

LEPIDOPTERA NEWS

March 1999

No. 1

BRITISH MUSEUM DECLARATION OF SPECIMEN COPYRIGHT

We must discuss today an affront to science! It is potentially of such importance that we have put the matter on our front page, for if this were to become common practice among museums, much taxonomic research might well be halted. Certainly at a minimum, taxonomists would be fearful of using photographs of specimens that might be copyrighted, or could lack sufficient funds to pay whatever fees are requested for the use of such images.

During 1998, the Natural History Museum (NHM; formerly called the British Museum (Natural History), or BMNH), of London, England, instituted a new regulation pertaining to its collections in the form of a copyright declaration prohibiting the image recording of any of its specimens, or label data from its specimens, by photography or digital imaging, unless a statement was signed that the Natural History Museum retained copyright on all such images, and requiring that fees would have to be paid and written permission obtained from the Museum *each* time such images were used in publication or even if copied by scanning. There may be some possible justification for something of this kind for the use of images in commercial books, films, or other commercial media, but for pure science, it is potentially disasterous, even if not strictly applied.

The declaration, which reads as follows, is now required to be signed by all visitors taking photographs of NHM specimens or labels:

COPYRIGHT DECLARATION

I undertake, if required, to provide the Natural History Museum with copies of all photographs or electronic images that I take of Natural History Museum specimens and their labels

I cede Copyright © and Publication Right in all such photographs or electronic images of specimens, labels and associated data belonging to the Natural History Museum to the Trustees of the said Museum

I will obtain written permission from the Natural History Museum and pay the required fee before any such photograph or image is reproduced or copied in any way, including digital scanning Signed: Date:

The new copyright policy and concommitant fees stem from revised British copyright views promulgated by their Museums Association, in light of new developments in the ease of distribution of images via electronic media. This new policy, no doubt, also arises from the continued governmental policy in Britain of draining all national support from the Natural History Museum, presumably to the point that it will be self sufficient and not in need of any governmental subsidies. In recent years following commencement of this trend, the Natural History Museum began its notorious so-called "bench fees," whereby those who were deemed capable of paying such fees or who had grants to support such fees, were compelled to pay a daily (or weekly) fee for the privilege of being able to do research on the collections of the Museum! The fees are something of the order of about \$30 per day: quite a sum if one has research to do there that may require many days of study! A colleague who staved at the NHM for a year had to pay a very large sum in bench fees just to have desk space to examine specimens in the collection! We are not talking about use of elaborate laboratory equipment as some researchers at a university might require and where some kind of compensation would be expected, but rather only a simple desk or counter to spread out specimens for study! Some researchers even bring their own microscopes for close study of specimens and dissections, so there seems little need for "bench fees" other than to raise money for the NHM. No other museum in the world charges any fees for the use and study of their scientific collections. Thus, in addition to paying travel costs and hotel charges while staying in expensive London, researchers are now compelled to also pay these bench fees for the use of the collections. The NHM, like other museums, has also tried to raise money in any way they could think of, like renting the main hall of the Museum out to private functions for dinner parties, on the order of £2,000 per night (ca. \$3,200). And now, we have the copyright policy. Bench fees are not as serious. however, as the new copyright policies they have instituted.

There is certainly a probability that the NHM copyright proposal is patently illegal by standards of international copyright agreements. Specimens in possession of the Natural History Museum, or any museum for that matter, are physically the property of the museum but were not manufactured by the museum. Specimens were born and grown in whichever country they originated from, not from the museum that currently houses them; thus, how can something not made by a museum be copyrighted? The specimens actually belong to the USA, or China, or Egypt, or wherever the specimens originated, more than the museum currently housing them. The museum is actually only the protector and guardian of the specimens, not the originator of the specimens; thus, such specimens or anything about them cannot legally be under any copyright protection! It is similar to a library: the library owns its books but does not have a copyright on those books — the authors and publishers of the books are the owners of the copyright! Like the Cheshire cat in Alice in Wonderland, the Natural History Museum would like it the other way around! The NHM is trying to copyright the remains of living animals and plants, or the images of these! All international copyright law refers to man-made objects or intellectual property, and not specimens produced by the reproductive activities of other living species! And, we are not talking about artistic photographs taken by museum staff (which could be copyrighted), but photographs of specimens taken by researchers as part of their own study and documentation of these animals and plants. [cont. on p. 5]

ATL EXPEDITIONS: Nov 1999 – SOUTH AFRICA (Cape, Drakensberg, Natal, and Transvaal) Aug 2000 – ARGENTINA (Tucuman and Iguazu Falls)

LEPIDOPTERA NEWS

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Tosio Kumata (Japan)Allen M. Young (USA)JOURNALS: separates (1990-95 only), \$1 first page, 25¢ each addedpage (specify author and citation). Past journal issues: \$22.50 each(1990-98); HL double issue in 1994. Lepid. News: \$10 per year.CONTENTS for the journals are issued every two years.EXPEDITIONS:

SOUTH AFRICA (Cape, Drakensberg, Natal, Transvaal)Nov 1999ARGENTINA (Tucuman and Iguazu Falls)Aug 2000Please write for details.Aug 2000

TO OUR READERS

The year 2000 is rapidly approaching, yet it is noteworthy that 1999 marks the tenth year of our acclaimed color journal, *Tropical Lepidoptera*! It was in late 1990 that the first issue was sent to numerous lepidopterists worldwide to initiate interest in our new journal. After 200 years of drab, colorless, small-sized journals, we offered our readers a format fitting for the most colorful of insects, the butterflies and moths! Initial reviews were exceedingly mixed: we had compliments from most amateurs and condemnation from a few professionals! We hope that in the intervening years more of the pros have come over to our viewpoint of the utility of color and large format for Lepidoptera articles, but anything "new" is usually controversial. In any case, a couple of other journals have followed our lead into color and larger page size, and numerous lepidopterists have joined ATL, so something must have come together the right way.

We hope more of our fellow lepidopterists will also become members of ATL and subscribe to our color journals covering all regions of the world, since *Holarctic Lepidoptera* joined the publishing venue for the northern regions of the world in 1994. We have had a number of special issues over the years since 1990, and some interesting supplements (now free to subscribers). In 1999, there will appear the catalog of Belize butterflies and larger moths (delayed from 1998), and possibly one or more other major supplements.

Perhaps on an even more important note, since 1990 ATL has been a leader in conservation work for Lepidoptera. In particular, ATL and its many generous donors have been instrumental in preserving a large conservation area in Rondônia, Brazil, and more recently in Ecuador. We hope the future can include other critical areas of the world for special Lepidoptera reserves, and the facilities to actively conduct studies there.

In 1999, I hope a major imaging file can be started on our website, including yearly additions of color images of more and more species of butterflies and moths of the world. Also, we have images ready for most of our journal covers (thanks to the generous help in scanning images by ATL member William Harding of Sedona, Arizona), along with the tables of contents for each issue, which will also be added to our website for easy perusal.

> J. B. Heppner Executive Director

NOTES

1. 1999 Annual Meeting: April 16-18 in Gainesville.

2. 1999 Annual Photo Contest: deadline is March 15, 1999.

3. Cover Photos: members can note that color photos for future journal covers are always sought. ATL does not pay any royalties for the use of such photos but you do have the gratification of having your photo selected for one of the front or back covers. Photos should be exceptionally sharp and in our page proportion.

4. **ATL Debentures:** many ATL members probably have enough savings to be able to let ATL hold some of this money at 8-10% per annum, for 1-5 years or more, so more of our printing bills can be paid. Please let us know what you can do to help! Returns of principal (at end of period) and interest (paid annually) are guaranteed.

5. **ATL Home Page**: see it at http://www.troplep.org. Coming in 1999: color photo files of world wide butterflies and moths!

1998 ATL ELECTION RESULTS

The return of ballots for the 1998 ATL elections came to 170 ballots received before the end of December. Results are as follows:

President: Dr. Allen M. Young

Congratulations to Dr. Young for his election as ATL President for 1999! The Vice-President (Dr. Thomas C. Emmel) and the Secr./Treas. (Dr. John B. Heppner) were re-elected. New Board members for 2004 were re-elected from the out-going group: Dr. Don R. Davis, Dr. Boyce A. Drummond III, and Dr. Eugene G. Munroe.

LETTERS

FLORIDA LIVING

I've been an amateur lepidopterist for about 38 years now. I receive many publications and I must say *Tropical Lepidoptera* is my favorite. I remember being able to walk to school in the winter and fall in Illinois and finding Cecropia and Polyphemus cocoons hanging from trees.

Since living in Florida, I've had some fun Lepidoptera experiences. First, pink flamingos do attract butterflies; I've had sulphurs and buckeyes land on them. Also, gazing globes attract monarchs.

Last Christmas, my lights (large varied colors around my front door) attracted a black witch moth (something I hunted for dearly as a child). My dogs help out, too. Pansy, my weimeraner, has caught gulf fritillaries in her mouth and drops them when told to. She found a terse sphinx caterpillar once (she was pawing it). I brought it in the house and raised it. Also, her "stub" tail has attracted a white peacock, which she at first did not notice.

I mainly butterfly garden now. Once, I had so many black swallowtail caterpillars I ran out of parsley. There were no plants left at any of the nurseries. I proceeded to Albertsons grocery and bought some in the produce department which worked out quite well. Now, I try to encourage kids to get interested in butterflies and moths by giving away caterpillars and chrysalides, and doing a butterfly unit as I taught in school back in the 1970s in Illinois. My daughter will soon be a Gator at UF, and I hope to visit the area more. Alas, she will be a journalism major, not entomology!

P.S. Keep the beautiful pictures, book reviews, and articles about collecting in foreign lands coming, they're my favorite!

Joyce McNamara Bradenton, Florida

MOST BEAUTIFUL LEPIDOPTERAN?

When I read Gary N. Ross' article "World's Most Beautiful Lepidopteran?" (*TL*, Vol. 8, No. 2), I wanted to respond to it, but never did. After reading Noel McFarland's most excellent article (*Lepid. News*, June 1998), I was inspired to make my original response and tie it to the great words of W. M. Wheeler and other ideas put forth in McFarland's article.

Gary stated, "Although beauty is subjective, most entomologists seem to agree that the Madagascan sunset moth, *Chrysiridia riphearia* — not a butterfly — is the paragon of the Lepidoptera." Is there a contradiction here, beauty being subjective and a certain organism being a paragon of beauty to so many? The answer is it is no contradiction when we come to realize beauty is both subjective and objective.

The entire natural world is exploding with beauty, but our empirical experience shows us numerous aspects of nature, which inspire a heightened aesthetic response above the norm (as if any of nature's beauty could be considered the norm?). Some examples being the Madagascan sunset moth among lepidoptera, the snow leopard and other wild cats among mammals, birds of paradise, cattleya orchids, Saturn with its rings . . . Could beauty that burns through our souls such, be solely a product of subjective response? Or rather, the beauty with the awe it inspires, how could it not be an objective part of a glorious Creation! It is at least as real as any measuring and comprehension our analytical minds give us.

I have been blessed to be "permitted to roam at will amongst the fragrant asphodels of the Elysian meadows, netting gorgeous, ghostly butterflies" for thousands of days. I thank God I have learned that nature and the science it engenders cannot be reduced to the cold, hard, analytic. Would that we could have more modern day scientists like W. M. Wheeler who could not separate the spiritual, aesthetic, and scientific aspects when contemplating the natural world. Thanks Noel McFarland for a great article!

Steve Fratello West Babylon, New York Whether you want to consider this a "letter to the editor" for *Lepidoptera News*, or just a word of great appreciation for your little piece on John D. Sherman, Jr., in the June issue, I do not care. But, your note did fill me with some nostalgia for a book dealer who contributed immensely to my early education regarding entomological literature.

My first catalog I saw of Mr. Sherman's was his number 57, dated October, 1944. I still have my well-thumbed copy along with all subsequent ones (until he sold his business in 1957 to Henry Tripp: "Successor to Henry George Fiedler and John D. Sherman, Jr."). A high school junior at the time of *Catalog 57*, I ordered a few reasonably priced things from it, selected because of listing in Holland's *Moth Book* or because of evident usefulness to an inexperienced young student (regardless of order).

I scrutinized every catalog and luckily learned early to try to track down every good-looking title in a library to see whether it was likely to be as useful as it sounded, and to determine whether it might still be in print at a lower price (or available free). My Cat. 57 has numerous library call numbers noted in the margin. What an educational experience! Sherman listed, for instance, *Hymenoptera of Connecticut* by Viereck *et al.* at \$4.50 and as having 110 plates; in fact, it has only 10 plates and was still available, bound, for \$2.75 from the Connecticut Geological and Natural History Survey.

Mr. Sherman gave the impression of single-handed personal attention to every order and inquiry. Each bill, postcard quotation, or longer response was in his own handwriting (using a straight pen), and he often added interesting side remarks. Some time around 1944, I had ordered from a dealer in Washington a copy of Part 1 of Packard's monograph of the Bombycine moths. It turned out to lack Plate vii, the only one devoted entirely to adult notodontids in color (I have long considered that about the most beautiful color plate of adult American moths). I had to return the copy, of course, for a refund. I subsequently wrote to Sherman for a quotation and he offered a paperbound copy for \$2.50: it was a pristine copy, uncut, in original paper wrappers. A few years later I asked about the remaining volumes, and Mr. Sherman replied with some volunteered data:

"Of Parts 2 and 3 of Packard's *Monograph of Bombycine Moths* I have only bound copies (Govt. cloth binding) which I can supply postpaid for \$11.50. These are (for me at least) the rarer volumes, as Miss Packard years ago sent me a big supply of the 1st Part."

So the whole set cost me \$14.00. I saw the set listed for close to \$600 in a 1994 British catalog.

Shortly after Henry Tripp acquired the business, I bought from him a copy of Waterhouse & Lyell's *Butterflies of Australia* for \$6.00. I have seen it as high recently as \$150. We will never again see the likes of "John D. Sherman, Jr. Books on Insects," or the prices of those good days! Incidentally, the Abbot and Smith you mentioned was still being offered by Sherman in 1939 (but at \$75, an increase of 25%), according to an older catalog that I picked up in some discard pile a few years ago to add to my series.

Edward G. Voss Ann Arbor, Michigan

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THE SHEDDING OF LIGHT

My article, "Wokomung - A Remote Guyana Tepui" (Lepidoptera News, June 1996, No. 2), spurred on a small amount of welcome correspondence. These past six months I have had a very warm and welcome correspondence with Andrew Neild, author of the very well received The Butterflies of Venezuela, Part 1. Andrew is interested in comparing the Venezuelan and Guyanan tepui faunas in order to "gain a better understanding of distribution patterns." Of course, of interest to him are the small number of high altitude taxa I took that I thought "interesting" (rare or possibly even new taxa).

With Andrew's help and expertise a few of the mysteries have been solved. It has been a rocky road. After donating most of my butterfly material from this expedition to the Allyn Museum, my "interesting" catches disappeared. They were not to be found when I visited the Allyn Museum and wanted to look at the material for possible determinations, but Andrew has related in his correspondence that communication with Jackie Miller has revealed the possibility that the material has been found. My expedition partner, Terry Henkel (Smithsonian botanist), took a number of photos of the expedition's Lepidoptera lying on top of their glassine envelopes. I knew among these was the valuable "Lieinix." A previous attempt to get copies of these slides from Terry proved futile. Spurred by Andrew's correspondence and interest, I contacted Terry recently and he came through with flying colors. Not only the slide of "Lieinix," but also the high altitude Antirrhea (which I didn't remember us photographing), and a clear-wing ithomiine that Andrew is very interested in.

The "Lieinix" has proven to be Dismorphia crisia, probably ssp. roraimae Hall. Originally, after not being able to match my two specimens against AMNH dismorphiine material, I was swayed by DeVries' (1987) account of the genus Lieinix possessing "a glossy sheen on the hindwing underside" (which D. crisia certainly has). This is certainly no excuse for my claim in the article of a possible new Lieinix, especially when after Andrew's determination I checked the AMNH collection once again and found many races of the widespread and not uncommon D. crisia well represented! None were displayed with their underside up, so perhaps I overlooked this species. If I did turn them over and didn't make the recognition, I certainly would question my powers of observation/comparison! Being humbly embarrassed by this, I promise to do more thorough checks in the future! I believe Hall described ssp. roraimae from Mt. Roraima in Guyana (Mt. Roraima is shared by Guyana, Venezuela and Brazil). Now, D. crisia is known also from Mt. Wokomung (other Guyana localities?). This widespread cloud forest species should be found in other Guyana montane areas.

Andrew wrote that Antirrhea ulei Strand was described from Mt. Roraima (Guyana?) and is known from four male specimens from Auyan Tepui, Venezuela. The high altitude (ca. 5,000 ft) Antirrhea I took is "what I [Andrew] tentatively am calling A. ulei Strand (the meticulous German description is of a female specimen, of which I have seen none in collections, and the type is apparently lost. However, allowing for the usual slight sexual dimorphism, the description fits very well with the males I have examined)." Whatever its nomenclature, this high altitude Antirrhea being now known from Auyan Tepui, Mt. Wokomung and probably Mt. Roraima, is probably more widespread in both the Venezuela and Guyana tepui country. I took one and saw others of probably this species above 4,000 ft. Below 3,500 ft I took and saw A. murena Standinger, a widespread lowland species.

I didn't mention anything about ithomiines in my article. I took a number of small clear-winged ithomiines in the upper camp environs (ca 4700-5000 ft), but it is material incognito to me. Actually, small clear-winged ithomiines were much more common there than in all the other lowland Guyana localities I had been to previously. About the ithomiine on the slide I sent Andrew, he related, "the ithomiine is a new species (probably of *Hypomenitis*, or possibly a new genus) endemic to tepuis and known to me from over a dozen Venezuelan specimens There are at least three ssp., and this may be yet another." This specimen and

the others collected (memory tells me more than one species) await Andrew's perusal for determinations. The spread specimens should be in the Allyn Museum collection.

Hopefully, there also will be a spread specimen of the large *Memphis* taken at 5,000 ft. About this *Memphis* Andrew wrote, "the large *Memphis* may be *M. viloriae*, described in my book, but this is pure speculation without a photo." In a subsequent letter he wrote, "regarding the *Memphis*, I have also seen a specimen (in the MIZA, Maracay) from a Venezuelan mountain (Cerro Guaiquinima) near Auyan Tepui of a large female of *Memphis* which strongly resembles that of *M. offa* figured in Comstock (1961). This is a new record for Venezuela." Along with this mystery, a tiny blue from the savannah flats and a *Mesosemia* sp. from the montane forests will hopefully be identified. One of the slides Terry sent me is of a fairly large, beautiful saturniid taken at ca. 4,700 ft. It is pinkish in color with a striking, very furry orange, black and white body. Given the altitude from an isolated tepui, it could be of scientific interest. For any saturniid enthusiast interested, I will send a copy of the slide on request.

I would like to thank Andrew Neild very much for his help in unravelling some of Wokomung's mysteries. His passion, enthusiasm, expertise, and great willingness to share information is a standard all scientists/naturalists should aspire to, a greater appreciation and understanding for all, of this glorious physical universe we all belong to, being the result. In February, I and Dr. Rob Hanner will be going to Guyana to explore Mt. Ayanganna (highest tepui wholly within Guyana and unexplored for lepidoptera) and the Kanuku Mts., an isolated range in the Rupununi savannahs. We will welcome help on the shedding of light on their mysteries!

> Steve Fratello West Babylon, New York

WEISS AND McFARLAND

I have just recently received the June 1998 Lepidoptera News and am very pleased to see that you have begun to reprint Harry Weiss' book: a very worthwhile undertaking. As you note, it is a very uncommonly encountered book. I have only seen one copy, and that in the Netherlands. Good show.

I suppose it was necessary to give Noel McFarland space for his very untidy harangue, but please don't make a habit of it. There is certainly a useful role for harangues, and I largely agree with McFarland, but this one is pretty much a waste of space, not better than those self-indulgent letters-to-the-editor that clutter our newspapers.

> Christopher Starr St. Augustine, Trinidad

BRITISH MUSEUM COPYRIGHT (continued)

Photographs of museum displays could be copyrighted, since they are the product of museum personnel, arranged in an artistic manner with various natural specimens. Such exhibits certainly are unique to each museum, and photographs of these could come under copyright law. But, to elaborate on this view to include specimens in the museum collections is beyond any current copyright laws, which only apply to man-made objects. Copyrighted photographs, in the context of international copyright law, generally refer to artistic photographs (one can think of landscapes by Ansel Adams, for example), like paintings, and not to simple documentational images of natural specimens! Will the London Zoo now copyright its animals and not allow photography of them without a copyright release to be signed by all visitors?

The idea by the Natural History Museum of copyrighting their specimens, or images of their specimens, is something very insidious for science. It is difficult to imagine what kind of bureaucratic mind would have dreamed up such a fee system! Clearly, our friends in the Entomology Department at the NHM are mainly following orders in implementing this new policy. Anyone wanting to photograph their specimens, or even labels from specimens, would have to pay a fee for the use of their own photographs. The Museum could charge whatever they wanted to: \$10 per photograph published in a research article or book or put on the internet, or as much as \$100 per photograph or whatever else they wanted to charge. If one were making a large compendium of species not just butterflies and moths but any insects or animals and plants from their collections - then one could have 100s of photographs involved, which could add up to a very large fee to the Museum! Additionally, any photograph of genitalia presumably is within this new copyright idea as well; and, any digitized image of specimens or any part of specimens. Thus, presumably, if one photographed genitalia of some Lepidopteran and then made a drawing, or digitized the image to resemble a drawing, one would also be under their copyright idea. Can one contemplate continued research under such circumstances of all these copyright fees and written permissions being required each time where images of adults and genitalia need to be published? And, what of recent donors of specimens to the NHM: they would have to pay fees to photograph and use such photographs of their own specimens! The reason so many donors have presented specimens to the NHM over the years is the view that everyone would there have easy access for their future study!

What is clear in all this is that the matter needs urgent attention by the International Commission of Zoological Nomenclature (ICZN), or similar international body devoted to the enhancement of free use of the international repository of scientific specimens. Unfortunately, the ICZN is housed within the Natural History Museum and many of its members are on the staff of the Museum, so a fair review may be compromised.

The world museums tenaciously retain their property rights to specimens in their possession, collected in various countries around the world, but for science they really are only repositories charged with the protection of the specimens for the future basis of our knowledge of world biodiversity. There has already been an effort made by some, mainly tropical, countries to regain their biological heritage by asking foreign museums to return specimens collected in their territory long ago. Of course, the work involved in the collection and processing of these specimens was borne by the collectors or museums involved in the field studies, so such returns have not been honored, but the new policy of the NHM will only exacerbate this idea of specimen returns among some countries. One can only imagine how quickly this view will spread, once other nations realize that for any photograph of specimens in the British Museum they will need to pay fees and obtain written permission from the NHM each time such a photograph is used in a scientific paper, or book, or some agricultural brochure, etc! Imagine the legal nightmare for the Trustees of the NHM if every country in the world whose specimens currently reside at the NHM claimed copyright, charged fees, or asked for the return of their patrimony: i.e., "their" specimens!

The Natural History Museum houses 1000s of holotypes: for Lepidoptera they house nearly 50% of holotypes of all described species worldwide! These types are the heritage of the entire world and the basis of our classification of the Lepidoptera. It is really only by chance wherever these types ended up in the museum claiming possession of the

types today. Yet, all types must be available to all researchers to study; this is something the ICZN has been more and more adament about. The new 1999 international zoological code even requires new species descriptions to have a designated public depository of the holotype before the new species names can be valid! Anything that infringes on the free study of holotypes, not to mention other specimens, is something that must be vigorously fought. The NHM claims complete access for all qualified researchers, yet bench fees have indeed been a hindrance on the free use of their collections. Obviously, with this new copyright declaration, the free use of their specimens is further eroded, since many researchers will not want to study material they cannot photograph except by signing a copyright statement that probably is invalid in international copyright law. Already, one colleague has stated that he would probably not return to the NHM if he could not photographically document specimens in NHM collections other than by signing such a copyright agreement.

Comments on this question are urgently sought; some notes from others are presented at the end of this note. The world body of researchers needs to be heard on this question. One sees a kind of tyranny being promulgated with this new copyright idea: any museum could also adopt such a policy and, further, could just as well make additional rules to see its specimens, like handling fees to examine specimens, fees to be allowed to dissect the genitalia, etc. And, each fee system could also become prohibitively expensive: why not charge \$500 to examine and dissect each specimen? Then, charge another \$500 for each photograph: one could go on and on, so that finally the Natural History Museum could meet its budget needs! Adoption of such ideas worldwide would probably stop most taxonomic research on plants and animals.

There is a kind of infamy in this new copyright declaration of the NHM, and something that must be fought by all interested in the freedom to study and use specimens at all museums for the purposes of scientific research. Most of us, I believe, treasure the NHM and its collections as a world resource. And, we have heard of their problems over the last dozen years or more of exasperating budget cuts caused by the ill-advised policies of the British government to reduce funding to museums. Perhaps we need an international forum at the next international entomological congress (in Brazil in 2000), or other zoological and botanical congresses, to find better solutions on how to maintain collections of holotypes and other valuable specimens, and how to make them available for ready access by qualified researchers. However, trying to copyright images of natural specimens is not the way to go. So far, in the entire world only the NHM has bench fees and a copyright policy on scientific images of specimens of formerly living animals and plants!

We cannot allow holotypes of species (let alone other specimens) to be restricted in their study in whatever form such study may require. So, written permission, fees and copyrights are not desirable and certainly would impede research. Holotypes are actually the "property" of science, so how can one museum put a copyright on their image, and in addition where these specimens are not man-made but the product of other individuals of a species !? Additionally, the NHM is not a private museum but a governmental institution: in USA laws, no federal (e.g., the Smithsonian Institution), or state supported institution, would conceivably be permitted to try to copyright specimens, or scientific images of specimens, the way the NHM is trying to do.

If such copyright policies became widespread among museums, color books, like those of D'Abrera's Butterflies of the World series, might not be possible in the future. With museums charging fees to use photographs of their specimens, publishers may not be able to justify paying \$1000s in photo fees for 100s of photos for books of that kind. Such images on the internet are equally included in these copyright ideas. And, researchers would likewise see greater hindrance in their work as they try to get permissions from various museums for each use of photographs of specimens. Once a copyright system of this magnitude is widespread and fees instituted, the bureaucratic web it will weave will all but eliminate images as a viable way to describe the appearance of species in many books, and possibly in scientific works as well, no matter what the well-meaning NHM curators say today. We need your opinions to be heard on this matter!

J. B. Heppner

COMMENTS NHM ENTOMOLOGY DEPT. REPLIES

The whole question of intellectual property rights and protecting material for future public use is very complex. However, I think your interpretation of our stance is wide of the mark in a number of places (even your title — we are not trying to copyright our "specimens," but images mechanically derived from them — there is a difference). We are still in the process of putting in place own own systems, as are many other institutions.

Our primary concern is to protect the rights associated with our collections, as far as possible. The whole point is that if we do not take action (and all museums should do likewise in my view), we run very considerable risks of being "ripped off" — including others slapping copyright on work originated here (e.g., on images we make freely for the public good, including innumerable such photographs already made in the past). The "web" brings further complications.

So, the point of our approach is to safeguard all the rights of the Museum, to control of future use, and have a legal base on which to act if images based on our collections are exploited — and we want people to gain our permission so we have a record of use. It is not our aim to prevent academics from using any resources legitimately. But, not to try to protect against abuse would be negligent on our part.

As for "bench fees" (recently increased to £4,200 per annum [ca. \$6, 900]). I am sending a draft document that I circulated to a small meeting of senior entomologists in Copenhagen before Christmas. I hope this will make it clear that our policy is not "notorius" but measured and reasonable. If taxonomists and museum workers are unable to face the fact that the provision of major facilities costs money, then systematics will forever remain under-resourced. We actively explore a wide range of possibilities to secure funds, not only for ourselves but also for the benefit of others, based on realistic assessments of marginal costs (such as bench fees). An example of this policy in practice is our recent award of Large Scale Facility status by the European Union, with a grant of 628,000 ecu, recognising the unique nature and internatioal scientific importance of our collections and associated research. These funds include travel and accomodation support for European scientists to visit our institute and make use of our collections, libraries and other facilities (for more information, see www.nhm.ac.uk/science/index.html).

We are continually alert to the needs, opportunities and responsibilities to make our collections ever more widely available, but we will not achieve this simply by demanding more money from UK government sources alone.

> Dr. Richard Vane-Wright, Keeper of Entomology The Natural History Museum, London, England

[EDITORIAL NOTE: Dr. Vane-Wright makes some interesting points. However, the matter of putting a copyright on specimens is really only semantics: if no image can be made of these specimens without a NHM copyright on the images, then for all intent and purposes the specimens are in effect copyrighted. NHM images may be copyrighted if taken by their personnel and equipment, but we are talking about photographs or digital images made by researchers themselves, with their own equipment and their own time.

Dr. Vane-Wright also notes free use of all collections, yet in other correspondence he noted that while it is not NHM "policy to charge for educational or academic use" of images of NHM specimens, "we reserve the right to do so." Thus, although the policy and possible fees appears directed toward commercial uses of images, the NHM may charge fees as it sees fit. And, all persons taking photographs in the NHM must sign the NHM copyright declaration, no matter what the photos are for. Clearly, this copyright matter is not up to the NHM exclusively, but to the international scientific community and to international copyright laws. We are talking not just about collection specimens but also about holotypes of species. Museums are duty bound to protect holotypes and make them freely available for researchers; and, holotypes are integral to the definition of each species, so how can one museum copyright such standard markers? Can the NHM copyright an image of a holotype when the world relies on this specimen to define that particular species?

We hope the near future will bring a further debate and actions in international forums on this kind of policy, at a minimum so other museums do not follow suit.]

ATTACHMENT

Draft NHM Dept. of Entomology Advisory Note on Bench Fees and Research Support Grants

by Mike Fitton and Dick Vane-Wright, 8 Dec 1998

Museums have traditionally provided facilities for those wishing to study their research/reference collections entirely free of charge. In the natural sciences, but not most other disciplines, this has also extended to the provision of material on loan at no cost to the borrower.

In line with several other UK scientific institutions and universities, the NHM now attempts to recover some of the substantial costs associated with the use of its resources in the form of bench fees (aka facilities fees, research support grant). Declining levels of governmental Grant-in Aid have forced us to raise revenue to maintain the level of our scientific activities. We welcome visitors and seek to accommodate their needs wherever and whenever possible. We are thus committed to the expense of looking after them (for safety, security and mnay other reasons) whether they pay bench fees or not. However, the NHM expects that an allowance for bench fees will be included in any application to a funding body for a research or travelling grant, or fellowship, to visit the NHM. Where there is a significant benefit to the NHM from the visiting scientist, the requirement for a bench fee may be waived, at the discretion of the relevant Keeper/Head of Department, in whole or in part.

The NHM does not charge for research loans, but loan requests are assessed both in terms of the obligation to provide access to material (for example, types) and the benefits to the collections. The resources allocated to handling research loans are under considerable pressure and it is not possible to meet all requests.

In practice, many museum-based workers do not pay bench fees because they meet our expectations by providing equivalent benefit in kind. The collections users most likely to be paying a full-rate bench fee are university-based researchers engaged in funded research projects. Bench fees are mandatory for users with commercial interests (for example, advertising agencies, artists preparing illustrations for publishers and environmental consultants). The last category includes taxonomists undertaking paid work involving identifications, etc. For some categories of work we may provide facilities free (this, at present, mainly relates to NHM policy to support work on the UK fauna and flora), or at a reduced rate.

Bench fees are a charge for basic facilities and some assistance but are not a charge for access to the collections, nor are bench fees meant to cover any of the ongoing costs of curating the collections. They cover the provision of working space, appropriate equipment (microscopes, etc.), reasonable use of expendables, and limited specialist and technical assistance. Access to specialist facilities and services (for example, photography, biochemistry, laboratory or electron microscopy) and provision of regular technical assistance or training are agreed on a full cost recovery, or on a collaborative research basis.

OTHER VIEWS

Thank you very much for your letter and the draft of your opinion on the BM copyright declaration,

It is very exciting and surprising to me because I have heard it for the first time from you now. In fact, I have heard those things from some visitors, but I didn't know it was already declared.

I quite agree with your idea and your opinions on them. It is something insidious and a tyranny!

Many of the specimens kept in the Museum are not their own ones, and they certainly belong to the original countries. How can they ask fees for their scientific study? It is ridiculous.

I hope you will do your best to change the policy.

Dr. K. T. Park, Director

Center for Insect Systematics, Kangwon National University Chuncheon, South Korea

I was distressed to receive your communication about the new BMNH policy of copyrighting its specimens and their labels, and charging fees for use of images made from them. I am, of course, in general agreement with your comments. Museums accept a responsibility when they accession material — to preserve it carefully and make it available to qualified researchers without unreasonable restrictions. When I did my dissertation on the higher classification of the butterflies, the BMNH lent me a specimen of *Styx infernalis* to dissect, with the proviso that the wings and fragments of the body be returned. That was a reasonable policy, and the remains were still in the collection when I last checked some 40 years after the event. That's how a great museum should operate — no fees, just cooperation in the name of research. When I gave my collection to the American Museum decades ago, it was with the assumption that it would be available to the scientific community.

On the other hand, one can be sympathetic to the plight of those trying to keep the BMNH going in the face of extreme cutbacks and the utter ignorance of most of the public and decision makers of the importance of biodiversity in general, and museums in particular. In their current straits it is not unreasonable for the administration of the BMNH to attempt to get the systematic community to help pay to keep the collections functional. If dermestids eat them (as they did the Stanford collections, which were not maintained in the period between Gordon Ferris' death and my arrival), the loss will be incalculable. Therefore, charging desk fees for those who can afford them, and royalties from those (like the publishers of butterfly books) who profit from pictures of BMNH specimens, seems a sensible way to try to raise funds.

Above all, it is the responsibility of all scientists to try to educate the public to the importance of the work they do. We need a new ethic in which scientific work is not considered complete until the public is informed about the results. Then the value of institutions like the BMNH will be appreciated and people will feel their tax money well spent supporting them. Taxonomists have been especially lax in meeting their public responsibilities and slow to respond to the biodiversity crisis. They are now reaping the harvest of their own foolishness.

Dr. Paul Ehrlich, Bing Professor

Center for Conservation Biology, Stanford University Stanford, California, USA

I have nearly no problems with the announced copyright issue of the NHM, London. All slides I have taken serve primarily as my personal means for determining species. They are not intended to get published. However, if I have to show such a picture in a paper, and they wanted me to pay for it, then the picture would be omitted from the publication by myself. Moreover, I think they will not apply the copyright instructions too strictly to colleagues from other museums.

Dr. Wolfram Mey Zoological Museum, Humboldt University Berlin, Germany

Just received your January 7 letter and the enclosed copy of the note you propose to include in the next issue of the *Lepidoptera News*.

I find the wording of that note quite strong, but your feelings are perfectly understandable to me. Those regulations are clearly the brainchild of some retrograde bureaucrat, but I would advise you strongly to obtain an official letter of "clarification" from Dick Vane-Wright, as Keeper of Entomology, explaining what are the REAL implications of those regulations.

I had to sign one of those declarations last year, when I was photographing type-specimens at the BM, but I was told (very apologetically) by Phil Ackery, that that was designed to avoid commercial use of the illustrations. I believe that's the real intention, and that there should be no desire on the part of the BMNH scientific authorities to hamper the work of other scientists, but that should have been made VERY explicit in their "copyright declaration."

This is a very serious matter, and I urge you to use extreme caution in your wording and appeals for action. Please circulate widely your note (I assume you're doing so) before printing it.

> Dr. Gerardo Lamas, former Director Museo de Historia Natural Lima, Peru

The news about the recent copyright idea by the NHM has shocked me despite already knowing about the "bench fee" extracted from the people supported by grants. I understand that the Museum needs money to cover its expenses of which the most important to us are those for curation of the collections. I always supposed that such great museums should serve all scientists and facilitate their work, or even to make them possible at all. This was the reason many famous specialists donated their collections to museums, especially to the BMNH. The collections were safe there and accessible to all of us. Everybody was happy to find in such an institution almost complete material (types, historical collections, etc.) in one place, without the necessity to borrow small samples from various smaller museums or private persons. This was the main aim of such great institutions, and the NHM was the most famous among them.

If the proposed regulations are practised, any work would be almost impossible. I am afraid some other institutions could follow the NHM and the governments of various countries could restrict collection of material or prohibit the export of specimens (e.g., Brazil). Such a practice would stop any activity in systematics, faunistics, etc. The majority of us could not pay any fee, and many countries have no funds to cover such expenses in the form of grants.

The scientists on staff at the NHM are certainly able to work over many years on the material accumulated in their collections. I am sure that they will also be permitted to borrow specimens from the remaining important institutions which certainly (I do hope) shall not follow such regulations (however, I do not think such a situation will make them very happy).

I think we all should try to change this situation, and do hope that money will not be more important than science.

> Dr. Jozef Razowski, Director Institute for Systematic Zoology Krakow, Poland

The contents of the draft article concerning the Natural History Museum policies, enclosed with a letter from you, depict a situation which I simply couldn't believe is true. A telephone call to a NHM lepidopterist colleague immediately confirmed that it isn't: free use of pictures of NHM material for commonplace scientific publications are in no way jeopardized. It is a pity you didn't check with NHM senior management before investing so much of your time (and potentially other people's) on this issue. Also, the bench fee issue is not alarming, the way it is actually practised.

Dr. Niels P. Kristensen Zoological Museum, University of Copenhagen Copenhagen, Denmark

[EDITORIAL NOTE: The situation is not as benign as Dr. Kristensen appears to think. Notwithstanding staff statements to console researchers about the copyright policy in practice, the NHM copyright statement does not specifically exclude normal scientific usage of images of NHM specimens from provisions of their policies, and evenso, *does* require written permission for each use of any images from NHM specimens and the possible payment of a fee, whether for scientific use or not. They can also change their policy at any time] With lack of full understanding, the scientific staff of the Deutsches Entomologisches Institut, Eberswalde, learned of the Declaration of Copyright on Specimens of the Natural History Museum, London. It is a fact that specimens in possession of museums around the world are the property of those museums, yet were not manufactured by the museums. They were born and grown in whichever country the specimens originated from, not from the museums currently housing them. The museums are only the protectors and guardians of the specimens, not the originators, thus such specimens or anything about them cannot legally be under any copyright protection.

For science, the museums are really only repositories charged with the protection of the specimens for the future basis of our knowledge of world biodiversity. Since in the NHM are deposited large numbers of type material, it is clear that the NHM is obliged to put it all at the disposal of the scientific world without any restrictions.

If the Copyright Declaration is to be strictly applied together with the "bench fees," then it will be the end of free use of the collections by scientists all over the world. The scientific world will be divided into two classes: the first class, with the possibility for studies in the NHM, as they are able to pay the fees, and the second class, with no possibility for studies there since they are unable to pay.

We believe that the application of such copyright is a serious hindrance for the achievement of the new *International Code of Zoological Nomenclature* in regard to deposition of types in public collections. It is another thing if the copyright declaration will be used only for commercial use of the material housed in the museum. If that was the intention of the declaration, then it needs to be clarified in the text.

The scientific staff of the DEI hope that the new regulation will be taken off completely or will be restricted only to commercial users. We believe that the great majority of the museums over the world are also not in agreement with this declaration of copyright.

> **Dr. Reinhard Gaedike** Deutsches Entomologisches Institut Eberswalde, Germany

Your note on the NHM "copyright" issue is very complete and I agree entirely with you. Copyright is intended to protect creative works from being reproduced, performed, or disseminated by others without permission. The term "work" as used in copyright law refers to any original creation of authorship produced in a tangible medium. Thus, works that can be copyrighted include literary pieces, musical compositions, dramatic selections, dances, photographs, drawings, paintings, sculpture, diagrams, advertisements, maps, motion pictures, radio and television programs, sound recordings, and software. This makes clear that specimens cannot be copyrighted. Copyright does not protect the idea or concept; it only protects the way in which an author has expressed an idea or concept. So, the copyright is only for the "picture" itself. In most cases, the pictures taken of types, for instance, are made with the researcher's own equipment, time, skills and money. There is almost no input from the museum.

The "big museusms" grow these days in part due to the donations of other researchers. This is especically so in cases of types. It is a suggestion of the ICZN to deposit types in major museums. For many Lepidoptera researchers, this means the NHM, USNM, AMNH, and a few others. A very good idea, when the type series is large enough, is to deposit paratypes in as many museums as possible. If a researcher from the Americas deposits material in London, European and perhaps Asian and African researchers would save a lot of time and resources in having access to type material in London. Unfortunately, with this "copyright" declaration very few people would be willing to leave their types in London if they would have to pay in order to be able to publish photographs from the very same specimens they collected, described and donated to the NHM. Even if you "save" some specimens for your "own" photos, wouldn't you expect some sort of reciprocity if you deposit type material in some museum?

Dr. Manuel A. Balcázar-Lara Insituto de Biologia, UNAM Mexico City, Mexico I was really kind of shocked when I learned about the recent copyright declaration of the Natural History Museum, London, and I fully support Dr. Heppner's reaction and his reply in *Lepidoptera News*.

Though not a lawyer, I deem this regulation absolutely illegal and extremely detrimental to any scientific activity throughout the world. As a donor of countless specimens, fruit of my field work in Sumatra over many years, I would be obliged, as Heppner rightly states, to pay fees for photographing my own material there; an absurdity.

As a matter of fact, the NHM never bought any material (as many other museums do), but received specimens from generous donors (such as myself) who certainly did not intend to provide the museum with a source of revenue in this way, but to serve science; it is from this viewpoint that the problem has to be considered.

Together with Heppner, I advocate that an international body soon intervenes, in order to reestablish freedom of scientific work that is threatened to be subdued by this mercenary spirit.

> **Dr. Eduard E. Diehl**, Editor Emeritus Heterocera Sumatrana Society Pematang Siantar, Sumatra, Indonesia

Many thanks for your letter and the paper about the strange copyright situation on specimens in the BMNH. I want to make a proposal: these days here in Austria there starts a database and discussion forum on the internet called NATUREWEB (www.natureweb.at). It would be a very good thing to put your text with the question for discussions on this discussion page. I just phoned the copyright owner of natureweb in Salzburg, Mr. Paul Schreilechner, whether he would agree to take it with the discussion in English (normally in German) and with a link to your society homepage (www.troplep.org) and your e-mail (jbhatl@aol.com). This would enable us to reach many scientists.

> Dr. Gerhard Tarmann Tiroler Landesmuseum Ferdinandeum Innsbruck, Austria

Yes, the Natural History Museum, in London (BMNH), is trying to do something curious. But this is the sound of the times, and when played first and listened, it is rather dissonant. But after a while, when it is deeply rooted in the society, who thinks that this is curious? Most of the pieces of Bach written for the organ were hardly bearable for the audience of his time. But now, everyone, even the people who cannot listen to music properly, feels that Bach's music is simply beautiful and gives consolation. And, that is the goal of music.

I have the feeling that the BMNH policy was thoroughly discussed with lawyers before it became public. Yet, this is really a large step and serious action, which can hurt a lot of people — "people" as nations and people as individuals. At this moment, it is rather dissonant. But, confronted with the globalization of medias and the monetarization of biodiversity, this step has to be made by the BMNH to have control of what is happening with its material. And, that is the goal of this copyright system. And that's why it is an international question and has to be discussed by people who are involved.

First, the problem: how can one copyright an item, which was born in nature or was created by a natural reproductive system? As an example, it is not possible to protect any kind of folksongs or instrumental folk tunes with copyright. All of these are items produced by a special kind of society, born in nature and reproduced by nature, absolutely determined by temporal and spatial circumstancies. Also, exactly as the holotype of my *Itylos pnin* or *Madeleinea lolita*: they are items produced by a special kind of ecosystem temporarily and spatially determined. This system is constantly changing as human societies also do. And, they perish with their folk songs, with their music instruments, as ecosystems and institutions having their copyrights).

And, this is the second: the Hungarian composer Bela Bartok widely collected folksongs everwhere in the territory of the former Hungary, in Transylvania, Upper Hungary (Slowakia), and even in Anatolia and Algeria. He widely and freely incorporated them into his compositions. And all of these compositions are copyrighted. He used his genious, but he also used the European cultural tradition to grasp the essence of these melodies and convert them into his masterpieces. I am sure if Bartok would have not collected them, many of these tunes would simply have disappeared. But moreover, many of his compositions could not have been born. If any kind of artistic piece based on any kind of folk-item can be copyrighted, why do I not have the same right to control my holotypes? The unique holotype specimens of *Itylos pnin* and *Madeleinea lolita* were kept in the drawers of BMNH almost for a hundred years before being described. I was the one who *grasped* their essence and named them. That's why they are now called *Itylos pnin* Bálint, 1993, and *Madeleinea lolita* Bálint, 1993. Otherwise, *Itylos pnin* probably could have the named, for example, *Itylos fujimori* in the future, and *Madeleinea lolita* could turn up as *Nivalis lilith*, if they could have been discovered by anyone else. Why am I robbed out by international law? O, my God!

The third: yes, this is really the sound of times. Bach was not paid for his Johannes Passion. He was Magister Musicus of a Church School. His task included the writing of liturgical music such as the Johannes Passion. Autographs of Bach are kept like treasures, and most of the libraries retain the copyright of such treasures. I am not paid because of Itylos pnin. I am paid because I am a museologist, and partly my task is to name the butterflies that are not known. Probably the BMNH has the right to retain the copyright of my holotypes. But obviously in the time of Bach it was merely a question of how to multiply his own autograph than to protect it from public use. If his wife could have had a xerox machine in the kitchen

The fourth: the international copyright says that a copyright lasts for fifty years. Is it applied for natural history specimens or not? Delicate question. Because, if I have the facilities I can reproduce Leonardo's Mona Lisa as many times as I want and I can sell the copies. And, the copyright of the reproduction will be mine and not the Louvre's. But why should Mona Lisa be treated differently than Bach's autographs? Actually, I appreciate more Bach's autographs than painted faces with mysterious smiles

The fifth: the holotype is created by the describer of the taxon and not by the keeper of the specimen. But what happens with lectotypes? Wow! Sometimes the selection and designation of a lectotype is far more difficult than was the first recognition of *Madeleinea lolita* and then having described it! So, I have the moral right to declare myself as author of every lectotype specimen I selected.

The sixth: art and science is different. And that's why copyright can probably work differenty in the case of nature history items. Taxonomists are always honored, automatically. Their name is attached to a unique combination, which is real forever. Of course, this is not the goal of the taxonomists, but this is their earthly payment. Thus, *Itylos pnin* Bálint, is forever. And this combination is so unique, that no one can take it from me. I am *in* this name. And the butterfly is also *in* this name, even if *Itylos pnin* became a synonym. There is no argument from this point of view: I am eternal, objectively. But these are eternal combinations, too: Bela Bartok (*The Miraculous Mandarin*) or Johann Sebastian Bach (*Musicalisches Opfer*). However, thousands of individuals and institutions are living from them as artists, orchestras, publishing houses, concert halls, and so on. Will someone make a living from *Madeleinea lolita* or *Itylos pnin*?

And, for the end, the seventh: up to now, museums functioned for various goals, but none of them were monetary. There were noble and passionate people, whose energy, whose talent and money became transformed into large collections of natural history items and series of large folio volumes. These people listened to the sound of the times. They were aware. They were sensitive. They were wise. Let's trust that there are still existing such people and will be in the future, so that there will be no exhibitions or performances where the pictures or specimens of *Madeleinea lolita* or *Itylos pnin* will be shown purely for money.

And, what can I do? I simply try to follow them, objectivly. Dr. Zsolt Bálint

Hungarian Natural History Museum Budapest, Hungary I am just as incensed as you, or as everybody else. However, I thought that rather than me writing a short comment in the wake of your comprehensive (and well written) article, I was going to try to gather more steam within the CNC. I took the liberty of passing your article and letter to all entomologists here and requested that we meet to discuss a course of action. Predictably, nobody here had heard about the copyright policy and most were quite incredulous. It was decided to raise the issue strongly at the next meeting of the Major Entomological Facilities Group, next summer in Copenhagen.

What is probably the missing keyword in this copyright policy is *commercial use*. I'd have no problem with a policy that specified that it applies only to commercial uses of said images and related data, whereby profits are an intended end-goal. A good example is the beautiful annual entomological calender produced by the American Museum of Natural History these past two years. But, any images and data to be published in accredited scientific publications should be explicitly excluded from the policy.

Dr. Jean-Francois Landry Canadian National Collection Agriculture Canada Ottawa, Ontario, Canada

[EDITORIAL NOTE: Commercial usage is a point to be taken, but unfortunately the NHM copyright form does not specify any particular usage, and NHM policy requires all to sign who wish to photograph museum scientific specimens, no matter for what purpose. The whole matter probably sets an illegal precedent in any case, but what is more alarming is the statement by Dr. Vane-Wright in a letter about this matter, that the NHM policy is not to charge for academic use of images but "reserves the right" to charge fees in any case, whether commercial or not: basically, they claim ownership of any photograph taken by anyone visiting the NHM and they may charge a fee in the future or not, whether for science or not! And, one still must request written permission each time any such photograph is used, whether commercially or for a scientific article. And, the NHM will judge whether they consider a usage commercial or not. Is a large book of 100s of photographs published by a scientific society like ATL a scientific usage or is it commercial if the book produces profits for the society? Who will judge: the NHM will make their own judgement and may request fees be paid! Dr. Landry's point about a calender produced by the AMNH is another case in point: although such a calender is commercial in that it generates profits, the profits are not for a commercial company but for a scientific institution trying to raise monies for its support! The entire matter of attempting to in effect copyright natural history specimens, by wanting to copyright images taken from specimens, is a dangerous precedent, and not something we would want other museums around the world to follow. This also does not just involve insects, but applies equally to all NHM collections: plants, animals, fish, birds, shells, rocks, fossils, etc.]

The whole question of copyright in regard to the NHM is very simple and draconian: whoever wants to do something in science must pay in cash! This is especially in regard to see and work with material collected in our countries. Thus, research projects will be more expensive than in the past. This idea of obtaining economic returns is a bad idea. If the NHM copyright is accepted without contradicting claims, then it is possible that other museums must do something similar, and so on, and beginning with a simple grain of snow, it will roll on to become a mountain; a kind of war in science!

We can understand that the NHM copyright policy was produced by economic and blind minds and not by "pure" scientists. They are putting walls around the garden, but against whom? Or, is it purely for economic reasons? That is the question.

With all these new restrictions created by economical minds, we will be obligated to deposit type material in museums other than the NHM: the NHM is going away from the interests of researchers. Remember that even yet fully 60% of the biota remains unknown.

The NHM response mentions the need to "protect" their interests, when in reality biological material is a matter of world property and for us all. If we must pay to use biological material in the NHM in photographs, will this spread so that we perhaps in the future will also have to pay to photograph landscapes?

Dr. Andres Angulo Universidad de Concepción Concepción, Chile I completely agree with what you write about the BMNH "copyright on specimens." This proposal [by the NHM] may certainly cause a decrease in taxonomic research, and serves as a bad example for other museums.

> **Dr. Joël Minet** Laboratoire d'Entomologie Museum National d'Histoire Naturelle Paris, France

Thank you for your letter of January 7 and the information about the "British Museum Declaration of Copyright on Specimens." You are perfectly right and I agree with your ideas and suggestions in your draft version of your paper for *Lepidoptera News*. Your publication will be useful.

Dr. Karel Spitzer Institute of Entomology, Czech Academy of Sciences České Budějovice, Czech Republic

NEW KOREAN INSECT BOOKS

ATLAS OF BUTTERFLIES IN KOREA

by K.-T. Park and S.-S. Kim. 1997. 381pp (19 x 26cm). \$45. 467 color photos for 212 species; maps; bound as semi-hardback; text in Korean; partly with English translation.

ILLUSTRATED CATALOGUE OF TORTRICIDAE IN KOREA

by B.-K. Byun, Y.-S. Bae, and K.-T. Park. 1998. 317pp (19 x 26 cm), cloth. \$40.

8 color plates for 344 species; illustrations of genitalia; text in English.

ILLUSTRATED CATALOGUE OF NOCTUIDAE IN KOREA

by V. S. Kononenko, S.-B. Ahn, and L. Ronkay. Dec 1999. 507pp (19 x 26cm), cloth. \$80.

About 1,050 color photos for 961 species on 38 color plates; 14 new species described; illustrations of genitalia of new species; text in English.

Orders: Center for Insect Systematics, Kangwon National University, Chuncheon 200701, South Korea.

Payments, plus shipping, by international money order; or bank transfer to Korean Exchange Bank (Chuncheon), Acct. 098-13-03906-8; or credit cards (VISA or MC).

NEWS FROM RUSSIA

Dr. Mikhail Kozlov, now working on the staff of the University of Turku, Turku, Finland, sends the following update on how events in Russia are affecting institutions and entomologists.

The situation in Russia is difficult but not catastrophic. Please keep in mind that Russians are used to survive in nearly any circumstances, thus "from inside" it looks slightly better than "from outside" (although very bad indeed). And, as you know, only crazy people may decide to spend their life on studying insects. These "crazy" people will work even without salary, just because they have nothing else to do. There is a current Russian joke, that it would be possible to get some money into the institutional budget just by selling entrance tickets to the scientists who are willing to work in their own offices.

At the Zoological Museum, in St. Petersburg, the main trouble is, of course, the maintenance of the collection. Since there still are problems with heating, and no assistance with fumigation, etc., the situation is really difficult.

Dr. V. I. Kuznetsov, well-known specialist on Tortricidae and on the staff at the St. Petersburg museum, is better now, following an operation. Monies from donors in the West helped finance this operation, which otherwise could not have been paid for on the \$35 monthly salary museum scientists are alloted, if they are even paid once in a while. We wish him well and hope for a news update soon from Dr. Kozlov.

BOOK ANNOUNCEMENT FOR 1999

FLUTTERING ENCOUNTERS IN THE AMAZING ARCHIPELAGO, by Jan Pasternak

Over 30 years of field studies and photography by the author come to fruition in this beautiful new book, expected in 1999: over 200 color photos of living butterflies from the rainforests of New Guinea, Sulawesi, and Java. Included are spectacular photos of *Ornithoptera* and other birdwings, their early stages, habitats, etc. The author includes memoirs of field observations on life histories, ecology, and other aspects of tropical butterflies. A book for all enthusiasts of birdwings and other tropical butterflies.

Price: \$110, plus \$15 airmail shipping/handling. For more information or ordering, write to Jan Pasternak, Riegrova 12, CZ-61200 Brno, Czech Republic.

BUTTERFLY ADDRESS LABELS

Al Thurman has made up a large selection of stick-on address labels with butterfly and moth motifs in color. He is offering these to ATL members at special prices. You can contact him for further details via FAX, at (602) 592-0555, or e-mail at albert214@home.com. Mailing address is: 5138 East Tunder Dr., Phoenix, AZ 85044.

THE PIONEER CENTURY OF AMERICAN ENTOMOLOGY

by H. B. Weiss

Continued from Chapter III-IV (see Lepidoptera News, September 1998) - J. B. Heppner, Editor

CHAPTER V

FROM ZIMMERMANN TO LECONTE (1832 to 1845)

CHARLES CHRISTOPH ANDREW ZIMMERMANN (1800-

1867)

In 1832 an interesting and unique entomologist came to the United States and lived here thirty-nine years. This was Dr. Christian Zimmermann. Following his death in December, 1867, Zimmermann's notebook and his library passed into the hands of Dr. J. L. LeConte and thence to Dr. George H. Horn. Through Doctor Horn, H. A. Hagen had access to the notebook and he prepared an account of Zimmermann for the *Canadian Entomologist*. This account is so interesting, containing as it does extracts from the notebook, that it is quoted in full so that present-day entomologists may get some idea of the conditions surrounding the study of entomology in Zimmermann's time:

"Only a very short abstract of the contents, which are written wholly in German, can be given. The entries begin with Zimmermann's earliest boyhood and end in 1843, followed by a few pages for 1865. The narrow pages contain only the substances of events in short phrases, often very cutting, both for Europe and for America. If the whole could be published, it would give a very interesting picture of the life of an excellent naturalist, always kept down and hindered by want and ill-luck, but always ready to 'begin again.' It is sad that such a life, akin to the remarkable histories of former ages published by the masterhand of G. Freytag, should have been possible in the 19th century — a continuous struggle of a noble soul with continuous misfortune.'

"Christian Zimmermann was born in Quedlinburg, Prussia, September 3, 1800. His father and three generations before him were carpenters, as the name indicates; all were born and died in Quedlinburg. Christian entered the gymnasium in 1811, and graduated in 1821. The notebook, May 26, 1814, says: 'I am today 5000 days old' (he always counts his life, both in Europe and here, by the 1000 days). The collection of beetles begins, and the study of music. His talent for music must have been obvious, as one year later he played the organ for the church-service, and studied thorough bass. When he graduated he writes: 'Up to this time my money was made by keeping score for target-shooting, teaching children, giving music-lessons, organ-playing, copying music, furnishing music at funerals, stuffing birds.'

"His parents, who were poor, proposed that he should choose a profession; but determined to study, he went to Halle, where he stayed as student from 1821 to 1825. He passed his examination after having attended the lectures in theology, philology and philosophy, but his entomological studies were never neglected.

"In 1827 he published his first music, a Polonaise. When he left Halle in 1828, he was already acquainted with a large number of eminent zoologists. He went to Berlin, and writes: 'Great expectations, small success, a load of cares, experience of the world.' He worked with Prof. Klug in the Museum, and gave Latin lessons to barbers' apprentices. March, 1829, working up the genus *Amara*, of which some sheets were printed. 1830, very bad times begin; want of money. 1831, monograph of the genus *Zabrus* finished; printed in June.

"During this time he had become acquainted with many prominent entomologists and with a large number of students, who later became famous, but the constant want of means was so depressing that he decided to try his fortune as a collector in Mexico. He sold his collection of 2,400 species of beetles and his books. To enable him to fulfil his intentions, twenty-four naturalists of prominence from Germany, England and Russia subscribed six hundred dollars, and a number of friends six hundred and eighty dollars to pay his debts. This was all repaid with interest by Zimmermann, as soon as he had made money here, as a page in his note-book states. He left Hamburg, Aug. 5, 1832, as steerage passenger for Philadelphia. He began directly to collect, and to study the English language. His collection grew rapidly, but in a few months he saw that it was impossible to work in expensive America for cheap Europe without running in debt. So he decided to leave Philadelphia and to try his luck as a teacher in South Carolina. He made the trip, according to the custom of German students, on foot, a knapsack on his shoulders and a few dollars in his pocket. This journey of 713 miles, in the midst of a severe winter, and attended with much hardship, which proves his excellent health and strength, was made in fifty days, with twentyseven dollars in cash, six dollars credit, three maps, one book and a pocket-knife. The visit to Dr. Melsheimer on this trip has been published before by me. The detailed report of the excursion given by Zimmermann to Prof. Burmeister is very interesting, but has never been printed. Zimmermann had no idea that he was here considered simply a tramp, which explains easily and rightly most of his complaints.

"In Georgetown, S.C., he tuned pianos and gave music-lessons till he was engaged in the South Carolina Female Institute, at Berhamville, to teach music and drawing. This happy change in his circumstances allowed him to pay directly the debts made in Europe, with five per cent interest. He collected largely; sometimes quoting the number collected at the end of the month or the year, as: '11,508 specimens have been collected,' besides mentioning any remarkable forms. He made many excursions, visited Cambridge (where he saw Harris), Niagara, Albany, the Catskills, New York and its surroundings. He made the acquaintance of every naturalist of eminence. He sent to Europe many insects and received many from there, together with the newest publications. His correspondence was apparently a large one.

"After a few years his situation in the school where he was engaged was given up; it had become unpleasant sometime before. He possessed now an excellent collection, very comfortable furniture and three thousand dollars, and decided to buy a little farm to be used as a nursery and for raising silk-worms. In 1839 he made, as he states, fourteen 'farm reisen' in Philadelphia, Maryland and other states, partly with Ziegler and Morris. His project proved to be a failure, and he decided to return to Europe and to send his property to New York. After a short visit to Harris, he went to New York to find that the vessel with all his property was lost in a fearful storm. His note-book says: 'Sept. 10, I am notified of the loss of my collection and property.' 'Sept. 25, invitation of Harris to come to Cambridge,' where he stayed until November 12. On Nov. 7th new insect-boxes were bought of the box-maker, Newell, in Cambridge. He made many excursions with Harris, whose family very well remember the German naturalist.

"The next year he lived in Baltimore, occupied with entomological systems and excursions with Mr. Morris, and decided to return to South Carolina. Feb. 27, records a 'letter to Hannah, with an offer of marriage.' March 21, 'Hannah answers 'yes.' 'April 3, 'I find *Horia sanguinipennis.*' April 14, 'I find *Trichius maculosus.*' "He had made the acquaintance of Mrs. Hannah Green, afterwards his wife, seven years ago in Goorgetown, S.C. We find in his note-book, 'Evening with Hannah; drawings on the wall; Sweet Home and picture; quarrels plenty.' Monday, June 21, 'Arrival at Rockingham, N.C.' June 22, 'I reach the town in the morning, visit Hannah at noon, and am married in the evening.'

" 'Hannah begins her school, July 16, with sixteen pupils, and seven pupils of mine in music and drawing.'

" 'Sept. 17, dispute took place with Hannah about American culture, and the fight that lately happened in Washington among the members of Congress.'

"It very soon became apparent that it was impossible to make a comfortable living in North Carolina, and they decided to return to Columbia, S.C. Here they built a schoolhouse, forty feet by sixteen, which was inaugurated December 18, 1843. The expense was, for the building, \$417; for Loring's globes, \$33. Income during the year, \$1,521; expenses, \$1,277.

"This is the last entry in the diary, and I know nothing more of his life except what is told in some letters to Thaddeus W. Harris. Some extracts follow: '1865, January 1, I possess \$570 in Confederate money; \$200 in Confederate bonds; \$900 in certificates; \$200 in provision store shares; \$13 in bank notes; \$114 in silver. Feb. 10, the Yankees are in Barnwell Co. To-day's prices - A load of oak wood, \$140; a barrel of flour, \$550; a pound of brown sugar, \$12; a bushel of corn, \$35. Feb. 17, the Yankees are here, 75,000 strong. This is the last day of Columbia. They at once entered the houses, got drunk and set fire to everything. I began to move everything that could be moved into the garden; but they broke open the trunks and boxes with their swords, and followed this up with a regular and general plunder. Feb. 22, the Army has left. All quiet. My collection and books brought back in the house. Expenses for this day - 1 bushel meal, \$40; 13 lbs. beef, \$22; molasses, \$6. July 1, we still possess \$1,100 Confederate State bonds, worth nothing; \$915 Confederate treasury notes, worth nothing; \$13 South Carolina bank bills, worth --- (?); \$3 South Carolina state bills, worth — (?); silver money, \$74; gold, \$2.50; copper, 5c. We must begin again at the beginning."

"This is the closing sentence. The few, simple words, without any moan over the loss of his all, are not a little touching, all the more so, because the pathos is unintentional — the pathos of facts, not of words, They call to mind his former record of the loss of everything by shipwreck on the 10th September, 1859, followed by the entry on Sept. 10th, 'Beginning of a new collection.'

"His interest in science was always kept up. Nearly every month the number of insects collected is reported, sometimes amounting to 3,725, and during the year to 11,500. In November, 1842, he sent fifty dollars to T. W. Harris, to buy three Goliaths. He constantly bought books both in Europe and America, and his library was valuable. It was bought by the Museum of Harvard College, in Cambridge, excepting some volumes which were retained for his own use by Dr. J. L. Leconte, at whose instance the purchase was made.

"His collection is also in the Museum, having been bought first by Dr. Lewis, of Philadelphia, and from him by the late R. Crotch, who sold it to the Museum. A great part is in Leconte's collection, and can be recognized at once by the numbers on the pins in Zimmermann's hand-writing.

"He was an unwearying worker. In 1842, he wrote to Harris that he was occupied with a systematic arrangement of the Lamellicorns, and wanted *Echiurus* and *Goliath* for study. In April, 1844, he writes again to Harris: "I have almost finished my chapter on Lamellicorns.'

"The following is a list of the entomological works of Dr. C. Zimmermann:

"1. Monographie der Carabiden, Erstes Stueck, Berlin and Halle, 1831, 8vo., pp. 8 and 76, contains the family Zabroides, five genera, with twenty-six species; review in Oken Isis, 1832, vol. v., p. 539, vol. x, p. 1117; extracted in Silbermann Revue, 1833, T. I., p. 45-47. The author's copy belongs to the library of the museum. "2. Monographia Amaroidum. — The work was interrupted by the author's voyage to America. The library of the museum possesses out of Zimmermann's own library a few sheets, printed in Europe in 1831, in two parts (proof sheets). The work is written in Latin. First part, p. 1-48 (three sheets), the general description of the family Amaroides: — I. de capitis partibus, p. 5 (os, instrumenta masticandi); II. de trunci structura, p. 16 (collum, pectus, pedes, alas); III. de abdomenis segmentis, p, 31 (dorsum, venter, appendices); general division of the Adephaga and Carabidae, p. 36, in 12 stirpes; de corporis partibus externis, p. 40, the plate (table 1) is not present, probably never printed, then follows the general description, p. 44, which gives the characteres sexuales (not finished), p. 48.

"The second part (also not finished), *Monographia Amaroidum*, quotes the first part as: — Dispositio methodica nova Coleopterorum Adephagorum. The characters of the family (p. 1) are followed by the systema of the family in twelve genera (p. 11). "1. *Leirus* Megerle, p. 12, twelve species, four new.

"2. *Lioscelis*, Zimm., p. 31, nine species, two new (not yet finished). The third sheet is by error marked the fourth, and the pagination, p. 49-60, is wrong, instead of p. 33-48.

"I have given purposely a detailed account of the two papers, only known by proof sheets, out of Zimmermann's library, as they contain, indeed, the most elaborate account of the general characters of the family. The description of the genera and of the species, as far as contained in the papers, is very detailed.

"The paper on Amara is quoted in my Bibliotheca II., p. 304, No. 2. It is in some way different from the Latin paper just described. It is published in German and translated in French, also the papers Nos. 3, 4 and 5. Besides those papers, after his death Dr. J. L. LeConte has published the two well known in the *Tr. Ent. Soc. Phila.*, 1868, on Scolytidae, and in 1869, synonymical notes on Coleoptera. Dr. J. L. LeConte's Scolytidae, p. 149, says: — 'Among the MSS. of my deceased friend, Zimmermann, I find several partially completed memoirs, which contain not only systematic ideas of much value, but descriptions of many new species belonging to our fauna.' Nevertheless he has published nothing more of them, and I am informed by Dr. G. H. Horn that nothing more of Zimmermannts papers was found after Dr. J. L. LeConte's death.

"The following report is given in a letter from Zimmermann to Th. W. Harris, July 4, 1853 (in the library of Boston N. His. Soc.), it must not be forgotten that the letter was written before Chapnis and Candeze appeared: 'What I have observed about the beetles, grubs and their use for a methodical synopsis I will subscribe here with a few words only, for the thermometer rises again about 100°.

COLEOPTERA.

"A. Larvae of 13 segments, full of folds, never with eyes.

"1. Petalocera (=Lamellicornia), forming three subdivisions, (a) containing *Oryctes, Melolontha, Copris*; (b) containing *Trox*, etc.; (c) containing *Lucanus*, etc.

"2. Rhynchophora, (a) containing *Hylurgus*; (b) containing *Curculio*; (c) containing *Brenthus*.

"B. Larvae of 13 to 14 segments (head and prolegs included, each for one segment), without folds, with or without eyes.

"3. Tetramera, (a) containing *Capricornia*; (b) containing Bruchidae; (c) containing *Phytophaga*.

"4. Pentamera, (a) containing *Sternoxa*, (a) Buprestidae, (b) Elateridae, (c) Cebrionidae; (b) containing Cleridae; (c) containing Lycidae.

"5. Heteromera.

"C. Larvae of 13 to 14 segments (mostly 14) above scaly, swift footed, always wits eyes.

"6. Adephaga.

"7. Rhypophaga.

"8. Brachelytra.

"I have directed all my powers upon the investigation of the larvae. Up to this day, however, I did not discover any more or better distinctive characters than those given above, and which appear to contain all the external characters worthy to be trusted, for you know already that numbers of them change their dress and form with each moultings. I may remind you here of the curious transformations of the larvae of *Meloe*, as investigated in the *Linnean Transactions*, vol. xx. These little creatures appear as frequently delineated, at first with long legs for swift running, which is necessary for them in order to reach their final abode;

having accomplished that they become by degrees fatter and more sluggish, whereby, curiously enough, the length of their legs decreases. The apparent difference between the larvae of *Buprestis* and *Elater* may be explained upon similar necessities, for the body of the larva of *Buprestis* is soft and necessarily so, living as it does in hard and unyielding substances, whereas the body of the larva of *Elater*, which lives in more damp, soft and cold substances, will find its stiff and hard dress more comfortable than it would a softer one. The larvae of *Buprestis*, as well as that of *Elater*, are of a structure sufficiently similar to be placed in the same great division (B), and more similarity was not necessary, for the structure of the beetles themselves had to decide their systematic station."

The greater part of Zimmermann's collection is in the possession of the Academy of Natural Sciences of Philadelphia, having come to the American Entomological Society years ago, together with quantities of lists, all in Zimmermann's handwriting. Zimmermann's notebook or diary is also at the Academy, it having been a part of the library of Dr. George H. Horn, which the Academy acquired in its entirety. At the library of the Museum of Comparative Zoology, there is a manuscript entitled "Nachrichten Ueber Das Leben von Chr. Zimmermann." Perhaps Zimmermann made his diary in duplicate. Regardless of this, the diary certainly should be translated and published, and Zimmermann is worthy of a more extended treatment than has ever been accorded him.

EDITIONS OF BUFFON

Mention should be made at this time of Buffon's Natural History of The Globe, and of Man, Beasts, Birds, Fishes, Reptiles, and Insects, "Corrected and enlarged by John Wright, M.Z.S." (London, 1831) which circulated in America. There were Boston editions, too, of this readable book. Buffon's descriptive talents were great but although eloquent and brilliant, his lack of scientific spirit led him to perpetuate many errors. Reaumur and Buffon had no use for each other and Reaumur was especially disgusted with Buffon's vast and impossible project of describing all animals, when he (Reaumur) had won a reputation for his work on the smallest, and when his end was approaching while Buffon was still young, The quarrel, although interesting, does not belong in a history of American entomology.

DOROTHY LYNDE DIX (1802-1887)

The American Journal of Science and Arts for January, 1831 (vol. 19, pp. 61-63) carried Dorothea L. Dix's "Notice of the Aranea aculeata, the Phalaena antiqua, and some species of Papilio."

Dorothy Lynde Dix, best known as a philanthropist, was born in Hampton, Maine, April 4, 1802. She opened a model school in Boston and was vitally interested in jail reform and in improving conditions in insane asylums. She visited every jail in Massachusetts and studied the condition of the insane. The results of her findings were presented in a petition to the Massachusetts legislature in 1843, and public sentiment forced the improvement of many deplorable conditions. She did the same thing in New Jersey, and through her efforts a State Asylum was created. She went from state to state and to foreign countries, and improvement always followed her crusading methods. She died July 17, 1887, after several years of terrible suffering at the Trenton Asylum in New Jersey, where she had lived for several years and for which she felt a special fondness, it being the first result of her work. It would be of interest if more were known of her natural history inclinations. Apparently her paper was published at the time she was teaching school in Boston.

THADDEUS WILLIAM HARRIS (1795-1856)

Mention has been made of the list of insects by T. W. Harris [see Chap. IV] that appeared in Edward Hitchcock's *Report on the* geology, mineralogy, botany, and zoology of Massachusetts, made and published by order of the government of that state . . . , published at Amherst, Massachusetts, in 1833. Part 4 of the report consists of "A Catalogue of the Animals and Plants in Massachusetts." Harris's list of insects occupies pages 566 to 595 and contains the names of 994 species of Coleoptera; 44 Orthoptera; 102 Hemiptera; 54 Homoptera; 91 Neuroptera; 388 Hymenoptera; 428 Lepidoptera; 1 Strepsiptera; 247 Diptera; and 1 Aptera, or a total of 2,350 species. No dates or localities are mentioned in the list, and with the exception of a half dozen species, all were in the collection of Doctor Harris. Most of them were collected in the vicinity of Boston, although the list included some that would eventually be found in Massachusetts.

Doctor Harris, in the preparation of his list, was helped by various entomologists. The Rev. L. W. Leonard aided him with duplicates and with species found beyond Massachusetts. Dr. D. S. C. H. Smith supplied him with specimens from Sutton, Massachusetts, Mr. William Oakes, of Ipswich, with water beetles, and others who sent insects to him were Prof. N. M. Hentz, Doctors Pickering, Gould and J. S. C. Greene, Mr. John Randall, Mr. T. Nuttall, Mr. John Bethune and Miss D. Dix.

In his report, Doctor Harris called attention to the fact that entomology within a few years had engaged the attention of some of the best naturalists of Europe and that since the days of Linnaeus and Fabricius, large accessions had been made to the number of known species of insects. He also stated that the results of this additional knowledge had not yet reached America and was beyond the reach of most individuals in this country; that necessary books were scarce; and that if Americans made discoveries, they had to resign to foreigners the honor of making such discoveries known.

EDWARD HITCHCOCK (1793-1864)

Edward Hitchcock was born in Deerfield, Massachusetts, May 23, 1793, and died at Amherst, Massachusetts, February 27, 1864. He chose the ministry as a profession and was pastor of a Congregational Church in Conway, Massachusetts, from 1821 to 1825. From 1822 until 1826 he was also principal of the Deerfield Academy. In 1825 he was appointed professor of chemistry and natural history in Amherst College, and in 1845 he became president of the college and continued in that capacity for ten years. For the remainder of his life he taught geology and natural theology in the same college. In 1830 he was commissioned by the State of Massachusetts to make a geological survey of the state. Three years were devoted to this work and the first part of his report on the geology of the state was finished in 1832, and the balance, including the insects, in 1833. Hitchcock wrote numerous papers on geology, mineralogy, ichnology, surface geology, physics, meteorology and botany, many of which appeared in Silliman's Journal.

TITIAN RAMSEY PEALE (1800-1885)

An ambitious entomological project was launched in Philadelphia in 1833 by Titian R. Peale, called Lepidoptera Americana, but it never got beyond the first number. It was entitled Lepidoptera Americana: or, Original Figures of the Moths and Butterflies of North America: In Their Various Stages of Existence, and The Plants on Which They Feed. Drawn on Stone, and Coloured From Nature: with Their Characters, Synonyms, and Remarks on Their Habits and Manners. By Titian R. Peale. Curator of the Philadelphia Museum. Vol. 1 - No. 1. Philadelphia: Printed By William P. Gibbons, S. W. Corner Sixth & Cherry Sts. 1833 (14 pp. 12 col. plates, yellow wrappers).

According to the printed proposal for publishing this work by subscription, it is stated that,

"until within a few years, the Natural History of our country has been more indebted to the science and enterprise of foreigners, than to the exertions of her own citizens. But a great change has taken place, and a laudable spirit of encouragement has latterly been evinced toward all attempts tending to advance a knowledge of our native productions. The splendid works, which have been issued from the American press, in several departments of Natural History, have done more to diffuse a general taste for this science, among our fellow citizens, than could have been anticipated, even by the most sanguine."

Peale said that he was actuated by a desire to contribute to a more general and correct knowledge of the insects of America and that he hoped to make his work generally useful by pointing out the most effectual means of guarding against the ravages of various caterpillars so destructive to the work of the farmer and horticulturist. The work was to consist of one hundred plates drawn from living subjects as far as possible. They were to be represented natural size — with the exception of minute ones, which were to be enlarged. The food plants of the caterpillars were to be figured also. No species were to be figured which Peale had not seen in their various stages. It was to be issued in numbers of four plates each, With copious descriptions and observations. A number was to be published every two months issued with colored and uncolored plates. The terms were to be as follows: copies on fine paper with colored plates, \$10.00 a year; with uncolored plates, \$7.00; payable on delivery of first number, Philadelphia, March, 1833.

The letter press that accompanied the first four plates covered, very briefly, the life history of the species, distribution, and descriptions of the larvae and adults. In comparison with presentday accounts, they were very short and general, but enough was given to satisfy the casual seeker after knowledge at that time. The plates, being by Peale, were, of course, very good.

Titian Ramsey Peale, son of Charles Willson Peale, artist and founder of the Philadelphia Museum, was known principally as an artist and illustrator of books on natural history. He accompanied Maclure, Ord and Say on their trip to Florida in 1818, and in 1819 he was one of the scientific staff of Major Long's expedition from Pittsburgh to the Rocky Mountains. Peale drew the colored plates of volumes I and IV of Bonaparte's American Ornithology and many of the plates in Say's American Entomology. In 1838-42, he accompanied the United States Exploring Expedition under Lieutenant Wilkes to the South Seas and drew some of the plates that appeared in the printed account. From 1849 to 1872 he was an examiner in the United States Patent Office. He was born in Philadelphia in 1800 and died there on March 13, 1885.

In Stansbury's *Exploration and Survey of the Valley of the Great Salt Lake of Utah*, published in Philadelphia in 1852, there is an interesting letter written by Peale, about insect fragments found in the Great Salt Lake, which is reprinted below:

Washington, May 12th, 1852.

"My Dear Sir: — The exuviae of insects which you have brought from the shores of the Great Salt Lake proves, on examination, to have been deposited by aquatic diptera.

"In the mass, I can detect fragments of the larvae shells of the pupa, and small portions of a mature *Chironomus* and other Tipulidae. More than nine-tenths of the mass is composed of larvae and exuviae of *Chironomus*, or some species of mosquito — probably undescribed; the fragments being too imperfect to determine.

"You are best able to determine, first, whether mosquitoes exist at any time at the Great Salt Lake in such unparalleled numbers as this organic matter indicates; or, secondly, whether the salt of the lake water has preserved their exuviae, so that it has accumulated through a great length of time.

"A few fragments of insects I have been able to determine as belonging to the Linnaean genus *Nepa*, which is aquatic, and a very few others as hymenopterous, etc.

"In the hope of soon seeing your Report, on *the most* interesting portion of our continent, I remain

Yours truly, T. R. Peale."

AUGUSTUS A. GOULD (1805-1866)

Dr. Augustus A. Gould, conchologist, contributor to medical science, and collaborator with Professor Agassiz in the publication of *Principles of Zoology* in 1848, did some entomological work along with his other varied activities. In 1834 he published "On the Cicindelae of Massachusetts" in the *Journal of the Boston Society of Natural History*" (vol. 1, No. 1, Art. 4, pp. 41-55). Doctor Gould in this paper received considerable help from Doctor Harris, who turned over to him his manuscript. Gould's paper is an orderly synopsis of the group in Massachusetts and no new species were added to those already described by Fabricius, Olivier, Dejean, Say, Hentz and Harris, One colored plate, drawn by B. F. Nutting, accompanied the paper, but the colors were nothing extra.

Doctor Gould was born in New Ipswich, New Hampshire, April 23, 1805, and died of cholera in Boston, September 15, 1866. He graduated from Harvard College in 1825 and then studied medicine with Drs. James Jackson and Walter Channing, previous to practicing in Boston. All his leisure time was devoted to science and he was an active member of the Boston Society of Natural History for many years, at one time being its vicepresident. He was also a fellow of the American Academy of Arts and Sciences and for two years president of the Massachusetts Medical Society. Many of his papers were printed in the publications of these two societies. His shell papers, for the most part, appeared in the Journal and Proceedings of the Boston Society of Natural History. In 1841 the state printed his Report on the Invertebrates of Massachusetts, and in 1865 the legislature of Massachusetts appropriated \$4,000 to republish that work. In 1846 he was engaged by the United States government to prepare the report upon the shells of the Wilkes Exploring Expedition, and a quarto volume was the result. Under the title Otia Conchologica he published all the original descriptions of new species of shells which he had previously published in various works, together with notes on changes in names. His extensive conchological collection was purchased by the Boston Society of Natural History.

DAVID THOMAS

David Thomas, who also wrote upon botanical subjects, published in 1834 "Some account of the *Chrysomela vitivora*" in the *American Journal of Science and Arts* (vol. 26, No. 1, April, Art. 19, pp. 113-16), which dealt with the characters, habits and injuries of *Haltica chalybea*. Mr. Thomas, some years later, or in 1846, wrote for the *Horticulturist* (vol. 1, p. 198) a paper entitled "Destroying Insects," in which he advocated the use of sweetened water for the control of fruit tree pests. Mr. Thomas had observed the beetles on his vines, feeding upon the buds. Later it was observed in Cayuga County, and it also appeared near Philadelphia. Details are given as to injury, etc., in order to learn if it had previously been reported from other parts of the United States.

WILLIAM GIBBONS (1781-1845)

William Gibbons, physician of Wilmington, Delaware, who occupied much of his time with science, was deeply interested in the culture of the silkworm, and in addition he wrote two entomological articles. One was entitled "The tent-caterpillar, Clisiocampa neustrea" and the other "Some account of the Cicada septendecim, or periodical locust." Both were printed in the Advocate of Science and Annals of Natural History in 1834 (vol. 1, No. 1, August, pp. 31-36; pp. 36-45). The cicada paper was continued in volume 2 (Sept. pp. 79-86). The former is a general account of the tent caterpillar based partly upon the observations of others. In this article, Gibbons acknowledges his indebtedness to Titian R. Peale for many interesting particulars. The cicada article is a general account also compiled from various contemporary journals and encyclopaedias and was perhaps the subject of an address by Gibbons to the Delaware Academy of Natural Sciences.

William Gibbons was born in Philadelphia, August 10, 1781. His father, James Gibbons, a lawyer, was one of the thirty Americans in London who petitioned King George against the acts of parliament that resulted in the Revolutionary War. William Gibbons graduated in medicine from the University of Pennsylvania in 1805 and practiced in Wilmington, Delaware. He was a prominent member of the Society of Friends and took an active part in the controversy that resulted in the separation of the society into the "Friends" and the "Orthodox Friends." He also established and ran a publication called the *Berean* which was devoted to the interests of the Society of Friends. He belonged to various organizations, including the Delaware Academy of Sciences, of which he was once president, and was the author of various works relating to the beliefs of Friends. His death occurred at Wilmington, Delaware, July 26, 1845.

BENJAMIN HALE IVES (1806-1837)

One of the first to call attention, through publicity, to the idea of organizing county natural history societies was Benjamin Hale Ives, who was born at Salem, Massachusett, November 8, 1806. Mr. Ives was an enthusiastic naturalist and was especially interested in entomology. Apparently his only published paper on this subject was "Observations on some of the insects which infest trees and plants, with hints on a method for their destruction." This was published in *The American Gardener's Magazine*' in 1835 (vol. 1, No. 2, Feb., pp. 52-54) and is general in character, dealing with well-known garden and fruit pests. Mr. Ives did not live to develop into an economic entomologist, as he died at the age of thirty, on January 26, 1837.

SAMUEL GRISWOLD GOODRICH (1793-1860) As an example of the popular entomology that flourished at this time, may be mentioned Peter Parley's Dictionary of the Animal Kingdom, published by Hunt and Company, New York, in 1836. The author, Samuel G. Goodrich, who was once a publisher and bookseller, wrote many volumes that were among the most popular of children's books. Peter Parley's juvenile books covered more than one hundred volumes on history, geography, travel, the arts, sciences, etc. The last book written by Mr. Goodrich was entitled Illustrated Natural History of the Animal Kingdom; being a Systematic and Popular Description of the Habits, Structure and Classification of Animals, from the highest to the lowest forms, with their relation to Agriculture, Commerce, Manufactures, and the Arts, by S. G. Goodrich, (Peter Parley), with 1,500 engravings. This was dedicated to Professor Louis Agassiz and many thousand copies were sold.

Returning to *Peter Parley's Dictionary of the Animal Kingdom*, according to the editor's note, the volume was designed to answer all sorts of questions, from old or young. It was intended as a "kind of patient friend, who will sit in the corner, lounge upon the table, or doze on the shelf, till called for." The accounts are general, brief, and sometimes rather sketchy, inadequate and odd. Four pages are devoted to the ant, with a page of illustrations, and the bee has the same allotment of space. There are short accounts of the butterfly and of the caterpillar. But we shall allow the dictionary to speak for itself by the following quotations:

"Flea: This well-known insect has a small head, two feelers, and a trunk, with which it sucks the blood of man and animals. It has six legs which fold up one within another. When it jumps, these legs all spring out at once, and the body is thrown two hundred times its own diameter. If a horse could leap in proportion to his bulk as the flea does, he would go from Boston to New Orleans at a single bound."

"Hornet: a large, bold, venomous species of wasp, inhabiting both continents. It has a passion for flesh, and sometimes two or three will attack a small bird, kill it, and devour it."

"Spider: a remarkable genus of insects, with eight crooked legs, eight eyes, and two claws upon the mouth," etc., etc., etc.

"Bug, or Bed-bug: a nauseous insect that infests the beds of careless housewives. Its body is divided into three parts, and it has two small brown eyes. This bug is destitute of wings."

Samuel Griswold Goodrich was born at Ridgefield, Connecticut, August 19, 1793. At one time he published at Hartford and later at Boston. During the winter of 1838 and 1839 he was a member of the Massachusetts senate. From 1841 to 1854 he edited *Merry's Museum and Parley's Magazine*. At one time (1851-1855) he was the American consul at Paris. He returned to America in 1856 and published a book of recollections. His *Illustrated Natural History* in two volumes was finished in 1859 and he died in New York City, May 9, 1860.

MISCELLANEOUS PAPERS

In the Massachusetts Agricultural Repository and Journal for April, 1832 (vol. 10, pp. 387-393), Mr. James Thatcher furnished a paper on the "Bee Moth — The best method of destroying the bee moth, or preventing its ravages among bees." Previously, or in 1831, the same journal had published an article on the same subject by John Stone (vol. 10, pp. 272-273).

In the Transactions of the New York State Agricultural Society for 1843, 1844 (vol. 3, pp. 201-216), Mr. J. J. Thomas wrote on "The diseases and insects injurious to the wheat crop," outlining the injuries of the grain worm, wheat weevil and Hessian fly. In the Transactions for 1848, appeared Mr. J. E. Gavit's paper "Corn or grain weevil of Europe (Calandra granaria) and (Silvanus surinamensis) the weevil most common in America." Characters, habits and means against both species are given and the early stages and adults are figured.

A very good, general, interesting, popular account of the periodical cicada appeared in 1844 in *Williams Monthly Miscellany* (vol. 1, pp. 26-34, July, 1844) apparently as a contribution from the Williams College Lyceum of Natural History. The *Monthly Miscellany* was conducted by students of Williams College and the cicada paper entitled "The Cicada Septendecim, or American seventeen year locust," was written by A. R. Wolfe. It is a long general, rather detailed account, gathered and put together with discrimination and care by the compiler, who attempted to cover all phases.

Various articles on the culture of silk appeared in the Journal of the American Institute for 1836, all more or less concerned

with the apparent profits to be derived from its successful cultivation. In 1837 and 1838, this Journal carried a translation from the French of an article on "The muscardine, a disease of the silk worms," and also two articles relating to bees, one by J. M. Weeks of Salisbury, Vermont, and another by Addison P. Dutcher, 138 Amity Street, New York, on "Bee Destroying Worms." An anonymous article in the 1838 volume gave a remedy for canker worms. Entomology then disappeared from the printed records of the Institute until 1846, when in the Transactions of the Institute for that year there was published a translation, from the Revue Horticole of Paris, of a paper on methods of preserving apple trees from injurious insects, and also an article on the "Preservation of Peach Trees" by a "Practical Farmer." In this article, it was recommended that the trunk from the branching of the roots to about two inches above the ground be covered with a mixture of common tar, tallow, salts of nitre and corrosive sublimate. After the application had been made, a bandage of old India rubber cloth was wrapped around the treated surface so as to prevent the soil from absorbing the corrosive sublimate. The soil was then replaced.

Nothing entomological appeared in the *Transactions* for 1847 and 1848. But in succeeding issues there were printed the entomological discussions which had taken place during the meetings of the Farmers' Club, organized in 1843 by the Institute, various papers by members of the Club, and translations from foreign publications, all bearing upon such injurious insects as the enemies of wheat, peas, beans, pples, plant lice, peach tree borer, measuring worm, plum curculio, periodical cicada, etc.

Sometimes Dr. T. W. Harris was quoted, or something from the entomological reports of the United States Patent Office. At other times, the topics included useful insects. Remedies, of course, were uppermost in all the discussions. Entomology of one sort or another, but mostly economic, appeared in practically all the *Transactions* from 1849 to 1864. In the volume for 1860, Dr. Isaac P. Trimble is the author of a paper on "The Cicada, or 17 year locust." In 1864, the Horticultural Association of the American Institute was organized and Doctor Trimble was appointed entomologist.

It may be added here, that the American Institute of the City of New York was organized in 1828 and that since that time it his continuously served American science and industry. It encouraged agriculture when scientific farming was in its infancy, and it has brought to the attention of the public numerous inventions, many of which are now used unthinkingly as part of our daily routine.

Another example of entomology for popular and youthful consumption at the time is embodied in *The Class-Book of Natural Theology, for Common Schools, and Academies; with numerous engravings, and a copious list of questions,* by Rev. T. H. Gallaudet, Late Principal of the American Asylum for the Deaf and Dumb, second edition, Hartford, Belknap and Hamersley, 1837. Previously, the book had circulated under the title *The Youth's Book on Natural Theology.* The text is in the form of dialogues between a mother and her son, and the entomological portions are sometimes startling. For instance, "mother" tells her son Robert that, with one kind of a microscope she had seen, "a little insect was magnified five hundred and seventy millions of times." As to the mouth-parts of a butterfly, "mother" says,

"Though it looks very simple, and as it were only one tube, it is in fact, made up of three smaller, distinct tubes: the two outside ones to draw in the air, and the middle one to suck up the honey. This middle tube is nearly square, and formed by the two outside ones coming close together, with a channel, or trough, cut in each. These two outside tubes are held fast together by a great many little hooks on each, that hook into each other When they are hooked together, the inside tube is air tight."

There is nothing to be gained by quoting more misinformation that "mother" told her son. No doubt, her son promptly forgot most of it. Religious texts were inserted frequently and at the end of the entomological lesson, after an account referring to the emergence of a butterfly from a chrysalis, it is stated,

"We shall all be changed in a moment, in the twinkling of an eye, at the last trump: (for the trumpet shall sound): and the dead shall be raised incorruptible and we shall be changed."

Two books on the culture of the mulberry tree and the silkworm were published in Philadelphia in 1839. One, by C. S. Rafinesque, was entitled American Manual of the Mulberry Trees, Their History, Cultivation, Properties, Diseases, Species and Varieties &c., with hints on the production of Silk from their barks &c. On the second cover page is a statement saying that a second volume, to follow, would be a Manual on the Silk Worms and their Silk, but apparently the second volume never appeared.

The other book was A treatise on the mulberry tree and silk worm; and on the production and manufacture of silk, by John Clarke. This is a detailed, orderly presentation that goes into the history of the culture and manufacture of silk in various Asiatic and European countries, gradually leading up to the United States; the culture of the mulberry tree; the culture of the silk-worm; ending with reeling, throwsting, dyeing and some statistics.

In 1841 the American Journal of Science and Arts (vol. 40, No. 1, Jan., Art. 17, pp. 146-149) published "Miscellaneous observations on insects, etc.," by Dr. John T. Plummer, of Richmond, Indiana. The paper, which consists of notes from letters written in August and December, 1840, by Doctor Plummer to the editors, is a general, meandering account of the plum curculio together with a statement concerning the effect of carbonic acid gas and ammonia upon a "beetle." Included are a few notes on other insects, a silver fish, a cricket, a "lady-bug" larva.

MARGARETTA HARE MORRIS (1797-1867)

In the Proceedings of the Academy of Natural Sciences of Philadelphia for 1841 (vol. 1, pp. 66-68), there appeared an article by Miss M. H. Morris of Germantown, Pennsylvania, on "Observations on the development of the Hessian Fly" wherein Miss Morris agreed that Thomas Say had described the male of Cecidomyla destructor perfectly in the first volume of the Journal of the Academy of Natural Sciences, but said that the female differed materially in color, being entirely black or blackish, and that the wings of the female were destitute of the hairy fringe so characteristic of the male. Miss Morris, after much study of the life history of the species, and of the observations of others, concluded that two species were being confused. In a second paper "On the Cecidomyla destructor, or Hessian Fly" (Trans. Amer. Philos. Soc. n.s., vol. 8, art. 3, pp. 49-51, 1843), Miss Morris continued to disagree with Say about the life history of the insect and advanced her own ideas including the theory that the eggs of the second brood were laid in the grain and remained dormant until it had sprouted and that the resulting larvae mounted with the growing stalk. Doctor Fitch, in his elaborate monograph of 1847, summarized exhaustively the early appearance of the Hessian fly and its spread in this country. Although it was described by Thomas Say in 1817, and is perhaps of European origin, its exact original home and the exact time of its introduction into America are matters still unsettled.

Miss Morris wrote several other entomological papers. One was "On the discovery of the larvae of the *Cicada septendecim* . . . "

that appeared in the *Proceedings of the Academy of Natural Sciences* (vol. 3, pp. 132-34, 190, 238, 1848) through Professor Johnson, who communicated her remarks relative to the discovery of the larvae of the 17-year "locust" feeding upon the roots of fruit trees. Miss Morris believed that the failure of fruit trees over twenty years of age was mainly due to such larval feeding regardless of the fact that most entomologists considered it harmless or nearly so. From a root a yard in length she took twenty-three cicada larvae. She also found that the eggs in the branches required forty-two days of incubation. She was confirmed in her belief that the larvae did considerable damage by their feeding.

In 1849 she sent a letter "On *Cecidomyia culmicola*" to the *Proceedings* of the Philadelphia Academy (vol. 4, p. 194) which dealt with a species feeding in the culm of wheat and which closely resembled and had been previously confused with the Hessian fly. She proposed the name *culmicola* and gave a few observations on its habits, saying that the eggs were laid early in June, on the grain, while it was in the soft or milky state. This was probably the wheat midge.

Miss Morris often made communications to scientific societies on insects of economic importance. In 1850 she read a paper before the American Association for the Advancement of Science on "Remarks on the seventeen year locust," but according to volume 4 of the proceedings, published in 1851, it was not received for publication. Perhaps this communication was the same one that Miss Morris sent to the Boston Society of Natural History in 1851 and which was read by Mr. Girard on October 1 (Proc. Bost. Soc. Nat. Hist. vol. 4, p. 110). This was upon the seventeen-year "locust" and from her study of them in 1817 and in 1834 she concluded that the larvae fed upon the roots of certain trees and shrubs in whose branches the females deposited their eggs, and that when groves or forests were cut off and the land cultivated for a series of years, the larvae died for want of food, and, as a result, distinct tribes have been found. Other notes are given on the appearance of the insects in New York, Pennsylvania, New Jersey, Maryland, Virginia and Georgia.

Margaretta Hare Morris, a daughter of Luke and Ann (Willing) Morris, was born December 3, 1797 and died unmarried on May 29, 1867. She was the first, and for many years the only woman elected to membership in the Pennsylvania Academy of Natural Sciences. She lived at the southeast corner of Main and High streets, Germantown.

FRANCOIS LOUIS NOMPAR DE CAUMONT DE LAPORTE DE CASTELNAU (1810-1880)

At a meeting of the National Institution for the Promotion of Science, held in Washington, D.C., Dr. Henry King of Missouri presented a paper on August 10, 1840, containing directions for making collections in natural history. According to the Proceedings of the Institution (vol. 1, page 6), it was ordered to be printed, but no trace of it has been found. In the same volume of Proceedings (pp. 110-111) it is stated that Mr. F. L. Castelnau, lately appointed consul of the United States for Lima, Peru, having offered to deposit his entomological cabinet in the Institution, certain correspondence relating to the offer was submitted to the meeting. Then follows a letter from Francis Markoe, Jr., corresponding secretary of the Institution to F. Castelnau, of New York, saying that at the last meeting of the National Institution his letter offering to deposit temporarily his collection of entomological specimens and books on natural history had been made the occasion for the appointment of a special committee to avail themselves of his kind offer. The corresponding secretary then thanks Castelnau. Under date of August 7, 1841, from New York, Castelnau acknowledges the letter and suggests that his collection should be delivered to the American consul in Paris, who would advise about the best way of shipping it to the United States. Castelnau also said that he was giving directions for his herbarium of European and African plants to be added to the other collections.

BENJAMIN HORNOR COATES (1797-1881)

When Miss Morris's paper on the Hessian fly was read before the American Philosophical Society at the April 2, 1841, meeting, Dr. B. H. Coates discussed it and said that the history of the larva could not be considered as settled and that more study was needed (Proc. Amer. Philos. Soc. vol. 2, No. 17, pp. 42-43, 1841). At the September 17, 1841, meeting, Doctor Coates had more to say about the Hessian fly and he referred particularly to a number of examinations made near Philadelphia which had shown that the pale yellow larvae in the wheat stalks were those of Say's Cecidomyia destructor, or Hessian fly, and to the fact that nothing had been found that approached the genus Lasioptera as given by Meigen (Proc. Amer. Philos. Soc. vol. 2, No. 19, pp. 96-7). At the July 13, 1841, meeting of the Academy of Natural Sciences of Philadelphia, Doctor Coates exhibited specimens of larvae from the hollow stems of wheat, which he had obtained near Germantown. He then described a larva and it agreed with Say's characterization. Other observations were given as to dates, etc., and it was decided that in all probability there were several insects infesting wheat and that they were not all properly identified. (Proc. Acad. Nat. Sci. Phila., vol. 1, pp. 54-56, 1841).

At the July 12, 1842, meeting of the Academy, Doctor Coates read a note on the old Linnean genus *Tipula*, and referred to Latreille's classification and to the affinities between *Cecidomyia* and other groups. (*Proc. Acad. Nat. Sci. Phila.*, vol. 1, pp. 191-92).

Benjamin Hornor Coates was a widely informed physician who was closely identified with the development of Philadelphia medicine in the first half of the nineteenth century. He was born in Philadelphia, November 14, 1797, attended the Friend's grammar school, Graduated from the University of Pennsylvania medical school in 1818, and practiced in Philadelphia with considerable success. In 1828 he was made attendant physician of the Pennsylvania Hospital and continued there as a clinical lecturer and physician until 1841. Coates was identified with many scientific societies. In 1827 he became a fellow of the Philadelphia College of Physicians. At one time he was president of the Philadelphia County Medical Society. He belonged to the Academy of Natural Sciences, to the Tea and Toast Club, to the American Philosophical Society of which he was its senior vicepresident for many years, and to the Historical Society of Pennsylvania, of which he was one of the founders. He was coeditor of the North American Medical and Surgical Journal (1826-31) and also its founder. His activities were numerous and varied, and included membership in benevolent and charitable organizations, an interest in the classics, a knowledge of French and German, and numerous contributions on medical, historical, biographical and other subjects. It is said that he was often timid among and shy of strangers whom he sometimes misunderstood and by whom he sometimes was misunderstood. This cultured man, philosopher, teacher and writer, died October 16, 1881, in Philadelphia. Before leaving him it should be said that he once wrote a biographical sketch of Thomas Say.

EDWARD CLADIUS HERRICK (1811-1862)

The Hessian fly was a much written and talked about insect.

Mr. Edward C. Herrick, of New Haven, Connecticut, read a paper on April 28, 1841, before the Yale Nat. Hist. Society entitled "A brief preliminary account of the Hessian fly, and its parasites" (Amer. Jour. Sci., vol. 41, No. 1, pp. 153-8, 1840). Mr. Herrick had made a study of the insect for several years with Mr. James D. Dana. Various egg and pupal parasites are described in general terms, but specific identities are lacking. Four years later, or in 1845, Mr. Herrick had a long paper published on the Hessian fly in the United States Commissioner of Patents Agricultural Report for 1844 (Appx. 1, pp. 161-75). This paper, which was prepared at the request of the Hon. H. L. Ellsworth, goes into the history of the Hessian fly, its spread in this country, notes on injury, description of various stages, and was apparently an orderly attempt to summarize everything that had been written about it. Remedies are proposed and analyzed at some length and it is of interest to summarize these briefly as follows. The remedies, in some cases, as noted, were useless because of the habits of the insect:

"Steeping seed wheat in elder juice, solutions of nitre, boiling water — or rolling in lime, ashes, etc., to kill eggs. Eggs not laid on seed. Remedies useless.

"Sowing seed obtained from places where insect was absent.

"Abstaining from growing wheat in the wheat region of North America, or other grains. Starving insect out.

"Manuring land highly, so that the plants will grow vigorously.

"Sowing a variety of wheat having a harder and more solid stalk.

"Fumigating the wheat field and sprinkling young wheat with infusion of elder and with other steeps.

"Sowing very late in autumn.

"Sowing oats early in autumn as a trap crop, plowing it in and then sowing wheat.

"Rolling young wheat in autumn and spring, to crush eggs and larvae.

"Permitting sheep and other animals to graze the wheat fields while insects are laying eggs.

"Burning stubble after harvest and plowing in remains."

Other wheat pests or insects are mentioned, such as the Angoumois grain moth, wheat fly, wheat caterpillar. Pages 167 to 174 consist of extracts from Doctor Harris's work, and pages 174 to 189 consist of observations on varieties of wheat by General Harmon and extracts from farm papers.

Herrick also wrote "On the Chrysomela vitivora," in which he discussed the identity of C. vitivora Thomas with Haltica chalybea III. (Amer. Jour. Sci. & Arts., 1835, vol. 27, p. 420); "Parasite of the eggs of the elm tree moth," in which was discussed the occurrence of Platygaster sp. parasitic in the eggs of Paleacrita vernata (Amer. Jour. Sci. & Arts, 1840, vol. 33, p. 385); and "Parasite of the eggs of Geometra vernata," in which he noted the abundance of Platygaster sp. in the eggs of P. vernata and described the eggs and habits of the parasite.

Edward Claudius Herrick was born February 24, 1811, in New Haven, Connecticut, where he lived until his death on June 11, 1862. At the age of sixteen he became a clerk in the bookstore of Gen. Hezekiah Howe, which was also a publishing house for Yale College and a meeting place for professors and bookish persons. He became one of its proprietors in 1835, but three years later he retired with financial losses. Although he did not enter college because of trouble with his eyes, his scientific and scholarly attainments were such that Yale made him an honorary Master of Arts. At one time he was clerk of the City of New Haven, and he was employed in the office of the American Journal of Science. In 1843 he was appointed librarian of Yale College, and in 1852,

treasurer. He continued as librarian until 1858, when he resigned to give all his time to his duties as treasurer. His knowledge was extensive but his major interest was natural science, especially such subjects as entomology and astronomy. Among other things he was the first to find and describe the parasites of the eggs, of the spring canker-worm.

SAMUEL G. MORTON (1798-1851)

At a meeting of the Academy of Natural Sciences of Philadelphia on June 20, 1843 (Proc. Acad. Nat. Sci. Phila., vol. 1, pp. 276-79), Dr. S. G. Morton made a verbal communication on the periodical cicada and reported his findings on a recent journey from Rahway to Haddonfield, New Jersey. In one apple orchard, the trees were "loaded" with them. It was stated that their food was still a matter for conjecture by scientists, and that upon dissection, only mere rudiments of digestive organs were found. A Mr. Rogers said that in 1817 the trees in the neighborhood of Baltimore lost their leaves as a result of the insect. He doubted their common origin and stated that their appearance at different times in different places was probably due to geological causes. Other observations were made by Doctor Keagy, Doctor Pickering, Mr. Lukens, Doctor Goddard, Mr. Gliddon and Mr. Cassin, mostly on the distribution of the cicadas and their absence from certain places. Mr. Cassin believed that there were two varieties, a large and a smaller one. They differed in size and musical note, the larger one being commonly known as the seventeen-year locust.

Dr. S. G. Morton was a successful Philadelphia physician. For years no doctor in the city had a larger practice. He was a member of the Academy of Natural Sciences for thirty years and for many years its vice-president and president. In addition, he lectured at the Philadelphia Hospital, Pennsylvania College and other medical institutions. Among his writings, his *Crania Americana* and *Crania Aegyptiaca* are perhaps the most important. Their publication obtained for him high recognition as an archaeologist and as an ethnographer. He died in Philadelphia, his native city, on May 15, 1851, in his fifty-third year.

JOHN M. WEEKS (1788-1858)

In the Transactions of the New York State Agricultural Society (Albany, N.Y., vol. 2, pp. 225-38) for 1842, there is a general paper on bees by J. M. Weeks, who was a contributor to various agricultural journals. John M. Weeks was born in Litchfield, Connecticut, May 22, 1788, and died in Salisbury, Vermont, September 1, 1858. In 1836 he invented what was known as the Vermont beehive. He was also the author of a Manual of Bees published in 1854, and of a History of Salisbury, Vermont, with a memoir of the author, published in 1860. At his death he left a manuscript history of the Five Nations.

WILLIS GAYLORD (1792-1844)

A quite ambitious paper was published by the New York State Agricultural Society in their *Transactions* for 1843 (vol. 3, pp. 127-34, 3 pl.). It was written by Willis Gaylord, Onondaga, New York, and entitled "A treatise on insects injurious to field crops, fruit orchards, vegetable gardens, and domestic animals, with a description of each, and the best methods of destroying them or preventing their ravages." This was one of the prize essays of the New York State Agricultural Society. In the preface Gaylord acknowledges the help he received from the works of Wilson, Say, Kollar, Harris, and other writers, as well as to the pages of the American Journal of Science, New England Farmer, the old Genesee Farmer, and the Albany Cultivator. The essay is divided into four parts. The first part is devoted to insects injurious to the vegetable garden and includes such pests as the cutworm, squash bug, cucumber beetle, onion maggot, turnip flea-beetle, plant lice, wireworms, pea weevil, cabbage worms, etc. The second part, on insects injurious to field crops, includes the Hessian fly, grain weevil, Angoumois grain moth, May beetles, potato beetle, etc. The third portion treats of insects injurious to the orchard and to fruit trees generally. In this division are mentioned the cankerworm, apple borer, peach-tree borer, apple aphis, bark lice, plum weevil, coaling moth, cotton louse, etc. The fourth part covers insects injurious to domestic animals and embraces the horse bat, sheep bot, lice, the bee louse, the sheep fly, bee moth and round intestinal worms, etc. The three pages of illustrations are rather crude woodcuts of the Hessian fly, codling moths wireworms, horse bats, onion maggot, etc. Gaylord said,

"A thousand lions let loose in our country would not occasion so much loss of property as does the canker worm in a single season."

The principal orders of insects are named and a few examples of each are mentioned, together with brief notes on their early stages. The remainder of the article is concerned with the life histories, habits of, and with the remedies for, the various injurious species. Against cutworms, paper wrapped around the stems of cabbage plants was suggested as a remedy. Squash bugs and their eggs were to be destroyed by hand, although watering the plants with "soot water" or "manure water" was supposed to do some good. The cucumber beetle was kept away by covering the cucumber plants with netting. Cabbage worms were to be removed by hand. Hot water, soap suds and tobacco water were recommended for use against plant lice. And it would be possible to continue to mention other hand and cultural methods recommended in this article. Most of them, however, may be found in Harris's treatise, referred to previously.

Willis Gaylord, agricultural editor and author, was born in Bristol, Connecticut, in 1792. In 1833 he began writing for the Genesee Farmer and in 1840 he was made the editor of this journal, which was combined with the Cultivator. He wrote various agricultural articles, and also a number of papers on meteorological subjects. These latter papers appeared in the American Journal of Science and Arts. His treatise on "Geology as connected with Agriculture" was published in the Transactions of the New York State Agricultural Society for the year 1841, and his American Husbandry, written jointly with Luther Tucker, was published in two volumes in 1840. Mr. Gaylord did much to advance agriculture, particularly in the state of New York. He died at Camillus, New York, in 1844.

JOHN GOTTLIEB MORRIS (1803-1895)

On February 16, 1841, John Gottlieb Morris, pastor of the English Lutheran Church of Baltimore, Maryland, delivered before the Philomathean Society of Pennsylvania College at Gettysburg, Pennsylvania, an address on the study of natural history. Pastor Morris gave a general talk and mentioned insects along with other animals. His remarks were built around the following seven statements:

1. "Natural History ought to be studied, and the animal kingdom especially, on account of the numerous relations it bears to us, and its influence on our happiness and prosperity.

2. "Natural History ought to be studied because it affords constant amusement and interest to the mind.

3. "This branch of science ought to be diligently studied because it induces habits of nice discrimination.

4. "This study leads to many valuable discoveries, and on that account deserves to be pursued.

5. "But the constant employment these pursuits give to the mind is another reason why they should be prosecuted.

6. [missing].

7. "This study exalts our views of the great Creator."

Morris said that if he had any influence with the governors of schools and colleges, he would advise them at once to introduce Natural History as a branch of study and have it regularly and systematically taught. His address was of a high moral tone, and couched somewhat in ministerial language.

Morris was born at York, Pennsylvania, November 14, 1803, and graduated from Dickinson College in 1823. Then he studied theology at the Princeton Theological Seminary from 1823 until 1826 and at the Gettysburg Seminary in 1827. He received the degrees D.D. in 1839 and LL.D. in 1873, both from Pennsylvania College, Gettysburg. He founded the Trinity English Lutheran Church at Baltimore, Maryland, and was its pastor from 1827 until 1860. He was also librarian of the Peabody Institute at Baltimore from 1860 to 1865 and pastor of several congregations in Baltimore and its vicinity. For some years after 1834, he was lecturer on natural history in Pennsylvania College. He was quite active in Lutheran Church circles and held various offices. Entomology and microscopy occupied hls leisure time, as did his interest in various scientific societies to which he belonged. In addition to his scientific papers he wrote extensively on religious subjects, translated works from the German and wrote reviews, addresses and magazine articles. He died in Lutherville, Maryland, on October 10, 1895, at the age of ninety-two.

At the 1844 meeting of the National Institution for the Promotion of Science, held at Washington, D.C., Doctor Morris, on April 3, read a paper "On the past and present state of entomological science in the United States." His paper was printed in 1846 in the *American Journal of Science and Arts* (vol. 51 [ser. 2, vol. 1] No. 1, Jan., Art. 2, pp. 17-27) under the title "Contributions toward a history of entomology in the United States."

In this paper Doctor Morris calls attention to the devotion with which entomology is pursued in Europe and its comparative neglect in this country. This neglect, he states, is due to the greater economic importance of other branches of natural history, to the small size of insects, to the supposed poisonous qualities of insects, to the fatigue and exposure incidental to collecting insects, and to the dislike of impaling the insects on pins. He then states how extensively the mammals and birds have been studied and described and mentions the workers in these and other fields exclusive of entomology. Taking up insects, he describes the activities of such workers as the Rev. F. V. Melsheimer, Prof. William D. Peck, John Abbot, Catesby, Thomas Say, Major Leconte, Dr. T. W. Harris, and others such as Hentz, Haldeman, Ziegler, Potter, Peale, whose activities have already been or will be noted in these pages. He mentions the European workers, by name, who have described North American insects and calls attention to the activity of the members of the Entomological Society of Pennsylvania formed at York, in August, 1842. When Doctor Morris wrote his account, entomology was taught only at several colleges in this country: by Doctor Harris at Cambridge, by Professor Adams at Middlebury, by Doctor Morris at Pennsylvania College, Gettysburg, Pennsylvania, and by perhaps a few others.

Doctor Morris thought that, although insect collections were not numerous, they were in many instances "very respectable." He mentions specifically Doctor Melsheimer's collection, rich in native species, the extensive collection of Doctor Harris, the collections of Major Leconte, Professor Haldeman, Mr. Ziegler of York, his own collection containing upwards of 7,000 species of native and foreign Coleoptera and a large number of Lepidoptera, the large collection of Lepidoptera owned by Mr. Peale of Washington, D.C., and the magnificent collections once owned by Doctor Wilkens of New Jersey and by Mr. Wilcox, late of Brooklyn, New York. As for public collections, these were not numerous and only that of Count Castelman, deposited in the National Institute, Washington, D.C., is named and noted as the largest and richest in the country.

From 1844 to 1846 inclusive, Morris wrote eight entomological papers for the Literary Record of the Linnaean Association of Pennsylvania College, Gettysburg, Pennsylvania (vols. 1 & 2). These dealt with such subjects as: a plea for more attention to the study of entomology in schools and colleges; general directions for collecting insects, for pinning them in one's hat, etc., for killing them with hot water and with oxalic acid; materials necessary for rearing insects; the use of heat for destroying Dermestidae in collections; entozoical fungi in insects; the habits of tiger beetle larvae; and a general account of the habits of insects whereby they successfully live through the winter, escape their enemies and otherwise adapt themselves to their surroundings, all of which the author attributes to the providence of God. All these articles by Morris were of a popular nature. Two popular lectures by Morris were printed in the Report of the Smithsonian Institution in 1855 (vol. 10, pp. 131-135; pp. 137-141). One was entitled "Natural history as applied to farming and gardening" and the other "Insect instincts and transformations." The former was a general lecture involving statements about crops, birds, naturalists, a short history of the Hessian fly and the interest it had aroused in learned societies and commissions, cut worms, insect pests of forest trees, etc. The latter was a general and popular lecture.

In 1860 the Smithsonian Institution published in their *Miscellaneous Collections* (vol. 3, art. 2, 8 + 68 pp.) Morris's "Catalogue of the described Lepidoptera of North America," which must have been greatly welcomed by the students of Lepidoptera in the United States. Over 2,000 species were enumerated, the Greater part of which occurred in the United States proper. Morris said that hundreds remained to be discovered and that territorial acquisitions in the west would afford new species constantly. Very few micro-lepidoptera were listed, but at that time Dr. B. Clemens of Easton, Pennsylvania, was studying them.

As a companion to this catalogue, the Smithsonian Institution published in 1862 Morris's "Synopsis of the described Lepidoptera of North America, part I, Diurnal and crepuscular Lepidoptera" (Smith. Misc. Coll. vol. 4, Art. 2, 27 + 353 pp, 30 illus.). In the preface Morris said that the science of entomology was making rapid progress in America. There was an increasing demand for books, but previously nothing had appeared professing to describe all the species of any one order of insects. He paid tribute to the admirable monographs of some families and genera written by Leconte and others, to the work done by Harris and Clemens on our Sphingidae, to the descriptive work of Say, Melsheimer, Peale, Fitch, Ziegler, Haldeman, Uhler, etc. and to Doctor Harris's Insects Injurious to Vegetation, which was, he stated, the nearest approach to comprehensive work. In his "Synopsis," Morris attempted to bring together in as narrow a compass as possible all our described Lepidoptera, embracing the Rhopalocera and the first two tribes of the Heterocera, thus including all the known diurnals, Sphinges And Bombyces down to the Noctuidae. He included nearly all of Doctor Clemens'

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synopsis of North American Sphingidae published in the Journal of the Academy of Natural Sciences of Philadelphia in 1859 and he also used the same author's work on Arctiidae published in the Proceedings of the Academy in 1859. He inserted descriptions of species and varieties which had been the subject of dispute in order that their authors might be heard and so that readers would be in a position to judge for themselves. With respect to classification, he chiefly adopted that of Herrich-Schaeffer of Ratisbon with some modifications of Walker of the British Museum.

In the Report of the United States Commissioner of Patents, Aricultural Reports for 1861 (pp. 374-82), Mr. Morris had an article entitled "The Ailanthus silk-worm of China (Bombyx cynthia)," in which he called attention to a kind of silk employed for ages in China for clothing the poorer people. This was of a coarser texture than that furnished by the mulberry worm." He then covers the history of Bombyx cynthia and its culture in China, and in France where it had been recently introduced. He dwells on the food plant Ailanthus glandulosa and then upon the eggs, larvae, cocoons, silk of Bombyx cynthia, rearings, type of leaves to be fed, etc.

He concludes that because of the diseases of the mulberry tree and of the "mulberry worm" in Europe, silk is becoming scarcer and higher in price and that the production of cotton will probably decline as provision prices are rapidly advancing. Therefore the discovery of a new and cheaper textile which may be produced in large quantities should be considered a fortunate event. The silk of *Bombyx cynthia* met these conditions. Although not brilliant, it was strong and durable and easily dyed. The *Ailanthus* tree grew everywhere, in poor soil, and was easy to cultivate. He believed that "ailantine," as he called it, would be the silk of the middle classes and that the "silk of the mulberry" would be the silk of luxury.

SAMUEL STEHMAN HALDEMAN (1812-1880)

In 1842 Prof. S. S. Haldeman, who excelled as a specialist in several branches of science, appeared on the entomological scene, with the publication of a paper in the *American Journal of Science and Arts* (vol. 42, No. 2, April, Art. 9, pp. 280-93) entitled "Notice of the zoological writings of the late C. S. Rafinesque," in which he criticizes Rafinesque's passion for describing new species.

In 1843 Charles B. Trego's *Geography of Pennsylvania*, was published in Philadelphia and included therein was a section on zoology contributed for the most part by Professor Haldeman. This section covers mammals, birds, reptiles, fishes, insects, Crustacea, Annelides, Mollusca, etc. The groups Coleoptera, Orthoptera, Homoptera, Hemiptera, Lepidoptera are covered and a few facts are mentioned about several species in each group. Among other things, Professor Haldeman estimited that there were approximately 9,000 species of insects in Pennsylvania, out of a total of 10,000 species from mammals to molluscs.

Haldeman's "Catalogue of the Carabideous Coleoptera of South Eastern Pennsylvania" was published in 1843 in the *Proceedings* of the Academy of Natural Sciences of Philadelphia (vol. 1, pp. 295-98). This was a list containing about 211 species. The same volume of *Proceedings* (vol. 1, pp. 298-304) carried his paper, "Descriptions of North American Species of Coleoptera presumed to be new." In this paper forty-nine species are described in Amara, Lebia, Anchomenus and other coleopterous genera. The descriptions are very short and no mention is made of specific localities. Before describing the species Haldeman said,

"From the difficulty attendant upon the study of insects in the United States, arising from the absence of standard collections and

the impossibility of knowing what has been done in Europe, the characters here given should, perhaps, be regarded as indicating species unknown to the author, rather than as absolutely new to science."

In 1844 the American Journal of Science and Arts (vol. 46, No. 1, Jan., Art. 2, pp. 18-24) carried Haldeman's "Remarks on zoological nomenclature." At this time Haldeman was professor of zoology in Franklin Institute, Philadelphia. In this paper, Haldeman stated that the laws laid down by the British Association contained little that could be opposed, framed as they were, for the scientific world at large. He discusses current practices, generic and specific names, Latin endings, etc., and of authors,

"who appear to possess a monomania on the subject of having their names attached to the species of antecedent authors" he says, "that the time may come when every species will be so well known as to require no citation, and the names of the proposers of species of almost as little account as the lists in a city directory."

He believed that in writing zoological names, the rules of Latin orthography should be followed and furthermore that no genus should be admitted that could not be pronounced with the ordinary power of the alphabet, otherwise Chinese characters might claim a place at some future time. He was in favor of discarding entirely all vernacular names, and finally he suggested that to frame a good set of rules the joint work of from three to six naturalists would be required, each from a different nation and each to have creditable works behind him. For such a task, he nominated Professor Agassiz, the Rev. L. Jenyns of England, Fischer de Waldheim of Russia and Germany, C. L. Bonaparte of Italy, and Guérin-Méneville of France.

In 1844 Haldeman described ten additional species of Coleoptera in the *Proceedings of the Academy of Natural Sciences* (vol. 2, pp. 53-5). Localities and habitats were rarely given. As part of the *Transactions of the Entomological Society of Pennsylvania*, Haldeman read before the American Philosophical Society on January 17, 1845, a paper on "Material towards a history of the Coleoptera Longicornia of the United States." This appeared in its *Transactions* (n.s., vol. 10, pp. 27-66). Later, or on December 3, 1847, Haldeman read his additions and corrections and these were published in its *Proceedings* (vol. 4, pp. 371-72). In this paper, which is really a descriptive and annotated catalogue, Haldeman followed Dejean's *Catalogue* throughout on account of the large number of North American species it contained. Haldeman said,

"Unfortunately its author [Dejean] thought it sufficient to catalogue a species to secure the citation of it; an assumption which, if allowed, will require the presence of an American entomologist in Paris (or wherever a catalogue might be published), before he dare name the insects of his own country."

He continues further, as follows:

"But besides the inability of the world at large to know to what object a mere catalogue name refers, there might be an occasional risk of a species already described appearing under a new name and of this name afterwards being appropriated to a really new species subsequently described by another author. Moreover the specimens themselves might be exchanged or displaced. Under such circumstances, it becomes impossible that the great body of entomologists should admit the authority of an onerous law, which must place the descriptive portion of the science in the hands of a few, whilst the great majority are converted into mere collectors."

However, Count Dejean did not follow his own rule of catalogue priority because many North American Coleoptera had been previously known in Germany through Prof. A. W. Knoch and the Rev. F. V. Melsheimer in whose catalogue they had been named and published, but not described, in 1806.

In the preparation of this paper, Haldeman was helped by John

L. LeConte, Major John LeConte. In addition, the Melshelmer collection was made available to him by Dr. F. E. Melsheimer, and N. M. Hentz sent him a small collection. Two hundred and eighty-four species are listed.

Haldeman's summary, in part, states that although in Massachusetts, according to the Harris *Catalogue*, ninety-one species are listed, there are probably one hundred species. The Melsheimer *Catalogue* of 1806 contained 120 names, but Haldeman placed the number known from Pennsylvania, at that time, as 132 and the total number in the United States as 270. This was in comparison with 180 species known from France, 64 from England and 5 species common to both Europe and North America. The paper is descriptive throughout. The species are named; references to the places of original descriptions are given; localities are mentioned; brief descriptive notes are appended and some species are described at length. Many new species are described.

Haldeman strayed, a few times, from the systematic to other entomological fields. Thus we find him in 1845 taking an interest in Agrilus ruficollis and its depredations on the cultivated raspberry. During this year, he published a short note about the larvae of Agrilus ruficollis in the stems of cultivated raspberry and advised the cutting and burning of infested stems in autumn or early spring. This note was published in the Literary Record of the Linnaean Association of Pennsylvania College, Gettysburg, Pennsylvania (vol. 1, No. 6, April, p. 119). Later, or in 1846, he published a somewhat longer account in the Transactions of the New York State Agricultural Society (vol. 6, pp. 374-375), under the title "The Agrilus ruficollis." In this he describes the beetle and notes the larva and its work. The control measures are the same as advocated in his previous paper. On a plate, which accompanies this article, the beetle is figured, along with the Hessian fly and many sub-figures.

From 1846 until 1858, Haldeman wrote quite a few papers describing new species and also papers dealing with other phases of entomology. It is not possible to mention them all by title here, and reference will be made only to particular ones. His descriptive papers on the Coleoptera appeared in the *Journal* and in the *Proceedings of the Academy of Natural Sciences of Philadelphia*. In one case he wrote most of his descriptions in Latin.

Haldeman did not confine himself exclusively to the Coleoptera. In 1848 his paper on the "History and transformation of Corydalus cornutus" appeared in the Memoirs of the American Academy of Arts and Sciences, Boston (n.s. vol. 4, part 1, Art. 3, pp. 157-61). In this paper he claimed that the study of Neuroptera in late years had received a new impulse from the works of Pictet, Charpentier, de Selys-Longchamps, Siebold and others, and that the order was well represented in North America although many species still remained unstudied. His paper covered a description of the larva, pupa and adult, the predaceous habits of the larva and was accompanied by a good plate illustrating all stages of the species, and anatomical details. Haldeman's paper was followed by one by Dr. Joseph Leidy on the "Internal Anatomy of Corydalus cornutus in its three Stages of Existence" (Mem. Amer. Acad. Arts & Sci. Bost. n.s. vol. 4, part 1, Art. 3, pp. 162-168). Doctor Leidy described the digestive system of the larva, pupa and adult and the reproductive and nervous system of the adult. Two excellent plates drawn by Doctor Leidy himself illustrate the internal anatomy and various details.

In 1848 and 1850, Haldeman published a few entomological notes relative to beetles in ants' nests and to descriptions of new species of Hemiptera in the American Journal of Science and Arts. One of his notes dealt with "A new organ of sound in Lepidoptera" (Amer. Jour. Sci. & Arts, ser. 2, vol. 5, No. 15, May, p. 435) and this is quoted below:

"The Lithosia miniata, Kirby (Fauna Bor-Am., p. 305), or an allied species, produces an audible stridulation by vibrating the pleura beneath the wings, this part being marked in recent specimens by parallel lines, apparently indicating the position of the muscles. It is possible that the European Acherontia atropos may produce its peculiar sound in a similar manner.

"A writer in the Albany Journal of Science and Agriculture asserts that he has seen Atropos pulsatorius, making the noise called 'death watch,' and he alludes to an opinion of Dr. Fitch upon the same subject. This must be an error attributable to the fact, that the writer was predisposed to connect the sound with this minute and tender insect, rather than with the more solid and larger Anobium, to which the sound in question, as well as the name 'death-watch,' appertains."

On February 12, 1849, Haldeman read before the Academy of Natural Sciences of Philadelphia, a "Report on the progress of entomology in the United States during the year 1849," which was published in its Proceedings (vol. 5, pp. 5-7). In this report, the author said that entomology would advance more rapidly if there were one or more general works on the subject, adapted to this country. As things stood, students were held back because of the absence of books, figures and collections dealing with American genera and species, Another drawback was the lack of entomological instructions in our educational institutions. Outstanding papers of the year were then mentioned such as the writings of LeConte, Haldeman, Morris, Savage, Agassiz, Fitch and Dana. Economic entomology during that year was enriched by the work of Miss Morris, who had discovered Tomicus liminaris Say injuring peach trees and Baris tripunctata in potato stalks.

Haldeman described species in the Hymenoptera (*Proc. Acad. Nat. Sci. Phila.* vol. 4, pp. 203-4) and in the Orthoptera (*Proc. Amer. Assoc. Adv. Sci.*, 1849, vol. 2, Aug. 14-21, pp. 346-47) but his activity in these groups was limited. In the insect portion of Howard Stansbury's *Exploration and Surveyor of the Valley of the Great Salt Lake of Utah...* (Phila. 1852) which was written by Haldeman, twenty-five new species are described. The report is illustrated by two plates representing thirteen species.

Mention should be made also of the *Catalogue of the described Coleoptera of the United States* by Friedrich Ernst Melsheimer, M.D., which was revised by S. S. Haldeman and J. L. LeConte and published in 1853 by the Smithsonian Institution.

Haldeman's last contribution to entomology appears to be his paper in the *Proceedings of the Boston Society of Natural History*, 1858 (vol. 6, p. 400-3) in which he described *Cecidomya robiniae* and *Aphis stamineus*.

Samuel Stehman Haldeman was born August 12, 1812, at Locust Grove on the Susquehanna River, about twenty miles below Harrisburg, Pennsylvania. His family was of Swiss descent, and several members had occupied important positions during Colonial and Revolutionary times. His early education took place in local schools, in his father's library, and on the family farm where he made a collection of natural history specimens under the guidance of a Methodist minister. When he was fourteen years of age, he was sent to the classical school of Dr. John Miller Keagy at Harrisburg, and after two years he was sent to Dickinson College, where his scientific tastes were developed under Professor Rogers, afterwards State Geologist of Pennsylvania. However, after two years he decided that his course of study could best be directed by himself and so he left, ostensibly to work with his father, in running a saw-mill, but actually to spend as much time as possible in the field and with his books.

The medical department of the University of Pennsylvania engaged his attention in 1833-34, but he had no intention of becoming a physician. In 1835 he married Miss Mary A. Hough and a little later moved to Chickies, Pennsylvania, and became a silent partner in the iron business run by his brothers, Dr. Edwin and Paris. He lived here the balance of his life and here his books and specimens accumulated, and were scattered every time his desire for knowledge led him into new fields. For forty-five years, much of his time was spent in his library. In 1836 he was assistant on the Geological Survey of New Jersey, and in 1837, on that of Pennsylvania. He contributed papers on "Smelting Iron with Anthracite Coal" to Silliman's Journal. In 1855 he edited a revision of Taylor's "Statistics of Coal." His first publication seems to have been a paper published in 1835 in the Lancaster Journal exposing the "Moon Hoax" which had appeared in the New York Sun. From 1840 to 1866, he wrote a work in nine parts on Fresh Water Univalve Mollusca of the United States. Various other zoological contributions came from his hands. He took considerable interest in the language of North American Indians and this led to more interest in language in general. He helped to found the American Philological Association and was its first vice-president 1874-76, and its president 1876-77. Many papers were contributed by him to its transactions. Spelling reform, early editions of old English books, the so-called Pennsylvania Dutch, and education, all occupied his interest and attention. The list of his scientific papers, prepared by his daughter, included ten titles on conchology, twenty-three on entomology, two on spiders, five on crustaceans, six on annelides and worms, seven on geology and chemistry, thirty-three on philology, seven on archaeology, and twenty-nine classified as miscellaneous. He wrote several works of literary criticism, two mock-heroic poems, articles on quackery in American literature, school readers, American dictionaries, etc. In 1842 he was made professor of zoology in Franklin Institute; in 1852, chemist and geologist to the Pennsylvania State Agricultural Society; 1850-53, professor of natural history in the University of Pennsylvania; 1855-58, Professor of natural history in Delaware College; 1869 until his death, professor of comparative philology in the University of Pennsylvania.

He died suddenly on September 15, 1880, of heart disease, upon his return from attending a meeting of the American Association for the Advancement of Science at Boston. Professor LeConte said that,

"next to his valuable contributions in philology, the most important work of Professor Haldeman was in the direction of descriptive natural history."

Haldeman and the Rev. J. G. Morris had been bosom friends for forty years. In early life they had lived near each other. Morris, F. E. Melsheimer, Haldeman and Ziegler used to meet several times each year at their respective homes to read papers, exhibit specimens, discuss questions and tell about entomological adventures. They were the only collaborators within two hundred miles. The LeContes in New York were their nearest entomological neighbors. This little group established the Entomological Society of Pennsylvania in 1842, and after electing all their confreres in the county as honorary members, they conferred the same distinction upon some European entomologists who gratefully accepted the honor.

Haldeman was thickset and short, with piercing dark eyes, a peculiar voice and a pleasant manner. As he was in "easy circumstances" he was much freer to follow his fancies than most people. After his death, Herman Strecker, a brother entomologist who spent his days cutting marble and granite and his nights studying butterflies, chiseled a granite figure of Haldeman which he erected over his grave.

SIMON SNYDER RATHVON (1812-1891)

Another entomologist who should be mentioned at this time is Dr. Simon Snyder Rathvon, who received his chief encouragement in the study of insects from Haldeman. In 1832 Rathvon belonged to the same literary society as Haldeman, and eventually this society became a Lyceum of Natural History with Rathvon as its secretary.

Simon Snyder Rathvon was born at Marietta, Lancaster County, Pennsylvania, April 24, 1812. He attended the common schools and from 1827 to 1832 he was apprenticed to a tailor of Marietta. In 1832 he went into business for himself and later moved to Philadelphia. He soon returned, however, to his native town and then moved to Lancaster.

Rathvon was interested chiefly in the economic side of entomology. His twenty-nine titles in Henshaw's *Bibliography* cover, for the most part insects of the garden and orchard. They appeared in the *Practical Farmer*, *American Entomologist*, *Gardeners' Monthly*, *Field and Forest*, *American Farmer*, etc.

In 1862 he was one of the founders of the Linnean Society of Lancaster and became its curator, treasurer and entomologist. In 1861 he became professor of entomology to the State Horticultural Society, and in 1864 he held the same title in the Pennsylvania Horticultural Society. In 1869 he was entomologist to the Lancaster County Agricultural Society. From 1869 to 1884 he was editor of the *Lancaster Farmer*. In 1878 Franklin and Marshall College conferred the degree Ph.D upon him. He died in Lancaster, March 19, 1891, and his collection of beetles is still preserved in one hundred boxes in the museum of Franklin and Marshall College, together with a manuscript catalogue.

FREDERICK ERNST MELSHEIMER (1782-1873)

F. E. Melsheimer, who was mentioned as one of the founders of the Entomological Society of Pennsylvania, was one of the two sons of F. V. Melsheimer, who wrote the Catalogue of the Coleoptera of Pennsylvania (1806). He inherited his entomological taste from his father, along with his father's collection, and was a country physician who lived an isolated life on his farm in York County, Pennsylvania, and who depended almost entirely on letters from his fellow entomologists. His writings, all on Coleoptera, appeared under the titles "Descriptions of new species of Coleoptera of the United States" in the Proceedings of the Academy of Natural Sciences of Philadelphia, as communications of the transactions of the Entomological Society of Pennsylvania. These papers appeared from 1846 to 1848 (Proc. Acad. Nat. Sci. Phila., vol. 2, pp. 26-43; 98-118; 134-160; 213-223; 302-318; vol. 3, pp. 53-66; 158-181) and contained notes and descriptions of about 457 species, mostly from Pennsylvania. Some of his descriptions are comparatively long. His Catalogue of the Described Coleoptera of the United States was revised by Haldeman and LeConte and published by the Smithsonian Institution in 1853, It was the first work of bibliographical importance in that branch of entomology.

Doctor Melsheimer died at Davidsburg, York County, Pennsylvania, on March 10, 1873, aged nearly ninety-one, and his obituaries speak of him as modest, unpretending, affectionate to his family, and devoted to his friends. Doctor Mann, according to the *Proceedings of the Entomological Society of Washington* (vol. 1, pp. 60-61, 1886) came into the possession of the library, entomological manuscripts and part of the collection of Doctor

Melsheimer, including some of the manuscripts of the elder Melsheimer and the correspondence between the Melsheimers, and Say, Harris, Haldeman, LeConte and others. The eldest son, J. F. Melsheimer was often quoted by Say, and both he and his brother, F. E. Melsheimer, corresponded with Say.

DANIEL ZIEGLER (1804-1876)

Apparently all the members of the Entomological Society of Pennsylvania were active entomologists. We find that Daniel Ziegler, characterized by Morris, his friend and correspondent, as a "plain, plodding, honest, country parson," contributed "Descriptions of new North American Coleoptera" to the *Proceedings of the Academy of Natural Sciences of Philadelphia* in 1844 and 1845 (vol. 2, pp. 43-7; 266-72) through the Entomological Society of Pennsylvania. In this paper Ziegler described about thirty-six new species of beetles, in various genera, nearly all from Pennsylvania, although Georgia and Carolina are mentioned.

Daniel Ziegler was born June 11, 1804, in Reading, Pennsylvania. He studied at the University of Pennsylvania for a while and later took up theology at the German Reformed Seminary at York, Pennsylvania. His first charge was at the Kraeutz-Creek Church, six miles from York. For eighteen years he had charge of eight churches and for twenty-seven years, six churches. Later he retained only four churches. It was during his ministry in Kraeutz that he began to collect insects, often accompanied by his son and an umbrella, as he captured most of his specimens by beating. He knew Doctor Melsheimer and one of his churches was near Melsheimer's home. When he was sixty years old, he and Doctor Melsheimer sold part of their collections to Prof. L. Agassiz, Mr. P. R. Uhler, of Baltimore, packing and forwarding them to Cambridge, Massachusetts. Ziegler's specimens of Hymenoptera were said to have been sold to a Swiss naturalist, perhaps M. Saussure. The Rev. Daniel Ziegler died in York, Pennsylvania, May 23, 1876, at the age of seventy-one years, ten months and twelve days. He married Miss Eve Eyster, and by her he had ten children, one of whom, H. A. Ziegler, was a physician.

JOHN LAWRENCE LECONTE (1825-1883)

Among the members of the Entomological Society of Pennsylvania was one destined to become, shall I say, the greatest entomologist this country ever produced, or the greatest of his time and for a long time afterward. Many, I am sure, will agree with the first designation. The member to whom I refer was John Lawrence LeConte, whose first published paper, "Descriptions of new species of North American Coleoptera," was contributed in 1844 in the Proceedings of the Academy of Natural Sciences of Philadelphia (vol. 2, pp. 48-53) as a communication from the Entomological Society of Pennsylvania. Twenty-three species of Carabidae are described, in English, in such genera as Badister, Clivina, Rembus, Chlaenius, etc., from the middle and southern states. His second paper, "Descriptions of some new species of coleopterous insects inhabiting the United States," appeared in the same year in the Proceedings of the Boston Society of Natural History (vol. 1, p. 201) and covered the description of nine and the mention of two species of Cicindelidae, Carabidae, Dytiscidae, and Cerambycidae from the middle and western states. In his third paper, which appeared in the Journal of the Boston Society of Natural History (1845, vol. 5, pp. 203-209, 1 pl.) he describes and figures the same eleven species of Coleoptera, described in his second paper. In the introduction of his third paper, he writes that the.

"indolence of our entomological observers is the more deplorable,

as we are few in number, and therefore more is to be expected from each individual. The field of research is still open, and any one who travels in it, with even ordinary care and attention, will not fail, under the numerous stones scattered on its surface, and on the weeds which apparently obstruct his path, to discover as fine insects as have ever graced the cabinet of a Hope or a Dejean. I trust the day is past, when our insects must be sent to Europe for determination. Are we to be bound by the mere dictum of some European entomologist, of equal indolence with ourselves, who chooses to name the insects which we have discovered?"

He discourses further on the confusion about the synonymy of our species when they are published in every country of the globe except the right one and states that insects are studied less in this country than they should be.

It would be beyond the scope of this book to mention, within its pages, every paper that LeConte wrote. His industry, was enormous. In *Dimmock's Special Bibliography*, *No. 1*, on the "Entomological Writings of John L. LeConte," (Cambridge, Mass., 1878), Samuel Henshaw, the compiler, has listed one hundred and fifty-two titles, from 1844 to 1878. This number was later increased to one hundred and eighty. His numerous descriptive and other papers appeared in such publications as the *Proceedings*, and *Journal of the Academy of Natural Sciences of Philadelphia*, the *Annals of the Lyceum of Natural History of New York*, the *Proceedings* and *Journal of the Boston Society of Natural History*, the *Transactions of the American Philosophical Society*, the publications of the Smithsonian Institution, the *American Naturalist*, the *Canadian Entomologist*, etc., and in various special reports and surveys.

In Samuel Henshaw's "Index to the Coleoptera described by J. L. LeConte, M.D." published in the *Transactions of the American Entomological Society*, vol. IX, March, 1882, the following summaries are given:

Summary of Genera

Dummury of Ochora	
Number of genera described	514
Number which retain the name given	400
Number which are considered synonyms	114
Summary of Species	
Number of names proposed 4	,734
Number which retain the name given	,682
Number which are considered varieties	174
Number which are considered races	14
Number which are considered synonyms	864
Number of names preoccupied	69
Number of names incorrectly cited	60
Number of types not in Dr. LeConte's collection	20

As for Doctor LeConte's abilities in his chosen field, it is perhaps desirable to quote at length, a statement by Dr. George H. Horn, a colleague and pupil of LeConte, from his "Memoir of John L. LeConte, M.D.," read before the American Philosophical Society, December 7, 1883:

"The early papers by LeConte gave very little evidence of his analytical power until, in 1850, he published his 'Monograph of Pselaphidae,' proposing an arrangement which remains at present the basis of the general classification of these minute insects. In the same year appeared the commencement of his 'Attempt to Classify the Longicorn Coleoptera of America north of Mexico,' requiring several years in publication, a work of much wider application than indicated by its title, contributing much that was new to science, and aiding greatly in the rational classification of these favorite beetles.

"From this period his contributions to entomology were for the most part monographic, and from their importance soon attracted attention abroad, many of them being reprinted in foreign journals, winning for their author the reputation he justly deserved. In their scope his papers cover nearly every portion of his specialty. They contain evidences of patient and original research, and added greatly to science. His work was in every case an improvement on what had proviously been done; he left a subject better than he found it.

"Several of his works call for special mention. In 1859 he collected the entomological works of Say, with notes on the species described. In this he was assisted in their specialties by Baron Osten-Sacken and Mr. P. R. Uhler. The writings of Say were widely scattered in almost inaccessible publications, his typical collection almost entirely destroyed, and the species depended practically on traditional knowledge; and while some of Say's contemporaries were yet living LeConte gathered the information possessed by them, and placed it in permanent form.

"Realizing that his specialty needed greater assistance, he undertook, at the request of the Smithsonian Institution, the 'Classification of the Coleoptera of North America,' with the 'List of Species,' and descriptions of new ones. The first parts appeared in 1861 and 1862; its continuation was interrupted by the war and his absence abroad. It was resumed in 1873, but never completed. The assistance thus given to students vastly increased their number, and the limited edition soon became exhausted, and it became necessary to decide either for a reprint or a new book.

"Before a new edition could be completed, it became imperative to study the Rhynchophora, and at this point LeConte made one of the boldest strokes of his career in the isolation of that series, and proposing a classification as remarkable in novelty as it was true to nature. This was followed in 1876 by the 'Species of Rhynchophora,' published as a separate volume of the *Proceedings* of our Society.

"The preliminary studies having been completed, LeConte's desires seemed to be concentrated in the preparation of a new "classification,' which should be complete in all its parts. He invited my cooperation in the preparation of monographic essays, hoping thereby to lighten his own labor, and prepare the work in a shorter time. Two years ago, when he realized that his health was failing, he expressed the desire that I should join him in more active authorship in the work. The first pages went to press in January, 1882, and the book was completed in March of this year, in time for him to realize that it has been, at least, well received. For obvious reasons I cannot dwell upon the merits even of his share of this work, except to say that his earlier edition is the basis of the present; without the former the latter might not have appeared. Evidences of his influence will be found on every page, and whatever it was my privilege to contribute was made possible entirely by his early instruction and guidance.

"While LeConte's reputation as a naturalist will rest upon his entomological writings, he did not limit himself to this field. Mention has already been made of several important geological contributions; there are others of less moment. He has contributed a number of articles on Vertebrate Paleontology, and several synopses of some genera of rodents. His 'Zoological Notes of a Visit to Panama,' illustrate the extent of his study in another department of science. At least one article on purely social science, has emanated from his pen.

"In a general review of LeConte's writings, we find them remarkably free from controversial tendencies. He gave to science the results of careful study, knowing that in time whatever was worthy would be adopted. His dissent from the views of another was always couched in the mildest terms. He was above the limit of those petty jealousies which too often prevail between those working in the same field.

"Numerous were the demands for his advice and assistance from all parts of the country; rarely did he repel them, and no small portion of his time was consumed in the determination of specimens for correspondents, with no other reward than the hope that the seed thus sown might some day bear fruit.

"The results of LeConte's works in Coleopterology in America are plainly marked. He entered the field ten years after the death of Say, who seems to have had no higher ambition, if indeed capacity, than the description of the species which he collected. LeConte, on the other hand, began the framework of a systematic structure which he lived to see completed in all its parts. He reduced chaos to order. His influence in entomological progress in general is admitted on all hands, and so rapid has been the advance that we now have nearly as many purely entomological societies and clubs as there were interested individuals forty years ago. At that time the American literature consisted of very little beyond the works of Say; today five periodicals are devoted solely to entomology.

"Some idea of the actual work performed by LeConte may be obtained from a summary recently published, in which more than five hundred genera and nearly five thousand species are placed to his credit, three-fourths in each series remaining valid. It would, however, be unfair to estimate the value of his work from a mere numerical basis; others have done much more, but the systematic, analytical studies, spread over the vast field of Coleopterology, show the real power of his mind. While he was quick to perceive specific differences, he was not always happy in expressing them; in his analyses his reasoning was always clear without the slightest ambiguity.

"That his work has been appreciated at home and abroad is shown by the number of societies which have elected him to membership. Diplomas from fifteen American and seventeen European societies may be seen in his portfolio. Prominent among them are the diplomas of honorary membership in the entomological societies of London, France, Berlin, Brussels and Stettin, an honor rarely conferred and given only to the most worthy.

"In 1874 LeConte was elected President of the American Association for the Advancement of Science, and his address on retiring, regarding the relation of the geographical distribution of Coleoptera to Paleontology, opened a new line of investigation, showing how a combination of the facts of two such dissimilar sciences might result in advantage to both."

In LeConte's paper "On certain Coleoptera, indigenous to the eastern and western continents" (Annals Lyc. Nat. Hist. N. Y., vol. 4, pp. 159-63) it is stated that many of the species found on either continent were, without doubt, introduced through the agency of commerce. Calandra oryzae and certain species of Anthrenus, Dermestes, etc., are cited as specific examples of commercial introduction. This explanation, however, was not accepted by LeConte for the presence in this country of other species found in unsettled areas and, becoming speculative, he suggests that in the operation of the general laws of creation,

"the productions of the two hemispheres would approximate in character, according as the circumstances under which they originated were more or less similar."

Going a step further, he writes,

"It is still a question of dispute among philosophers whether the creation of a species is to be ascribed to a direct manifestation of a supernatural agency, or whether the Deity in this as in every department of nature — which has come under scientific research — operates by universal laws impressed upon matter."

It was his belief that such laws existed. He continues,

"If on the other hand we were to allow the distinct and separate exercise of omnipotence for the creation of each separate and distinct species, would it not be limiting the power of the Creator far below our proper ideas of his greatness, to suppose that one primary form alone would suffice for each essential organ, and that all others must be derived from this original type?"

He then mentions eight species of Coleoptera indigenous to the eastern and western continents and states that in these species, observation fails to detect the slightest differences between the American and European species.

In his synopsis of the Cleridae (Annals Lyc. Nat. Hist. N. Y., vol. 5, pp. 9-35, 1852) LeConte said that it took more than two years of repeated efforts for him to obtain a copy of the Essai Monographique sur les Clerites by the Marquis Spinola, and that Spinola gave but brief attention to foreign authors. He criticized Spinola for giving students the idea that the subject had never been touched by other workers and said that France was not the

world. Very many of LeConte's descriptions are in Latin. In many papers only the introduction or general remarks are in English.

In 1859 the Smithsonian Institution published in its Report (vol. 13, pp. 160-200), "Instructions for collecting Coleoptera. Diptera, and Lepidoptera" by LeConte, H. Loew, Osten-Sacken, and Clemens. These directions cover collecting instruments. killing methods, pinning, labeling specimen boxes, shipping, as well as information about the best places for finding certain insects, food plants, etc. Each man wrote about his own specialty and practically all their remarks apply, more or less, today. Brackenridge Clemens concluded his statement on the Lepidoptera with the remark that one would be "elevated in mind and benefited in body by the devotion of leisure time to intelligent and systematic observation" of insects. Apparently even among such enthusiasts as these authors, entomology and leisure time were always considered together. Today there are many entomologists who say that they never have any leisure time in which to collect, but perhaps they mean that they have no leisure interest in that phase of entomology.

In many of LeConte's papers, one reads the names of collectors, long since forgotten. For example, in his "Catalogue of the Coleoptera of the regions adjacent to the boundary line between the United States and Mexico" (*Jour. Phila. Acad. Nat. Sci.*, n.s., vol. 4, pp. 9-42, 1858) LeConte mentions J. D. Clark, Arthur Schott, Mr. Weise, Horace Haldeman, Mr. Lindheimer, Dr. Thomas H. Webb and Captain Pope. Most of these names mean nothing to present-day entomologists, yet if it had not been for the efforts of such collectors and the interest of such men in entomology, the insect fauna of the country would be but imperfectly known and studies on geographical distribution, etc., could not have taken place.

By 1860 there were more collectors in the United States, regardless of those attached to expeditions, than one would now suppose. While LeConte was preparing his paper on "The Coleoptera of Kansas and eastern New Mexico" (*Smith. Inst. Contrib. to Knowl.*, vol. 11, Art. 6, 6 + 53 pp., 2 pl., Dec. 1859) he had, in addition to his own collection, the following:

The collections brought by Lieutenant Beckwith's expedition;

A large number of specimens collected in eastern Kansas by Mr. M. Burke and given to LeConte through Dr. John Torrey;

A large collection made at Fort Riley, Kansas, by Dr. W. A. Hammond, U.S.A., and John Xantus, Esq.;

Collections made from the mouth of the Yellowstone River and from the Loup Fork of the Platte, by Dr. F. V. Hayden, and received from the Smithsonian Institution;

A collection made by Dr. William A. Hammond on the route from Fort Riley to Bridger's Pass;

Similar collections made by Dr. John G. Cooper and received from the Smithsonian Institution.

The material from eastern New Mexico was much more scanty and consisted of 400 or 500 specimens collected near Santa Fe by Mr. Fendler and preserved for LeConte by Doctor Engelmann, specimens collected by Doctor Wislizenus on a journey from Santa Fe to Chihuahua, and a small collection made near Santa Fe by the late R. C. Fern and given to LeConte by Prof. S. S. Haldeman.

At one time the Coleoptera of Kansas were better known than those of the Atlantic states. This, of course, was due to the early activities of Thomas Say, on his western expeditions. LeConte described many of the Coleoptera collected on the later expeditions and railroad surveys in the west and north west.

Dr. John Lawrence LeConte, a member of a wealthy and

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distinguished Huguenot family, was the son of Major John Eatton LeConte and Mary A. H. Lawrence. He was born in New York City, May 15, 1825, and, his mother dying a few weeks later, his father took the entire responsibility of his early education. As a boy he attended St. Mary's College, Maryland, from which he graduated in 1842. His liking for natural history developed during his early years and was encouraged by his father. After graduation he entered the College of Physicians and Surgeons in New York and received his medical degree in 1846. Previous to this time, or in 1844, he was chemical assistant to Prof. John Torrey. Even before graduation he had published papers on the Coleoptera, and almost his entire life was devoted to this order of insects. In 1845 he made his first trip to the Platte River and Fort Laramie, When Dr. H. Schaum, of Berlin, Prussia, visited the United States in 1847 and 1848, he made the acquaintance of LeConte and stayed a number of weeks in the LeConte household in Philadelphia, going over LeConte's collection and giving his advice freely and generously. LeConte's general education was improved when Prof. L. Agassiz arrived in this country. At that time there began a friendship between the two that lasted lifelong. When Agassiz made his exploration of Lake Superior in 1849, LeConte accompanied him and later published an article on the Coleoptera collected during the trip.

LeConte made many trips. In 1850 he visited California, stopping at Panama and staying in San Francisco and other California cities. In November of that year he crossed the Colorado Desert and in February, 1851, he was in the valley of the Gila. In 1852 he was back in Philadelphia, studying the material he had accumulated.

In 1861 he married Miss Helen Grier, and gave up the practice of medicine. During the Civil War he joined the army and was made Lieutenant-Colonel and Medical Inspector. During this time his entomological studies were interrupted. In 1867 he was geologist for the railroad survey through Kansas and New Mexico. He took his family to Europe in 1869 and remained until the close of 1872, in the meantime visiting Algiers and Egypt and studying the extensive foreign collections of Coleoptera. From 1878 until his death, he was Chief Clerk in the United States mint at Philadelphia.

After his return from Europe he resumed his studies in collaboration with his friend and pupil, Dr. George H. Horn, and together they studied the structures and discussed the relationships of large numbers of our beetles. In their combined collections were 11,000 species. In 1883 he made his last journey to California, hoping to regain his health, which had been failing, but he died November 15, 1883, and was buried in West Laurel Hill Cemetery, in Philadelphia.

During his lifetime he determined beetles for hundreds of correspondents all over the country. Everyone spoke highly of his intellectual ability, his wide knowledge, his amiability and his quiet ease and dignity. He was a man of not many words and his language was precise and vigorous. Happily for entomology in this country, his private fortune was ample enough to enable him to devote his time to his chosen subject. He was aware, from the beginning, that monographic work was needed more than descriptions of new species, and he did much more than his share of such monographic and synoptic studies. His extensive collection was bequeathed by him to the Agassiz Museum in Cambridge, Massachusetts. Scant justice has been done to him in this account. He really deserves an extended and comprehensive treatment which could easily develop into a book. Perhaps some day some Coleopterist will undertake it, giving full analyses of his contributions to Coleopterology and to the results of his lifelong habit of applying himself independently to the problems before him.

Entomology, although the main interest of his life, was not the only one. Between 1848 and 1857, he published various essays on geology, radiates, fossil mammals and ethnology. In addition to what has been recorded about him in these pages, he was one of the founders of the American Entomological Society and its president at the time of his death. At his death, Doctor Horn lost an intimate friend of nearly twenty-five years' duration, and to him he was more than a "cultured scholar, a refined gentleman, a genial companion."

Doctor LeConte's widow, Mrs. Helen Grier LeConte, died in Philadelphia, September 3, 1917, in her seventy-fifth year, at the home of her son, Dr. Robert G. LeConte, a trustee of the University of Pennsylvania and a member of the Council of the Academy of Natural Sciences of Philadelphia. On May 6, 7 and 8, 1884, Mr. Stan. V. Henkels sold, at auction, at 1117 Chestnut Street, Philadelphia, the library of John L. LeConte. The catalogue of the sale listed 737 items and it was advertised as the "most important library on entomology ever offered at public sale either in Europe or America." On December 19 and 20, 1917, Mr. Stan. V. Henkels sold at auction at 1304 Walnut Street, Philadelphia, several items which the family had reserved from the May, 1884, sale.

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*WESTWOOD: Observations on Uraniidae (1879)

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BOOK NEWS

GEOMETER MOTHS OF TAIWAN and Allied Species from Neighboring Countries. Vol. 2

by H. Y. Wang. 1998. 399pp (21 x 28cm). Taiwan Mus., Taipei.

Distributed by Flora & Fauna Books, Gainesville, FL. \$45.00 cloth. This second volume on Taiwan Geometridae is in full color and large format (21 x 28cm), as was Vol. 1 of 1997. Text is in Chinese but scientific names are given for each species. Many holotypes are illustrated, and additionally there are color photos of many of the holotypes of species described originally from India and other Asian countries but also found in Taiwan.

BEITRÄGE ZUR INSEKTENFAUNA VON JAMAIKA, WESTINDIEN 1. Einleitung und Tagfalter (Lepidoptera: Rhopalocera)

2. Dickkopffalter (Lepidoptera: Hesperiidae)

by L. Reser (Rezbanyai). 1998. In Entomologische Berichte Luzern, No. 39 (pp. 131-182) and 40 (pp. 143-150), paper.

These two articles treat butterflies of Jamaica; text is in German. Illustrations are in black and white. Additional distributional and biological data are the result of surveys conducted during 1992-97, although mainly from one locality in Spring Garden, Jamaica.

THE BUTTERFLIES OF TURKMENISTAN

by V. V. Tshikolovets. 1998. 237 pp, 24 color pl. (20 x 29cm), cloth. Konvoj Ltd., Brno, Czech Rep. \$78, plus postage.

This excellent faunal work follows the author's 1997 book on Pamir butterflies and covers all 250 species of butterflies and skippers known for the Central Asian republic of Turkmenistan. Species treatments cover distribution (with maps), flight period, synonymy, and habitat preferences.

ESPERIANA. Band 6

edited by H. Hacker. 1998. 911pp, 34 color pl. (16 x 24cm), cloth. Schwanfeld, Germany.

The 6th volume in this series comprises 20 articles by various authors, almost entirely on Noctuidae. Species treated are primarily European and Palearctic, with some Oriental species. One paper treats some Philippine Nymphulinae (Pyralidae). Price is not given but apparently on the order of about DM 350 (about \$275).

ENDEMIC AND RELICT INSECTS IN THE PIRIN NATIONAL PARK, BULGARIA

edited by V. Sakalian. 1997. 96pp (14 x 21cm), paper. Pensoft Publishers, Sofia, Bulgaria.

This small booklet treats endemic species of insects in one of the highest elevations in the Balkan Peninsula, the Pirin Mountains of southwestern Bulgaria (elev. to 2914m). The national park was created in 1974 to protect this area. The Lepidoptera chapter is authored by Stanislav Abadjiev, and includes 20 species of butterflies and moths considered endemic, with 2 of these known only from the Pirin Mts. Another 15 species are considered relicts of the northern boreal-montane habitat.

LEPIDOPTERORUM CATALOGUS (New Series)

Series Editor: J. B. Heppner. Publishers: Assoc. for Tropical Lepidoptera, Gainesville, FL, and Scientific Publishers, Gainesville, FL. This series provides complete world coverage for each family. Included are photographs of typical species, distribution map and faunal summary, notes, hostplants, complete bibliography, references to available papers on biology and illustrations for each species, and indexes. ATL member prices: \$1.50 or more, plus postage (non-members: \$4.50 or more). The following parts were issued in 1997-98 (format: 21 x 28cm):

Fasc. 7. Neopseustidae, by Don Davis. 8pp. 1997.

- Fasc. 48. Ochsenheimeriidae, by Don Davis. 12pp. 1998.
- Fasc. 55. Acrolepiidae, by Reinhard Gaedike. 20pp. 1997.
- Fasc. 61. Tineodidae, by J. B. Heppner. 8pp. 1998.
- Fasc. 62. Oxychirotidae, by J. B. Heppner. 8pp. 1997.
- Fasc. 93. Hedylidae, by Malcolm Scoble. 9pp. 1998.

Fasc. 124 (formerly 118), Noctuidae, already was published in 1989; treats all 26,000 plus species of this family worldwide in 3 volumes (1314pp, cloth). ATL member price is \$50, plus \$7 shipping/handling.

CLASSIFICATION OF LEPIDOPTERA. Part 1. Introduction

by J. B. Heppner. 1998. 148pp (21x28cm). *Holarc. Lepid.* 5, Suppl. 1 The first part of this work includes a general introduction, keys to families, table of family characters, phylogenies, numerous illustrations of morphology, and bibliographies to the most important major literature on Lepidoptera faunas, morphology, and biology. Part 2 will treat the Microlepidoptera families; Part 3, the remaining families to Noctuidae.

SYSTEMATICS OF WESTERN NORTH AMERICAN BUTTERFLIES

edited by T. C. Emmel. 1998. Mariposa Press, Gainesville, FL. 878pp (21 x 28 cm). \$75 (add \$5 for postage/handling). Distributed by Mariposa Press, 1717 NW 45th Ave., Gainesville, FL 32605.

This new book covers the western North American butterfly fauna, reviewing many genera, and includes 2 n.sp., 11 new sp. comb., 210 n.subsp., and 15 subsp. raised from synonymy. 73 papers are authored by 22 specialists. There are 207 plates (51 in color), including photographs of special habitats and life histories. A historical section includes chapters on the California types of Boisduval, Lucas, Behr, Felder & Felder, and others.

TROPICAL LEPIDOPTERA SUPPLEMENTS

A Contribution to Riodinid Systematics (Lepidoptera: Riodinidae) by J. P. W. Hall, with K. R. Willmott, and D. J. Harvey. 1998. 48pp

(21 x 28cm). Trop. Lepid. 9, Suppl. 1.

The 4 papers involve descriptions of 1 new genus, 18 n.sp., and 3 n.subsp., from Ecuador, Panama and other Neotropical areas.

Notes on Neotropical Skippers. 2 (Lepidoptera: Hesperiidae)

by G. T. Austin *et al.* 1998. 52pp (21x28cm). *Trop. Lepid.*9, Suppl.2. The 5 included papers include a catalog of Guatemala skippers, plus new species from Mexico and Brazil, as well as a new parasitic wasp and its biology in relation to its Costa Rican skipper hosts.

PASSINGS

†Dr. J. Alan Brown, October 1998, in Mississauga, Ontario, Canada. He was an ATL Charter Member.

MEETINGS

1999	Association for Tropical Lepidoptera: April 16-18, Gainesville, Florida, USA	
	Mt. Magazine International Butterfly Festival, June 11-13, Paris, Arkansas, USA	
	The Nature Place 1999 Lepidoptera Workshop, June 27 - July 3, Florissant, Colorado, USA	
	Lepidopterists' Society, August 4-8, Sierra Vista, Arizona, USA	
	2nd International Conference on African Lepidoptera, November 4-5, Cape Town, South Africa	
2000	Association for Tropical Lepidoptera: April 14-16, Gainesville, Florida, USA	
	Societas Europaea Lepidopterologica, May 28 - June 1, Bialowieza Forest, eastern Poland	
	XXI International Congress of Entomology, August 20-26, Iguazu Falls, Brazil	

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