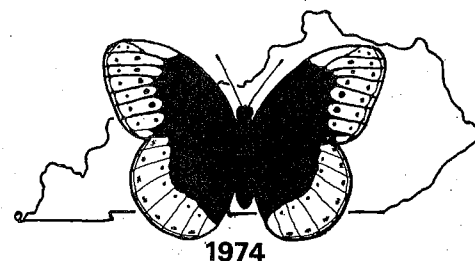

KENTUCKY LEPIDOPTERIST

Newsletter of the Society of Kentucky Lepidopterists

VOLUME 18, NUMBER 3: SEPTEMBER 1992

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EDITORS' NOTES

Well here we are, late again. I hadn't planned on running this issue as there were few submissions as of the July 15 deadline. This issue exists mainly because of the great effort given by Paul Grey. Paul is now bedridden with terminal emphysema. He has sent the remaining three parts to finish his series on lep genitalia. He has taken great pains to show that "the general avoidance of doing genitalia of females is not warranted". His "SEE THRU TECHNIQUE" is not difficult, is less time consuming than doing male preps, and hopefully will inspire workers to work with females in addition to males. A "See Thru prep also shows the natural orientation of female structures within the abdomen. At the fall meeting I will have pictures of female preps on display. I will also be putting all the chapters together as a single unit after the last chapter has been printed. We owe Paul a great deal of thanks for this fine series.

The deadline for 18:4 is still October 7, 1992. Please mark the date on your calendar. It will go to the printer on October 9.

Only one other person gave me a BITNET/INTERNET address. The membership list should run in 19:1. If you would like your phone number or computer address included, please send it to me soon at the address above. Also, if you would like your areas of interest included please write me with your info.

Those members who wish to buy, sell, or trade are encouraged to send in their notice for the newsletter. The notices run two full issues unless renewed by the author.

COMING EVENTS IN KENTUCKY

Nov. 6-7: Our 19th ANNUAL MEETING at University of Louisville. Party at 8:00 P.M. Friday, Nov. 6, at the Covells'. Bring a snack or drinks. See video of the recent field trip to Taiwan. Program Saturday will feature Dr. Boyce A. Drummond III. His talk is entitled "Community Ecology of South American Rain Forest Butterflies." Contact Covell (phone numbers above) for motel information, directions, etc., and bring a door prize for the annual drawing. Also bring items to discuss with the group, to swap, to sell, or to get identified.

NEWS & NOTES

This has been a busy summer for Kentucky Lepidopterists. Burt and Mark Monroe collected in a number of Kentucky counties, and brought in many new country butterfly records. They visited Big Black Mountain July 11, and Mark joined the "Erora laeta Club" by capturing his first example of that elusive species. They report that the back slope of the hill where the ski lodge used to stand is now a tree farm. The gate barring access to that area is still in place (Arch Minerals owns much of the mountaintop).

Mike McInnis reports hand capturing a female Fixsenia favonius ontario (Edw.) near Iroquois Park in Louisville on May 31, 1992. It was perched on a Mayapple plant. This is the first Jefferson County record, and only the fourth KY county record for the species. The other three counties on record for this species are Fayette, McCracken, and Oldham.

The July 4th Butterfly Count in the Oldham County, KY site was actually carried out on July

4, for a change. There were 2 teams. Burt and Mark Monroe were in the Westport area, and Charles and Katherine Covell, Bob Gregg, Rich Henderson, and Vince Lucas were at the original segment at the Horner Wildlife Sanctuary. It was sunny and hot, and butterflies were moderately abundant. We recorded 46 butterfly species and 1,219 individuals. Best records included Atrytone logan, 1 Phoebis sennae, 109+ Satyrrium edwardsii, 6 Calephelis borealis, and 6 Clossiana bellona. We were also happy to find 5 monarchs, as this species is reported as drastically reduced in numbers this year - at least on the East Coast.

The July/August issue of ORGANIC GARDENING has a ten page spread on butterfly gardening and growing your own butterflies. It has numerous color illustrations and a long list of sources for books, plant suppliers, and organizations (2). The author owns a butterfly breeding farm and discusses methods for indoor culture.

A number of Kentucky Lepidopterists ventured together to Taiwan for collecting, photographing, and observing Lepidoptera. They included Tom Emmel, coleader; John Heppner, coleader; Andy Kleusener, Helen and Wally Mullaly, and Charles Covell. They covered a lot of territory in a crowded bus, spending more time in travel than in collecting and photography. The butterfly and moth populations were down because of drought. There were a few impressive sights, such as the black and red swallowtails, Atrophsneura horishana, on elderberry blossoms in Taroko Gorge, Byasa polyleuctes flying against the mist background at high elevations, the diversity at a butterfly farm in Puli, and excellent numbers along the road near Lower Palin on our last 2 days. Moth collecting was excellent in about 3 sites, but either impracticable or poor the rest of the time. One atlas moth was collected in the early morning of the last day out, at Upper Palin. They saw much of the country, and soaked up much Taiwanese culture. Covell used a compact video-camera (JVC) for the first time and got

some excellent (plus some not so good) footage of butterflies and Taiwan culture, as well a color transparencies.

Loran Gibson and Don Wright collected at Pennyryle Forest State Park (area) Aug. 21 and Frank Sauerheber Unit of Sloughs Nat. Wildlife Refuge in Henderson Co. Aug. 22. They were pretty much rained out at the former spot, but recorded some good captures on the 22nd, including noctuids Bellura gortynoides, Catocala amatrix, C. nuptialis, C. obscura, C. piatrix, and C. residua, and Melanomma auricinctaria, and Papaipema sp. (perhaps birdi).

Carlos Mielke is in the U.S. now, studying intensive English at the University of Florida, Gainesville.

Barry Nichols attended a session on Chironomid midges at the Eagle Hill Wildlife Research Center, Steuben, Maine, in late July.

Good luck to Vince Lucas, whose lepidopteran philatelic exhibit called "A Lepidopteran Love Affair" goes up against world class opposition at the GENOVA 1992 show in Genoa, Italy, in September.

Good luck to Ray Stanford, who is the President of the Lepidopterists' Society this year. Thanks to outgoing President, Floyd Preston, for a fine job; and to Dave Winter for an exceptionally efficient preparation for the marathon Executive Council meeting held before the East Lansing meetings in June. Thanks also to Mo Nielsen, who with the entomologists at MSU made the meeting there one of the best yet. Plan on attending the 1993 meeting in Ft. Collins, CO.

HANDBOOK FOR BUTTERFLY WATCHERS, by Robert Michael Pyle and Sarah Anne Hughes. 1992. Houghton Mifflin Co., Boston, 280pp., illus. Softcover, \$11.95. As stated in the title, this book deals with butterfly watching. It covers the reasoning behind watching

butterflies, where to find them, how to observe and photograph them, equipment needed, taxonomy, record keeping, counting, behavior, gardening, rearing, identification, and conservation. There are also chapters on teaching with butterflies, moth watching, and prime North American butterfly spots as well as spots abroad. The book is available at most local bookstores.

STUDY OF LEPIDOPTEROUS GENITALIA:

Chapter 3 by L. P. Grey

Following on from notes regarding keeping data (Grey 1991) and preparing abdomens by saponification in KOH (Grey 1992), the next steps, unhappily, demand apparatus which may strain the budget. Face it--for ease and precision in dissections there is no substitute for a binocular microscope.

However, if this fine tool cannot be cadged on loan or if three hundred dollars or so cannot be invested in one of the least expensive models, there still remain ways to limp toward making usable preparations. I speak from experience having in younger days studied many *Speyeria* spp. with a "youth's" monocular, learning to dab at reversed targets! I used jewelers loupes, 4x magnifying glasses--whatever came to hand. Also I was inspired when seeing Vladimir Nabokov doing precise naked-eye dissections of *Lycaeides* spp. with an insect pin! The main tool is determination. This entails getting started, making do with availabilities, following up with practice and learning from failures--there is no other way!

Given a magnifier, one next needs dishes. The smallest culture dishes offered by supply houses are, in my opinion, far larger than would be ideal. I have a few dishes of heavy glass, app. 15mm. deep, 25mm diameter; they conserve liquids, are appropriate size, not easily jarred, etc., but I have never been able to trace a source. They were given to my by Dr. dos Passos, and were probably obtained originally from a German supply house? In a pinch, some things can be

done using concave-ground slides, although they are too absurdly small to recommend. Members having ideas of how to solve this bottleneck, speak out! In the meantime I can only say, try available dishes and keep looking for better. They are important.

In supply house catalogs (Bioquip, AMBI, Edmund Scientific, etc.) there are pictures of needles and various micro tools used in dissecting. Easy to make, why buy? Unfortunately, some few tools have to be purchased. One can perhaps "get by" with small embroidery scissors, but how much nicer to have a set of iris scissors. Also, the long-nosed, very thin jewelers forceps are a must.

To my mind, brushes are among our best friends, but certainly not the kind sold in artists' supply stores. These almost invariably will become stiffened and brittle after a few immersions in alcohol or clearers, and then will do more harm than good, when cleaning abdomens. So let me whisper a valuable secret: go on a squirrel hunt. Yes, a brush made of squirrel hair does wonders--never goes brittle if washed and dried after use (as all apparatus should be). It can be applied quite heavily and vigorously without ripping tissue. If no other way of manufacture suggests itself, a clump of the hair can be bound with a tiny scrap of scotch tape, made of a size to screw tightly into a crowquill pen holder with epoxy glue. The resulting wad gets a haircut to desired shape and size. Try it, you'll like it.

Given these tools of the trade or whatever crude approximations can be assembled, the abdomen goes first into water baths, usually two or three, to rinse away the KOH and the saponified crud which is squeezed out through the thoracic opening. Start (and continue, and continue) to brush away vestiture (the scales and "hair"), taking care not to tear or displace any observed features of structure.

Here is where my previous remarks about

extending time and applying heat in the KOH bath find justification. I am a fanatic regarding clean abdomens, for reasons that will appear later. These first brushings can be gratifying if vestiture falls away rapidly, but exasperating when stubbornly retained. One plucks with forceps, rubs with scrapers (very delicately) and starts teasing features such as male valvae or female ovipositor lobes into desired configurations. It must be emphasized that preparations starting in water can be handled more roughly without damage than when stiffened by alcohol, clearers or whatever other reagent baths follow.

It may help the preparator's equanimity to remember that all things vary (even people). For unknown reasons identical-appearing specimens treated identically sometimes respond beautifully, others go sour despite loving care. A fairly common "disease" of noctuids is black spotting, ingrained in abdominal tissue. Unmentioned in the literature (?) I suspect this may be due to the work of red spider mites?

This seems to be a good point on which to end the present discourse--brushing, scraping, and plucking away at "hairs." Following procedures--the final cleanings, staining, dissecting, dehydrating, clearing, and throughout these operations working toward prying toward "poses" and stiffening the victim in a manner best calculated to display identifying characters--these blend together, discouraging isolated topical discussions. Therefore, to conclude this series I am preparing one long paper, broken into as many installments (at least two or three) as the subjects may demand. This, and the final slide making are the enjoyable parts that reward one's drudgery. I should add that slide making is a separate art which I hope some member will volunteer to detail for interested amateurs.

REFERENCES

Grey, L.P. 1991. Preliminaries to Studies of Lepidopterous Genitalia. Kentucky Lepidopterist.

17:23-25.

Grey, L.P. 1992. Study of Lepidopterous Genitalia: Chapter 2. Kentucky Lepidopterist. 18:3-4.

Hylolycaena hyllus IN MISSISSIPPI by Bryant Mather

Dr. Charles T. Bryson of the Southern Weed Science Laboratory, Stoneville, MS sent me

a male specimen of *Hylolycaena hyllus*. It was taken by Bryson on April 24, 1992 at Clarksdale, Coahoma Co., MS. This is the fourth Mississippi record and specimen, and the first from Coahoma Co. Previous records are:

- 1) April 27, 1951 @ Pace, Bolivar Co., female, B. Mather (Mather 1954).
- 2) June 22, 1984 @ Stoneville, Washington Co., female, C. T. Bryson (sight record) (Mather 1984).
- 3) May 24, 1984 @ Stoneville, Washington Co., male, C.T. Bryson (not published).

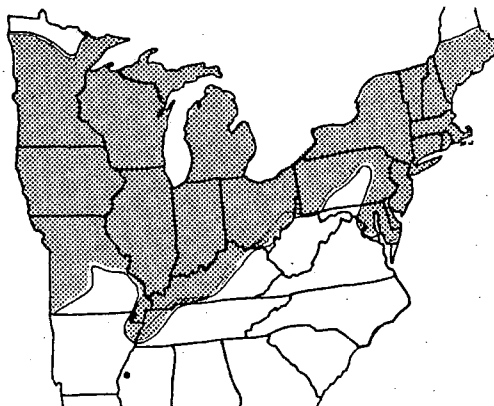


Figure 1.

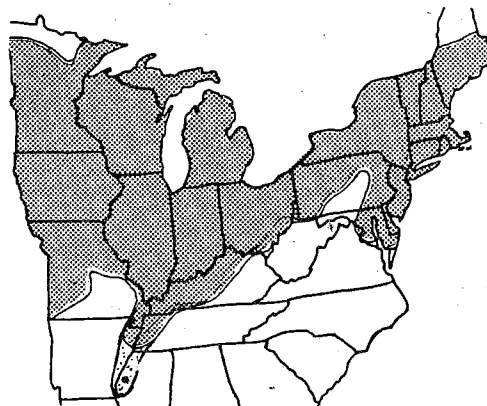


Figure 2.

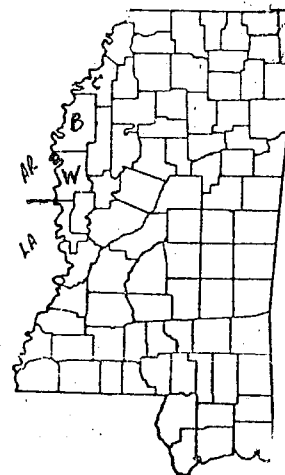


Figure 3.

Based on these records, it would appear reasonable to revise the distribution map (Figure 1) given in Opler and Krizek (1984, p. 84) which shows a dot for the 1951 record. The proposed revision would indicate a resident population in Mississippi in Bolivar, Coahoma, and Washington Counties (Figure 2). Figure three shows the location of these counties in Mississippi.

REFERENCES

- Mather, Bryant. 1954. Lycaena thoe in Mississippi. *The Lepidopterists' News*. 8:102.
- Mather, Bryant. 1984. Hylolycaena hyllus in Mississippi. *Southern Lepidopterists' News*. 6:3:14.
- Opler, Paul A. and George O. Krizek. 1984. *Butterflies East of the Great Plains*. The Johns Hopkins University Press, Baltimore. 294pp.

STUDY OF LEPIDOPTEROUS GENITALIA: CHAPTER 4 by L. P. Grey

Students embarking on study of genitalia (lepidopterologically speaking) who have followed steps outlined so far in the present series of articles (Grey 1991, 1992, and this issue) at this point would be confronting a partially cleaned abdomen resting in a dish of water and ready to stain.

With respect to stains I am strongly in favor of a substance known as "Chlorazol Black "E." In my opinion it is so greatly to be preferred as to warrant any struggle to procure and to learn how to use. It is uniquely sensitive to membranous tissue but at the same time hardly tinting sclerotic parts which then stand out contrastingly. It is difficult to understand why it is practically ignored in the literature and never to my knowledge listed for sale in any of the popular biological supply house catalogs. The last time I saw this compound (CB for brevity) listed

was by Sigma Chemical Company, headquartered in St. Louis, MO. Their catalog should be available in any university chemistry department library.

There is an "iron law" of staining which is well illustrated by the old reliable (but completely unselective) "mercurochrome red," wherein a water based product is "fixed" by a transfer to alcohol. It was sometime in my salad days, before I realized the stupidity of using an alcohol-based stain and then transferring to dehydrate in alcohol!

The CB was urged on me by the late Dr. A. B. Klots. I evolved a method of use that pleases me, but as the saying goes, "different strokes for different folks." Dr. F. H. Rindge gets excellent results in his own way, by putting a tiny crystal in a dish of strong alcohol and staining to the desired shade while dehydrating. Clearing is then done in Oil of Cloves, before mounting in a slide in Canada Balsam. This is a classic procedure, but "I had a dream" and decided to explore possibilities that might develop after squirting a water based solution of CB directly into an abdomen and then "fixing" while dehydrating in alcohol baths. At the same time I had Euparal in mind as a mounting medium which also might perform sufficiently well as a clearer.

A couple minor digressions follow: (1) The often-repeated direction that genitalia should be put through alcohol baths of increasing strength to "avoid distortion" is merely hoary nonsense. While true for delicate histological specimens of cellular tissue it has no relevance when dunking lepidopterous genitalia. The practice does indeed apply, but for entirely different reasons, as will be further annotated a bit later on. (2) The 99% isopropyl alcohol, now readily available from major supply houses seems to give results equal in every respect to the pure ethyl used back in earlier days, which was so hard to procure and to keep up to strength.

My first experiments were failures resulting in abdomens peppered internally with "black buckshot," conveying the apprehension that CB is not easily soluble in water, and yet the water basing seemed to be essential to desired fixation, in my planning. What to do?

Other procedures probably could be evolved through further experimentation but the recipe I came up with goes as follows: Dissolve the CB in 99% alcohol, let stew for two or three days, with repeated shaking, then run through filter paper. Carry on by massive dilution with water, ending with what in effect is a water-based stain. Amounts used, of the crystalline powder CB, etc., can be judged empirically as is also the "final" dilution working to the optimum intensity. One will gain respect for the CB . . . it is astonishingly powerful stuff . . . a tiny bottle of the fluid will last an active worker a long time, while a 5 gram vial of the powder is a lifetime supply. Almost surely repeated thinning will be tolerated or badly needed.

Before proceeding further I feel the urge to enter three more digressions that I think are cogent, namely, a disclaimer, a detour and a diatribe:

(1) Everything said heretofore applies mainly to middling-sized moths, noctuids and the like, which display nearly transparent membranous abdomens after due cleaning.

(2) Most collectors seem to gravitate to butterflies and in the majority of butterfly species the abdominal tergites are sclerotic to varying degrees, thus hindering internal viewing achievable with CB. A bleaching process therefore is almost obligatory before staining. Therefore, place the cleaned butterfly abdomen in a dilute (not over 20%) solution of Clorox. Watch the reaction closely and halt instantly with a drop of vinegar when satisfactorily faded. The Clorox solution will destroy a specimen in short order if not guarded against as noted. Back to water quickly.

(3) Many authorities on butterflies totally ignore the female genitalia. Even such a famous generalist as Dr. Forbes in his classic "Lepidoptera of New York and Neighboring States" downgrades study of female genitalia as being difficult and usually unproductive. It may be noted, however, in recent MONA fascicles, that specialists have figured and described female genitalia extensively, citing their characters which often separate species as well as serving as guides to phylogeny (cf. Lafontaine's noctuid monographs).

An unprejudiced observer might be pardoned for thinking it to be a roaring disgrace that the majority of butterfly species have female genitalia which are strangers to the literature after all these years and after the flood of the books and articles by the devotees who roam in the butterfly world. These are armchair tricks! Heretical it may be, but I find that female preparations are fairly easy to do; indeed two or three can be finished through into slides in the time often required by a single recalcitrant male if the latter is teased for display with the vesica everted.

Back to the stain injection: a hypodermic syringe must be made ready, fitted with a number 30 needle, the beveled end of which has been ground down and chamfered. A partial filling with the prepared CB, cleared of air bubbles, is enough for numerous preparations. After a bit of chasing around the dish the needle is worked up into the thoracic end opening, sufficiently far to allow firm grasping by fine point curved tip tweezers. The abdomen then is picked up, and while dangling in the air, the stain is very gently oozed in until saturation is indicated by a drop or two falling from the anus. A standard precaution: jiggle the plunger a bit before squirting to control against sudden gushing.

This procedure admittedly is unorthodox; staining "in the dish" being almost invariable among preparators. It does seem sensible, however, to place the stain exactly where the armature is located. Nevertheless, some limitations

seem likely . . . impaling micro moths might be a problem!

After the stain injection the abdomen is immediately submerged in isopropyl alcohol. This does the "fixing," which will take place at quite low concentration --in the 20-25% range. Now the previously deferred remarks on alcohol baths of "increasing strengths": the lower the strength, the lower the possibilities of breakage while manipulating to clean and dissect. Conversely, increased brittleness in the higher concentrated baths eases cleaning, but at the expense of resistance to damage. Hence the bulk of the work is best done at the point of lowest concentration, which is in the fixation baths.

The blob of "black ink" into which the specimen at first disappears will clear away after brushing. A second or third bath will be needed to finish the job, carrying away most of the detritus shed during continued cleaning, and all excess stain. The "black" changes to a handsome pale blue and through the cleaned membrane of the abdomen, enhanced details of male genitalia show, and, most spectacularly, a view of the female armature appears, almost as clear and detailed as it would be after dissection. As a minimum, some characters can be seen that were wholly invisible prior to staining. This, of course, becomes greatly helpful in guiding dissections since, as the wise Confucius said, "can't dissect what can't see."

For reasons of space the continuation and conclusion of this long chapter will appear in a following issue. Dissection of male genitalia remain to be discussed to reveal "tricks of the trade" in some detail. Special emphasis will focus on dissection of females and especially on finish cleaning the undissected specimens I call my "see-thru's."

REFERENCES

Grey, L.P. 1991. Preliminaries to Studies of

Lepidopterous Genitalia. Kentucky Lepidopterist. 17:23-25.

Grey, L.P. 1992. Study of Lepidopterous Genitalia: Chapter 2. Kentucky Lepidopterist. 18:3-4.

RESEARCH REQUESTS

MONARCH ALERT. I have been asked by Dr. Orley ("Chip") Taylor of the Univ. of Kansas, to tag 200 monarchs in Ky. to assist in locating their winter hibernation area. As you may know, the East Coast population is drastically reduced this season, and Dr. Taylor noted a great decrease in numbers leaving the mountains of Mexico last March. He hypothesizes that the midwest monarchs may have another hibernation area, as their numbers are not so reduced. Anyone wishing to tag monarchs in coming weeks please contact me at: Dept. of Biology, U. of Louisville, Louisville, KY 40292-0001, or phone (502) 588-6771. I will equip you with tags and instructions.

As part of a study of the literary work of Indiana author Gene Stratton-Porter (1863-1924), I am trying to locate her Lepidoptera and botanical specimens, natural history correspondence, and any other artifacts that might survive in public or university museums, libraries, and archives. I would greatly appreciate knowing of caches of such material outside her former homes, the Indiana State Memorials at Geneva and Rome City. In a lepidopterist context, Mrs. Stratton-Porter is best known for her classics *A Girl of the Limberlost* (1909) and *Moths of the Limberlost* (1912). I am also keenly interested in the influence of these two books on incipient lepidopterists, and would greatly appreciate any personal anecdotes that seasoned lovers of Lepidoptera could share. I still seek copies of her books *Friends in Feathers* (1917) and *Jesus of the Emerald* (1923), and would be grateful for any information leading to acquisition of either. Contact Robert Dirig, P.O. Box 891, Ithaca, NY

14851.

Needed are any and all specimens of the Neotropical ctenuchine arctiid genera Poliopastea, Psilopenra (one species in the southern U.S.) and Isanthrene, for a study on the phylogenetic relationship of these three genera. I can trade specimens of many species of both butterflies and moths from the midwestern and southeastern U.S. and/or Mexico, if necessary. Contact Dr. James K. Adams, 137 Sequoya Hall, Dalton College, 213 N. College Drive, Dalton, GA 30720.

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