mate with a male in the same box but readily mate with a male attracted from outside. I usually keep eggs from a number of females to avoid this problem. Males usually emerge a day or two before the females. If all males are released as they emerge, then one is left with a number of females unable to attract males.

If you do raise Cecropia (or other larvae), be prepared to tend them <u>daily</u> for 2^{l_2} months. If you travel, they must be left in capable hands. I have tried to "farm them out" on neighborhood shrubbery for a week, while I was away, but few remained after the week was up.

J. W. (Jack) Holliday Ottawa, Ontario, Canada



DON BRIGG STALLINGS.....

On 18 September 1987, Don Stallings died at his home in Caldwell, Kansas, after a long illness. He is survived by his wife of over 54 years, Viola Turner Stallings, his sons Don B. Stallings, Jr., and John R. Stallings, and six grandchildren. From the time of the diagnosis of cancer in 1982, with initially effective therapy, he and Mrs. Stallings continued to carry out productive field trips for the purpose of obtaining new living material of Megathymidae needed for a program of molecular systematics with the writer and associates in Genetics at the University of Rome. In 1984 they went to Mexico, in 1985 to New Mexico, Arizona, and California, and then in 1986 to Texas. He was surely the most knowledgeable specialist ever to study the systematics and field biology of the Megathymids, with their boring larvae in Agave and Yucca plants. And he was keenly aware of the challenges of various other observers to the naming of a large number of newly discovered taxa by himself and his continuously associated field researchers, Viola Stallings and her brother, Dr. J. R. Turner. Early on he sought the most conclusive tests of taxonomic experiments. validity, including some hybridization foodplant transfer in captivity, relations in sympatry, and then fixing pupal testes of many rare megathymids for chromosome analysis by the writer in association with Professor Kazuo Saitoh. As molecular systematics emerged recently as the most telling source of data on genetic distance, he concentrated on sending series of living pupae for getting material into the freezer, and during the next year or two there should be results of enormous interest. To my deepest regret, he did not survive to see those findings, but he was ardently interested in providing the essential animal tissues. Two major papers are in late drafts and will soon go to press, one on the beulahae Complex of Megathymus which he considered his best paper, and one on a remarkable array of Agathymus species. His first paper was published in 1941.

Don Stallings was a Charter Member of the Lepidopterists' Society and served it well in many ways from its founding in 1947. He was the only person to serve two terms as President, during which he played a pivotal role in steering it through a period of uncertain stability.

For many years he has been Research Affiliate and Curatorial Affiliate in Entomology of the Peabody Museum of Natural History at Yale University. The magnificient Stallings and Turner Collection of Lepidoptera was presented to that Museum. There are more than 5,000 Megathymidae, including many preserved immatures and the types of a large number of species and subspecies. Don Stallings was born in Oswego, Kansas, on 4 August 1910. He earned his LL.B. from the University of Kansas in 1933 and was a beloved and respected practioner of law in Caldwell for the next 54 years.

I and my family have had a close personal association with my dear friend and his far-flung family since 1953, and I already feel the deep loss in knowing I will no longer get those wonderful phone calls and visits, each revealing another thrilling discovery.

A more definitive biographical obituary is in preparation for the JOURNAL.

Submitted by Charles L. Remington

JOHN HEATH

I shall never more have a good talk and discussion with my very good friend of many years, John Heath. His wife, Joan, told me the sad news that he had died of a heart attack in July. John came to Denmark to stay with me for a month in 1946. This resulted in a profound friendship lasting until his early death. He paid me visits in Denmark whenever the opportunity arose. It was not just the "Bug Hunting" that brought us so close together -- we also had wonderful general discussions and talks.

John suffered a very terrible experience during the War when a bomb came down a ventilation shaft and killed a lot of his friends who were with him. This event stayed with him for the rest of his life even if only his closest friends could see it. John was much more sensitive than his acquaintances could know. He gave himself to two things, his friends and to Entomology. You could ask John any favour and he did his very best to help. He is the author of many papers, but his Monograph on Micropteryx will stand above all of them.

He was one of the most enthusiastic leaders of the Record Centre for Invertebrates and has given many lectures on this subject in most countries of Europe. He was most devoted to the conservation of our insects, but never to the point of forbidding the collection of them. I do not know of all the specialist fields in which John was interested, but I know that he always went fullheartedly into every problem which came to him. Until his retirement he was leader at the Monks Wood Experimental Station. John was the very first to write in my guest book in Greece and he wrote -- "John Heath,.... who has argued with you for the last 32 Years". He could not have said it better. My deepest feelings go to his widow Joan and to his son Nigel in their great sorrow.

Submitted by George Christensen

JOHN H. NEWMAN

John H. Newman, 78, passed away on November 4th at his home in South Lyon, Michigan. Jack, as he was known to many of his friends, came to the United States in 1926 from Tonapandy, Wales, and enjoyed a multifaceted career as an interior decorator, farmer, entomologist, horticulturist, and retired several years ago as an entomological technician at Michigan State University. Jack was a Charter member of the Lepidopterists' Society although he resigned upon retirement, and was a former President of the Michigan Entomological Society. Jack had a positive impact on many young, developing lepidopterists and spent much time with 4-H youth, instructing and instilling an interest in entomology. His lepidopteral interests were essentially limited to the Michigan fauna and he developed one of the largest private collections of lepidotera within the state. He described <u>Meropleon</u> ambifusca and co-authored <u>Phragmatobia</u> <u>lineata</u> with Julian Donahue. Jack added much to the knowledge of Michigan's lepidoptera fauna and will be greatly missed by his many friends and former collecting companions!

Submitted by M. C. Nielsen



• I have been studying the distribution and biology of <u>Papilio indra</u> in Utah for nearly 7 years, and for the last 3 years have been emphasizing <u>P. indra minori</u> and <u>kaibabensis</u> throughout their entire range of Utah, Colorado, N. Mex. and Arizona. I am also looking at distribution, use, and preference of their various larval food plants, along with distributional changes in larval parasites, and the frequency of parasitism for these <u>indra</u> races between localities throughout their entire range. I plan to continue this work for maybe 2 more seasons, depending upon my success this field season.

I am interested in correspondence with anyone who has ever collected <u>minori</u> and/or <u>kaibabensis</u>, either adults or immature stages. Information on food-plants or parasites will be helpful. I need information for the following areas: UTAH - Kane Co. (esp. north half), Garfield Co. (esp. south half) and San Juan Co.; ARIZONA - Coconino Co. (Jacob Lake area, No. to Utah border), Navajo Co., and Apache Co.; N. MEXICO northwest part (except L.A.Co. Museum specimen) (only 1 verifiable record known for the state - so far); COLORADO - Montezuma Co., La Plata Co., Dolores Co., and San Miguel Co.

It is "rumored" that P. indra has been collected in or near Bryce Canyon National Park, Utah. Please write if you know anything about this record!

Thank you for your assistance. Contributors will be acknowledged in future publications. Write to: Wayne H. Whaley, Dept. of Zoology, 574 WIDB, Brigham Young University, Provo, Utah 84602.



ENDANGERED BUTTERFLY SPECIES UPDATE

The Federal Register of Friday, Sept. 25, 1987, Part IV, Department of the Interior, Fish and Wildlife Service, 50 CFR Part 17, defines the status of <u>Hesperia leonardus</u> <u>montana</u>. This little skipper, which flies only in a limited area of the front range of the Rockies in central Colorado has been designated a <u>threatened</u> species in the final ruling under the authority of the Endangered Species Act of 1973, as amended. The effective date of this ruling is October 26, 1987.

MISSED OR DEFECTIVE NEWS ISSUES

The NEWS Editor periodically receives requests for replacements of missed or defective issues of the NEWS. A reminder seems appropriate that the replacement of these items is handled by the TREASURER, not by the NEWS Editor. If perchance you have a defective copy to be replaced, please send that copy to the NEWS Editor, since Allen Press wishes to see these copies so as to be able to prevent recurrences, but also notify the Treasurer so as to get your replacement copy. Refer to the back page of any NEWS issue to determine the appropriate person, and their address, to contact for missed or defective issues, back issues, address or areas of interest changes, membership information plus NEWS deadlines and where to send items for either the NEWS or the JOURNAL, etc.

ASSISTANTS NEEDED IN PANAMA

WANTED: Assistants with experience in raising lepidoptera. Useful if such possess basic skills in nutrient and fat analysis/plant secondary defenses. Investigation is <u>Urania</u> moth migration throughout Neotropics but centered in the isthmus of Panama. Send cv to Neal Smith, Smithsonian Tropical Research Institute, Apartado 2072, Balboa, Republic of Panama.



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BUY - SELL - EXCHANGE: POLICY STATEMENT

At the Executive Council meeting in Fairbanks in June 1979 it was decided that the policy regarding placement of members' notices in the NEWS should be determined by the Editor, in keeping with the purposes of the Society as outlined in the Constitution, i.e.: "... to promote the science of lepidopterology; ... to facilitate the exchange of specimens and ideas by both the professional worker and the amateur in the field, ..." (Article II). Commerce in lepidoptera is not a stated objective.

Therefore, it will be our policy to print notices which seem to meet the above criteria, just as in the past, without quoting prices (except for those of publications or lists). Notices which seem by their listing of offerta/desiderata, or by an organizational title, to be commercial in nature, will be entered in a separate section as "commercial notices", listing only name, address, and a brief indication as to material offered/desired. No mention may be made in these notices of any species on any threatened or endangered species list. This will include all Ornithopterans now and for the foreseeable future.

Only members in good standing may place ads. Ads will be printed only once unless entry in two (maximum) successive issues is requested. A maximum of 100 words is allowed. S.A.S.E. calls for a self-addressed stamped envelope.

The Society, as always, expects all notices to be offered in good faith and takes no responsibility for the integrity of any advertiser. Any disputes arising from such notices must be resolved by the parties involved outside of the structure of the Society.

- FOR SALE: "Synopsis of N.A. Butterflies", W. Edwards (1872); "The Species of the Lep. Genus Pamphila," S. Scudder (1874); "On the Color and Color Patterns of Moths and Butterflies", A. Mayer (1897); "Lep. Collected by Canadian Arctic Exp., 1913-18", A. Gibson (1920); "Exploration of Southhampton Is., Hudson Bay (Lepidoptera Coll.)", W. Holland & A. Avinoff (1935). All in original covers. Write for details. M. C. Nielsen, 3415 Overlea Drive, Lansing, MI 48917. Phone (517) 321-2192.
- FOR SALE: Cocoons of <u>A. luna</u>. SASE for prices. Larry J. Kopp, R.D. Box 30, Klingerstown, PA 17941.

- WANTED: The following books and publications. The Butterflies of the West Coast by W.G. Wright, On the Sphingidea of Peru by A.M. Moss, <u>Butterflies of Cuba</u> by D. Marston Bates, "Monograph of the Genus Erebia" by B.C. Warren, Butterflies of the Australian Region, and <u>Birdwings</u> of the World by D'Abrera. State condition and price. ALSO FOR SALE: Bait traps and light traps. For information and prices Contact Leroy C. Koehn, 2848 N.W. 91st Ave., Coral Springs, Florida 33065. Telephone (305) 344-3873 (home) or (305) 392-3900 (work).
- FOR EXCHANGE: I have most eastern and several western species of North American butterflies for trade. Most interested in western and Arctic species. Send want/trade lists to Ron Gatrelle, 126 Wells Rd., Goose Creek, SC. 29445.
- WANTED: Contacts for exchange of butterfly specimens. I desire contact from all parts of the world, including North America, and can offer same in exchange. Interested in all families, but especially Papilionidae, Nymphalidae, Pieridae, and Heliconiidae. Both commoner and rarer species are of interest. Please write: all letters will receive a reply. Also seeking BOOKS: Talbot's Delias monograph; D'Almeida 1966 S.A. Papilio catalogue; Rothschild's 1895 Revision of Papilios of Eastern Hemisphere. Contact: Danny Burk -Box 403 - Mishawaka, IN 46544; phone (219) 255-5037 evenings/weekends.
- FOR SALE: C. regalis pupae. S.A.S.E. to Catherine
- Hartman, 25903 CR 24 W, Elkhart, IN 46517. WISH TO EXCHANGE OR BUY: Have ex pupa pairs of Papilio hospiton, P. a. pumilus, P. a. siciliae, etc. WANT rare Asiatic & Russian Parnassius, pupae of S. telamon and L. puziloi; Canada eversmanni; phoebus sternitzkyi, hollandi, ssp. from Alaska and Yukon, P. machaon aliaskae are welcome. (I accept only 1A very fresh pairs). Nardelli Uberto, Via Cosma e Damiano 9/2, I-38100, Vela-TRENTO(Italy).
- WANTED: To buy or trade North American Butterflies. Please send list to Bill Cornelius, P.O. Box 57, Albion, CA 95410-0057.
- WANTED: Ova of Catocala cerogamma, illia, blandula and <u>crataegi;</u> offer <u>C</u>. <u>briseis</u> ova in exchange. Henry Hensel, 145 Bellevue Str., Edmundston, N.B., Canada, E3V 2E2. Thank you!
- FOR SALE OR EXCHANGE: Pupa of C. promethea, P. troilus, C. euphorbiae, C. gallii and S. ligustri. Contact Kenneth R. Knight, 433 Brady N.W., Comstock Park, Michigan 49321 or call (616) 784-6243.
- FOR SALE: The Audubon Field Guide To Insects and Spiders of N. America. 702 full-color photographs of insects and spiders in their natural habitats, 990 pages. Hardly used, best offer. ALSO FOR SALE OR EXCHANGE for Lepidoptera: <u>Lethocerus americanus</u> (Belostomatidae). Chris Schmidt, Box 11, Didsbury, Alberta TOM OWO, Canada.
- WANTED: Pupae of Papilio polyxenes asterius, troilus, rutulus & turnus. Helmut P. Kimmich, 3372 Mahon Ave, North Vancouver, B.C. V7N 3T6, Canada.
- FOR SALE OR EXCHANGE: Southeastern lepidoptera (papered) including <u>Papilio palamodes</u>, <u>P. troilus</u>, <u>Eurytides marcellus</u> and some Sphingids and others. WANTED: Live cocoons, ova or pupae of Saturniids and Sphingids. I will also have H. cecropia ova for sale this coming spring. For availability list send SASE to Michael Benton, 3 Todd Drive, Brunswick, Georgia 31520.
- FOR SALE OR EXCHANGE: Good selection of Arctic/Alpine Butterflies including Erebia occulta, E. lafontainei, <u>Parnassius, Boloria distincta, etc. B. napaea halli</u> & improba harryi from Wyoming. Also numerous other N. American species. All specimens A+ perfect and at reasonable prices. Will exchange for other N.A. species, esp. Lycaenidae & Satyridae; also desire Arctic/Alpine Europe and Asiatic species. Also have quantities of <u>Oeneis polixenes</u> yukonensis form "lafontainei". This is the common, dark, bog flying form of Q. polixenes previously thought by some to be a separate species. Tom W. Kral, P.O. Box 349, Necedah, WI 54646.

- WANTED TO BUY: Wild collected cocoons or reared cocoons of Hyalophora euryalis, H. gloveri, Philosamia cynthia or other Saturnids. I will return your postage if you send valid offers. Please include your phone number. Jeff Frey, 364 Oaklyn Road, Lebanon, PA 17042 USA.
- FOR SALE: Cocoons of H. cecropia and A. polyphemus. Send SASE to Daniel Bantz, 12524 7½ Mile Road, Caledonia, WI 53108 or phone 1-(414) 835-2870 for a price list.
- SEEKING SOURCES of Heliconian ova around the middle of April, 1988, or papered specimens of assorted species. Would like charitonious or assorted other species in exchange for papered specimens of the Midwest, USA. Contact Mark Bryant, 2408 Viking Dr, Independence, MO 64057 or phone (816) 795-1760 after 5 p.m. CST.
- FREE MEMBERSHIP: Order a copy of the new book The Butterflies of Indiana by Ernest Shull from The Ohio Lepidopterists for the regular price of \$25.00 (add \$2.50 for shipping and handling) and receive a ONE YEAR FREE MEMBERSHIP in The Ohio Lepidopterists. Send \$27.50 (check or money order) to: The Ohio Lepidopterists. 1241 Kildale Sq. N., Columbus, Ohio 43229. USA.
- FOR SALE: Live pupae of Hemileuca electra, H. electra clio, H. burnsi, H. eglanterina (San Gabriel Mts, L.A. Co), H. <u>nuttalli</u> (Mono Co), <u>Automeris pamina</u>, <u>Anisota oslari</u>. Papered adults of above and other rarer SW U.S. Saturniidae. SASE for lists. F. P. Sala, 3830 Carnavon Way, Los Angeles, CA 90027. Phone (213) 664-6503.

MEMBERS' COMMERCIAL NOTICES

- FLORA & FAUNA BOOKS, P.O. Box 15718, Gainesville, FL 32604, USA. Complete natural history book service. All new book prices routinely discounted 5% or more. Current sale items: D'Abrera, Butterflies of S. Am., \$16.95; Ferris/Brown, Butterflies of the Rocky Mts., \$14.50 (pap); DeVries, <u>Butterflies</u> of <u>Costa</u> <u>Rica</u>, \$16.95 (pap); Covell, <u>Field</u> <u>guide</u> to moths, \$8.95 (pap); Klots, Field guide to eastern butterflies, \$8.95 Shull, Butterflies of Indiana, \$19.95: (pap): Tilden/Smith, Field guide to western butterflies, \$8.95 (pap); Gerberg/Arnett, Butterflies of Florida (early 1988), \$8.75 (pap); Stehr, Immature insects, \$58.95; Arnett, Amer. Insects, \$76.50. Postage and handling extra (\$1 + \$.50 per book). Individuals should prepay (purchase orders accepted from institutions). Ask for free catalogs. Sale expires March 31, 1988.
- WORLD OF NATURE IMPORTS, P.O. Box 14570, Madison, Wisconsin 53714-0570 FOR SALE: Lepidoptera and Coleoptera from all parts of the world. Many rare and uncommon species offered. Free price list sent on request.
- CONNECTICUT VALLEY BIOLOGICAL SUPPLY CO, P.O. Box 326, Southhampton, MA 01073. WANTED TO BUY: Cocoons containing living pupae of <u>polyphemus</u>, cynthia, luna, promethea, cecropia or other native Saturniid moths. Lots of 100 or more preferred. Interested breeders may contact us at above address.
- MARYLAND ENTOMOLOGICAL SOCIETY, c/o W. Andersen, 220 Melanchton Ave, Lutherville, MD 21093. FOR SALE: American Wildlife Stamps on special First Day Covers. Cachet is colorful butterfly logo of the Maryland Entomological Society and for its benefit. Also sets of 10 different covers with special National Parks cancellations available. For prices send SASE to above address.
- ENTERPRISES, P.O. Box IANNI BUTTERFLY 81171. Cleveland, Ohio, 44181. Telephone: (216) 888-2310. Worldwide butterflies, moths and beetles for all price ranges. Superior quality, double boxed for shipping Personalized service to the beginning or safety. seasoned collector. Specializing in Papilio, Morpho and Heliconius. ALSO excellent quality insect mounting pins including standard black, Elephant, Stainless Steel. Best prices available. Send \$5.00 U.S. for one year price list subscription.

- TRANSWORLD BUTTERFLY COMPANY (LS), Apartado 6951, San José, COSTA RICA Central America. NEW WINTER CATALOG incl new material from South America, Indonesia, China, Europe. Specialists in Parnassius, Morpho, Papilionidae of the world. State interests when writing. <u>COLLECT IN COSTA RICA</u>: New 1988 program now available. Send \$1 for catalog, or \$6 for years' catalogs & newsletters sent monthly by airmail.
- MIGUEL SERRANO TROPICAL BUTTERFLIES, 6823 Rosemary Dr, Tampa, FL 33665, USA. Specializing in rare and bred material from Central and South America. Send for our extensive list of all families, especially Papilionidae and Ithomiidae.



Forthcoming Meetings

PACIFIC SLOPE SECTION MEETING

Pikes Peak Research Station near Florissant, Colorado, will be the site of the 1988 meeting of the Pacific Slope Section of the Lepidopterists' Society. The meeting, which will begin Friday afternoon, July 8 and end Sunday noon, July 10, will feature symposia on Microevolutionary Changes in Western Lepidoptera and on Ecology of Immature Stages of Buterflies and Moths as well as contributed paper sessions. Immediately prior to the meeting, Pikes Peak Research Station will host a workshop on the <u>Biology</u> of <u>Butterflies</u> (July 1-7) to be taught by Dr. Thomas C. Emmel of the University of Florida, Dr. John Emmel of Hemet, CA, and Dr. Boyce Drummond of PPRS. The workshop will focus on the ecology of early stages of butterflies (and moths), rearing techniques for Lepidoptera, and on photography, record keeping, and special methods used in life history studies. Field trips to locations from 5000' to 12,000' elevation are included. Workshop participants may reserve their accommodations to stay on for the Pacific Slope meeting. Detailed information on the Pacific Slope meeting and a call for papers will be sent to all members with zip codes of 80000 or greater. Others

interested in the meeting should contact Dr. Boyce Drummond, Pikes Peak Research Station, Colorado Outdoor Education Center, Florissant, CO 80816 or telephone (303) 689-2025 for more information.

14th ANNUAL XERCES SOCIETY MEETING

The Xerces Society will hold its 14th annual meeting from Tuesday evening, June 21, through Saturday, June 25, 1988, at Pikes Peak Research Station near Florissant, Colorado. To complement symposia on alpine ecosystems and fossil arthropod communities, field trips to arctic-alpine areas and the Florissant Fossils Beds National Monument are planned. Nearby attractions include Cripple Creek Historical District, Royal Gorge, Pikes Peak Cog Railway, Garden of the Gods, May Tropical Insect Museum, and spectacular scenery everywhere. Immediately prior to the meeting, Pikes Peak Research Station will host a workshop on the Biology of Moths (June 15-20), which will also include sessions on butterflies and other insects, a special practicum on fossil insects, and field trips to a variety of elevations and habitats. The workshop will be taught by Dr. Charles Covell of the University of Louisville, Dr. Thomas C. Emmel of the University of Florida, and Dr. Boyce Drummond of PPRS. Workshop participants may reserve their accommodations to stay on for the Xerces Society meeting. For more information about the Xerces Meeting or the Biology of Moths workshop, Contact: Dr. Boyce A. Drummond, Xerces Meeting Chairman, Pikes Peak Research Station, Colorado Outdoor Education Center, Florissant, CO 80816 or telephone (303) 689-2025.

39th ANNUAL MEETING OF THE LEP. SOCIETY

The Carnegie Museum of Natural History will host the 39th Annual Meeting of the Lepidopterists' Society from July 14 to July 17, 1987, in Pittsburgh, Pennsylvania. Page 87, NEWS #6, 1987, contains information and a registration form. For the convenience of any new members who would care to attend, the registration form is being repeated in this issue. Registration packets with all necessary information for attendees will be sent out in February to those members returning their completed registration forms.

Name:	
Address:	City:
State/Province: Country:	Zip Code:
Number of persons in your party who will register	_
Number of persons in your party who will need accommodations	
Where will you stay? Residence Hall;	Motel/Hotel; Other
How will you travel to meeting? Your vehicle;	By plane; Other
Will you present a paper at the meeting?	
Would you participate in a one-day field trip after the meeting?	
Which of the following field activities interest you most?	
Collect moths Collect butterflies	Photography
Other (please describe)	
Comments:	
Mail to: John E. Rawlins, Section of Invertebrate Zoology, Carnegie Museum of Natural History, 4400 Forbes Avenue, Pittsburgh, PA 15213 U.S.A., phone (412) 622-3259	

From: The Lepidopterists' Society Address Correction Requested: Allen Press P.O. Box 368 Lawrence, KS 66044

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DEADLINES: Material for the Jan/Feb issue should reach the NEWS EDITOR by <u>Dec 1</u> of the previous year, and that for the Mar/Apr issue by <u>Feb 15</u>, for the May/June issue by <u>Apr 1</u> and for the July/Aug issue by <u>May 1</u>, the Sept/Oct issue by <u>Aug 15</u> and the Nov/Dec issue by <u>Oct 15</u>. Reports for the SEASON SUMMARY must reach the ZONE COORDINATORS listed on the front cover no later than the <u>5th of January</u>. NEWS EDITOR is June Preston, 832 Sunset Dr, Lawrence, KS 66044, USA. RIPPLES EDITOR is Jo Brewer, 257 Common St, Dedham, MA 02026, USA.

INFORMATION ABOUT THE SOCIETY

Membership in the Lepidopterists' Society is open to all persons interested in any aspect of Lepidopterology. Prospective members should send the TREASURER, James P. Tuttle, 3838 Fernleigh Ave, Troy, Michigan 48083, the full dues for the current year, \$25.00 US, together with mailing address and a note about areas of interest in the Lepidoptera; student membership (must be certified) \$15; sustaining membership \$35; life membership \$350. Remittances must be in US dollars, payable to the Lepidopterists' Society. All members will receive the JOURNAL (published quarterly) and the NEWS (published bimonthly). A biennial membership directory will comprise the last issue of the NEWS in even-numbered years.

<u>Changes of address</u> (permanent ones only), <u>Additions or Changes in Telephone Numbers</u> or <u>Areas of Interest</u> and <u>Information about Mailing List Rental</u>: Contact the ASSISTANT SECRETARY, Julian P. Donahue, Natural History Museum of Los Angeles County, 900 Exposition Blvd, Los Angeles, California 90007, USA.

Information on Membership and other aspects of the Society must be obtained from the SECRETARY, Dr. Richard A. Arnold, 50 Cleaveland Rd, #3, Pleasant Hill, California 94523, USA.

<u>Requests for Missed Issues</u> (i.e. those not delivered although dues have been paid on time) should be sent to the TREASURER, James P. Tuttle, address above, or the PUBLICATIONS COORDINATOR, Ron Leuschner, address below. Defective issues will also be replaced by the TREASURER. <u>Do not</u> request these of the NEWS editor.

Manuscripts submitted for publication in the JOURNAL are to be sent to Dr. William E. Miller, EDITOR, JOURNAL of the Lepidopterists' Society, Department of Entomology, University of Minnesota, St. Paul, Minnesota 55108, USA. See the inside back cover of a recent issue of the JOURNAL for editorial policies.

AVAILABLE FUBLICATIONS OF THE SOCIETY..... Order from the FUBLICATIONS COORDINATOR, Ron Leuschner, 1900 John St., Manhattan Beach, CA 90266, USA.

<u>CATALOGUE/CHECKLIST</u> OF THE BUTTERFLIES OF AMERICA NORTH OF MEXICO (Memoir No. 2), Lee D. Miller & F. Martin Brown: includes references to original descriptions and location of type specimens. Members and subscribers, \$10 cloth, \$5 paper; non-members, \$17 cloth, \$8.50 paper, postpaid.

<u>COMMEMORATIVE VOLUME</u>, 1947-1972: a 25-year review of the Society's organization, personnel, and activities; biographical sketches; JOURNAL 25-year cumulative index by author, subject, and taxon; clothbound. Members and subscribers, \$6; non-members, \$10, postpaid.

1986 MEMBERSHIP DIRECTORY (current to November 1986). Biennial directory of members and their addresses, with geographic and interest indices. Not available for commercial use. (NEWS #6 for 1986). \$5.00 postpaid.

BACK ISSUES of the JOURNAL and of the NEWS of the Lepidopterists' Society. For a list of the available issues and their cost, postpaid, send a SASE to the SECRETARY or to the FUBLICATIONS COORDINATOR.