CHALCID FORUM

No. 4 JANUARY 1985

A Forum to Promote Communication
Among Chalcid Workers

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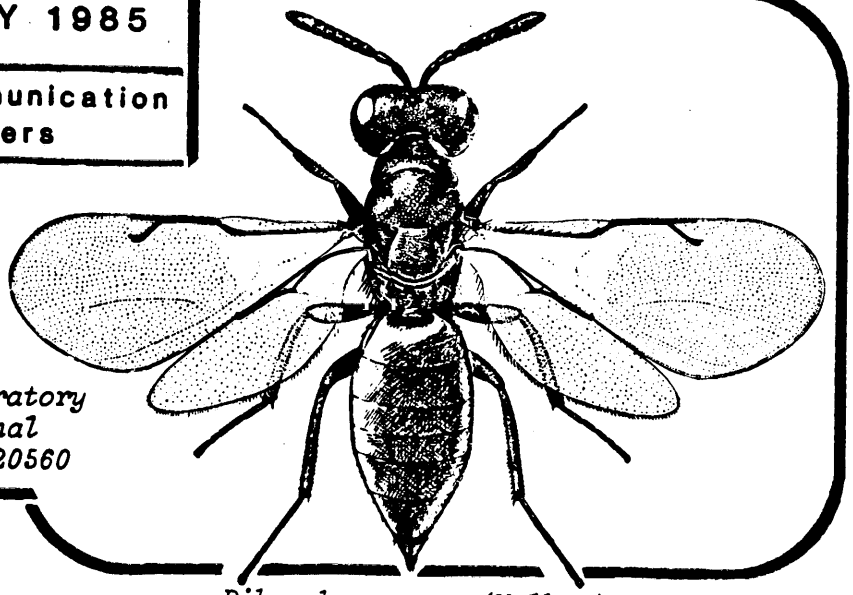


Dibrachys cavus (Walker)

EDITORS' NOTES

Many of you will have already noticed from the size of this issue of Chalcid Forum, that things are quite active among Chalcidologists and their offshoots in biological control and other disciplines. Our mailing list continues to grow and the overall response is still quite favorable. We once again express our thanks to those of you who have taken the time to send in contributions. Keep those cards and letter coming! Of special note in this issue is a new section on museum holdings, a number of trip reports, several (hopefully thought provoking) contributions to the forum section, and an information form for the Worldwide Directory of Chalcidologists. PLEASE take a few minutes to fill this out as accurately and completely as possible so that we have all of the information we need to compile the list correctly.

By way of reminders: Don't forget to send us a copy of you latest works for inclusion in the literature section. Also, be sure to check the additions and corrections in the mailing list. We will be reprinting the entire, corrected mailing list with the directory. Whenever you add or delete projects to those you've already told us about under Research Reports you should write us again. Research is not static and we should be kept current with progress reports.

Finally, our thanks to Zdenek Boucek for the drawing for this issue's masthead and to Vivian Wallace for typing most of this issue.

RESEARCH REPORTS

Stanislaw Glogowski: Dr. Glogowski is interested in the ecology and biological control uses of Chalcidoidea and Bethyloidea. He writes: "At present, I am finishing my work on Chalcidoidea of grass ecosystems. I have two projects in progress. 1) Chalcidoidea of forest ecosystems, and 2) monograph of Polish Mymaridae."

Harry E. Anderson: Mr. Anderson is interested in the Pteromalidae and particularly Miscogasterinae. He hopes to revise the genus Halticoptera for the Neartic.

N. J. Larter: Mr. Larter is interested in biological control, behavior, and the interactions between parasitoids and the plants of their hosts. He writes "In October I enter the final year of my Ph.D. at Silwood, studying Anagrus flaveolus Waterhouse. Early work has been concerned with a detailed look at the biology and behavior of this species, in which there is current interest as a biological control of Nilaparvata lugens (Stal.) (Homoptera:Delphacidae), the brown planthopper of rice. I am currently studying some of the interactions of this parasitoid with different rice varieties, including absolute levels of parasitism, choice of which host oviposition sites to attack, and possible differences in behavior associated with host finding and oviposition. I am also currently preparing a review of mymarid biology, and the use of the family in biological control."

Nadezhda Storozheva: Dr. Storozheva is interested in Eulophidae and particularly the subfamily Eulophinae. One of her principal interests is the functional morphology and host specialization of that subfamily. She has completed a dissertation on the Eulophinae of the USSR and has publications on several of the genera (Dimmockia, Eulophus, Sympiesis, and Cleolophus). She writes that she has also just started a study of far-eastern species of Leucospidae and plans in the future to study far-eastern Chalcididae, Eucharitidae, and Perilampidae.

Lubomir Masner: Dr. Masner is world renowned as a specialist in the Proctotrupoidea, but has a broad general interest in all the parasitic Hymenoptera and is an avid collector of Chalcidoidea from around the world.

M. W. R. de V. Graham: "I am immersed in that fascinating but head-cracking group the Tetrastichinae. After taking a month's holiday, I hope to continue and finish Part 1 of my revision of European species by the end of the year. It will cover about 200 species. Please note that I can't (regretfully) take any more specimens whatever. The spirit is willing, but I am almost neck-deep in boxes of specimens already."

Elisabetta Chiappini: Dr. Chiappini is interested in the morphology, taxonomy, rearing, and biological control uses of Mymaridae, Aphelinidae, and Trichogrammatidae. She is working on the taxonomy of Encarsia spp. and their utilization in the biological control of Trialeurodes vaporariorum in greenhouses, and the taxonomy of Mymar, Lymaenon (Gonatocerus), Ooctonus, and Anagrus.

Yoshimi Hirose: Dr. Hirose is interested in the ecology and behavior of egg parasitoids. He is also involved in biological control. His primary interest is in Trichogrammatidae, Eupelmidae, and Mymaridae. He writes "I have studied the ecology and behavior of Trichogramma and other egg parasitoids of some lepidopterous pests. I have recently resumed a taxonomic revision of Japanese species of Trichogrammatidae. I am currently working on the ecology and behavior of egg parasitoids of stink bugs injurious to soybean."

Andrew D. Austin: Andy works primarily on Proctotrupoidea and Braconidae, but is also interested in Chalcidoidea. He has researched 1) systematics and ecology of scelionid parasites of spider eggs (for Ph. D. at Univ. of Adelaide, S. Australia), 2) morphology and mechanics of scelionid ovipositor system, 3) revision of Australian Baeini (Scelionidae), and 4) Cheloninae parasitic on Pectinophora gossypiella. He is especially interested in host-parasites relationships and the parasites of spider eggs.

David Rosen: "I am mainly interested in the parasites and hyperparasites of sternorrhynchous Homoptera -- i.e., Aphelinidae (especially species of Aphytis of the world), Encyrtidae and other small Chalcidoidea, as well as Aphidiidae -- their systematics, biology, ecology and utilization in biolgical control. Of special interest is the genertic improvement of these natural enemies (e.g. through selection for pesticide resistance) which I consider as one of the most promising way of increasing the role and efficacy of biological control in IPM programs." Dr. Rosen is also interested in "Mymaridae and other egg parasites."

Henry A. Hespenheide: Dr. Hespenheide is primarily interested in Chalcididae (Chalcidinae and portions of Brachymerinae) and Eurytomidae (especially genera parasitic on wood-boring beetles). He has research interest in the ecology of parasitoids of Buprestidae, use of extrafloral nectaries by parasitoides, and participation of chalcidoids in mimicry complexes. He writes "Although trained as an ecologist and involved in ecological research, I am also working on the taxonomy of two groups of beetles (Buprestidae and Curculionidae). Rearings of beetles have yielded a variety of parastioids, which stimulated interest in the Chalcioidea. Ecological studies on the parasitoids visiting extrafloral nectaries of tropical plants have enlarged that interest. Most of my research has been in Central America, and obtaining determinations has been frustrated by the lack of active workers on groups of interest. Although my taxonomic interests have been confined to beetles to date, my interest in chalcidoid ecology may force consideration of taxonomic studies. I have a moderate collection of chalcidoids from Costa Rica and Panama that is available for study to interested parties. It is very uneven in representation, reflecting my ecological interests (species reared from leaf-mining beetles, those found as adults at tree falls, those visiting extrafloral nectaries). I am trying to develop a synoptic collection of Chalcididae and Eurytomidae and welcome determined material. I have some field-collected material also from Arizona. I travel regularly to Costa Rica and am willing to consider requests to collect certain groups."

Kim Alan Hoelmer: Mr. Hoelmer is a Ph.D. student in California who is primarily interested in Aphelinidae and whitefly parasitoids as Biological control agents. He is working on discrimination behavior, sensory capabilities, and impact of pesticides on non-target organisms.

Dr. V. A. Trjapitzin: Dr. Trjapitzin is well known primarily for his work in the family Encyrtidae as well as the other families of Chalcidoidea and Bethyloidea. He has worked on encyrtids since 1952 when he began his studies under M.N. Nikol'skaya. He is now preparing a key to world encyrtid genera and to species of Palearctic Encyrtidae.

Edward M. Barrows: Dr. Barrows is a specialist in behavior and is especially interested in the ethology of chalcidoids and parastioids in general. He and his students are currently working on various aspects of the behavior of Pediobius foveolatus. He is also compiling a bibliography and reprint collection on chalcidoid behavior which is being put on an IBM computer for ease of updating and recall.

Veli Vikberg: Dr. Vikberg is primarily interested in Pteromalidae, with additional interest in Eulophidae, Encyrtidae, and Aphelinidae. Although an amateur (Dr. Vikberg is a doctor at a medical hospital whose specialty is clinical microbiology) in entomology, he has worked on Finnish sawflies, and is currently working on Finnish Asaphes, Elachertini, and Tetracneminae.

Atanas D. Donev: Dr. Donev is interested in Chalcidoidea in general, but especially in Mymaridae. He is currently working on the taxonomy of Bulgarian Mymaridae.

Deborah S. Green: Dr. Green's principal interest is in eulophids that parastize leaf miners. She has worked in Puerto Rico on the biological control and pest management of Diaprepes weevils and the Coffee leaf-miner, and is currently engaged in work on a computerized data base for immigrant insects.

Lonny D. Coote: "I am currently finishing my Master's degree on the indigenous parasitoids (Eulophidae and Pteromalidae) of the alfalfa blotch leafminer in southwestern Ontario. Part of this research included the biology of the most abundant chalcidoid Diglyphus intermedius. While I did not conduct any sytematic studies, I am greatly interested in doing so in a Ph. D., probably in the family Eulophidae. I am planning an 8 to 12 month trip to St. Kitts in the caribbean next year, during which time I will be extensively collecting chalcidoids and conducting biological studies. From this I expect to gain further experience in chalcidoid systematics and find a group I would be interested in revising. Specimens from this trip will probably be available to interested chalcidologists."

Gerard Delvare: Dr. Delvare is primarily interested in Eurytoma (Afrotropical species), Spilochalcis and allied genera in Chalcidini, and the indentification of European and Afrotropical Pteromalidae. He has a broader interest in other Chalcidoidea except Mymaridae and Tricogrammatidae. He writes "I began to work on chalcids by studying the biology and life-cycle of Prionomitus mitratus, a parastie of the pear-psyllid, in south of France. Then I spent a half year in the Netherlands for a trial of biological control using the eulophid Colpoclypeus florus against Adoxophyes orana in apple orchards. It was during this time that I really began to get taxonomic interest in chalcids, with the kind help of M. Gijswijt. Last year I worked on taxonomic research at my new job at the G.E.R.D.A.T. I examined the "types" of the West African species of Eurytoma described by Risbec and I hope to write something with Dr. Steffan who has a part of the collection."

MUSEUMS

Of special importance to all of us working in taxonomy is the need to have some knowledge of the holdings of various museums throughout the world. The extent and level of curation of the various chalcidoid groups residing in collections is the kind of information that can be vital to a thorough systematic study. In this issue, we are introducing the first of our "featured museums" with a report generously submitted by G. Prinsloo. We hope that our colleagues at other museums will follow his lead and send us similar information on their collections.

The Chalcidoid Collection of the National Collection of Insects Pretoria, South Africa

by

Gerhard L. Prinsloo

Due to research priorities over the years, I have always regarded the Collection as having two components: the encyrtid and aphelinid collection which is the oldest and upon which most of the work has been based; and 'The other families', which is a more recently established collection and which receives less attention at present.

The encyrtid and aphelinid collection was initiated by the late Dave Annecke during the early sixties, after his return from California where he was taught the tricks of the trade by the late Harold Compere. Prior to this, the small collection of parasitoids in the National Collection contained two identified species from these groups: 1 encyrtid and 1 aphelinid, both reared from soft brown scale, and both misidentified at generic level. Apart from mymarids, Dave took a liking to encyrtids and aphelinids (probably because they fitted in so nicely with his biocontrol efforts on citrus), and in the ensuing years he devoted most of his chalcid-time to building up a collection of these groups and to study their taxonomy. A rearing programme was started, and annually his assistant, Pat Insley, and in later years myself, set out every summer on long collecting trips throughout southern Africa to collect host-reared material for the budding collection. Now, some 20 years later, the collection of these groups contains about 6500 series of reared aphelinids and encyrtids, with each series comprising anything from 5 to 500 specimens. From these series, and other material, the collection has grown to include 12,040 slide-mounted specimens, each slide containing a single dissected specimen with the parts mounted under four cover slips. I have never had the heart to count the dry material, which is mostly on triangles (contaminations of flat card-mounted specimens occur), but with some wild guessing I have come up with a figure round about 20,000. The remainder of the material, which is kept unmounted in gelatine capsules, amounts to perhaps five to ten times that number. Besides the locally reared series, the collection also contains a substantial amount of swept and suction trap material. At present, the identified part of the collection comprises 735 species and 224 genera of encyrtids, and 204 species and 25 genera of Aphelinidae. The undetermined part of the collection is, to say the least, a very unpleasant sight, and a depressing reminder of where I will spend the rest of my working days. It contains a large amount of unidentified material, especially in the aphelinids,

with drawers and drawers full of material simply marked 'Pseudaphycus spp', 'Anagyrus spp' or 'Asphidiotiphagus spp.' (that is to say if you agree that the latter genus is valid). Although the encyrtid and aphelinid collections are naturally strong in Afrotropical material, they house a substatial number of extra-African species which were aquired through gift or exchange through the years. Much of this material was obtained during Dave's wanderings through the museums of North and South America and Europe. Enough said about the true chalcidoids.

Being occupied with so many aspects of Entomology, Annecke never paid much attention to the pseudochalcids, and collections of these were only initiated in 1976 after I visited Zdenek Boucek for six months during 1975. Prior to that visit, I could hardly tell a pteromalid from a dead cow, let alone one pteromalid from another. Identifying eulophids to family was my speciality, for I could always rely on the four-segmented tarsi. Since 1976, the collection has grown to include some 50,000 card-mounted specimens representing all the families besides the encyrtids and aphelinids. All this material is sorted to family, and in a number of cases to genus or species, although the majority of the material remains unidentified. Unlike the encyrtids and aphelinids, most of the material has been obtained through sweeping or malaise trapping, with only a small percentage having been host-reared. Only 180 genera have been identified, and perhaps less than twice that number of species. Amongst the latter there is type-material of 55 species which, I suppose, is better than the nothing of eight years ago. The collection is almost entirely regional, apart from a number of species from Britain which I collected there during 1975.

All in all, there is enough material in this collection to keep the world's entire chalcidologist population more than happy for the rest of their lives, and thereafter.

Milwaukee Public Museum

Dr. Gerald R. Noonan of the above institute has just published a paper (1984) on the types held by this museum. The paper is entitled "TYPE SPECIMENS IN THE INSECT COLLECTIONS OF THE MILWAUKEE PUBLIC MUSEUM" (in "Contributions in Biology and Ecology", vol. 58: 1-14). The following types of Chalcidoidea are housed in the museum:

FAMILY ENCYRTIDAE
Charitopus albopalpalis Brues, 1907, holotype.
Metapelma mirabilis Brues, 1906, 2 syntypes.
Parasolindenia aptera Brues, 1907, holotype.

FAMILY EULOPHIDAE
Chrysocharis aeneus Brues, 1909, 6 syntypes.
Nesomyia cimbicis Brues, 1909, holotype and 2 paratypes.

FAMILY EUPELMIDAE
Eupleminus robustus Brues, 1907, holotype.
Eupelmus cursor Brues, 1907, holotype.
Eupelmus melanderi Brues, 1907, 3 syntypes.
Eupelmus cursor Brues, 1907, holotype.
Eupelmus melanderi Brues, 1907, 3 syntypes.
Eupelmus nubifer Brues, 1907, holotype.
Eupelmus volator Brues, 1907, holotype.

FAMILY MYMARIDAE
Alaptus caecili Girault, 1908, 3 syntypes.
Gonatocerus americanus Brues, 1907, holotype.

FAMILY PTEROMALIDAE
Asaphes rufipes Brues, 1909, holotype.
Ormyrodes carinatus Brues, 1907, holotype.

COLLECTING AND MUSEUM TRIPS

Chalcid-hunting in Eastern Central Oregon

by

Mike Schauff

This past mid-August Eric Grissell and I spent two weeks in central Oregon collecting and visiting the chalcidoid cohort (Chris Darling, Jeff Miller, and Paul Hanson) at Oregon State University (OSU). Our first day in the West was spent getting oriented to the surroundings and having a short run through part of the collection at OSU. Then we headed out into the field for a six day stint of collecting. The weather was unusually good with almost constant sunshine and not a hint of rain. In fact, it was almost too dry in some places since it had not rained for almost a month and a half. Through the kindness of Dr. Jack Latin we were able to secure a place at the Andrews Experimental forest for the first part of the collecting trip. The Andrews (or HJA as it is called) is a large tract of forest in the western Cascades about two hours east of Corvallis that has been designated as a long term ecological study area. At the entrance there is a trailer camp with facilities (showers, beds, kitchens, etc.) which are available to visitors for a very small fee. Over many years the forest has been partially logged creating habitats ranging from virgin Douglas Fir forest to freshly logged areas with everything in between. There are also a few streams, and some high altitude (5000 ft.) meadows. We made the rounds over the next couple of days and tried to collect in every available type of habitat.

On leaving the Andrews, we headed east over the Cascades stopping occasionally to admire the lava fields or collect in some unusual habitat. One particularly interesting place was a small wooded "island" only a few acres in size high up on McKenzie pass that literally had been surrounded by lava flows. We happened on a virtual chalcidoid outbreak of sorts occurring on some of the evergreen trees and swept till the sun went down. The next couple of days were spent roaming the dry plateau east of the Cascades around the area of Bend, the Crooked River Gorge and the Crooked River National Grasslands. Collecting was quite spotty due to the incredibly dry conditions, and we were forced to stick to streamsides and such to find any bugs at all. The one exception was a swarm of aculeates that we found on blooming Melliotus plants.

Crossing back over the Cascades we returned to Corvallis and spent the next couple of days working on the collections at OSU. On the last day, I was able to go collecting on the coast while Eric finished up work on the torymids in the OSU collection.

Although the sorting and mounting of the material we collected is still in the early phases, it apppears that we collected some very interesting material and I would recommend the area to anyone fond of collecting in a particularly beautiful part of the U.S. We would suggest, however, going a little earlier in the dry season than mid August. Late June or early July might be preferred. Our special thanks to Chris, Jeff, Paul, and Jack who made us feel right at home and were extremely helpful throughout the trip.

In Search of Eucharitids in the Southwest

by

John M. Heraty (Guelph, Canada)

Arizona in August - it was hot sunny days and torrential downpours at night. Not exactly what I was expecting but it did make the collecting just fine. The trip was a short ten days in search of the elusive eucharitids in the highlands of southeastern Arizona.

Picture a hot sunny morning in a known hotspot of activity on Herb Martyr road just above the Southwest Research Station at Portal. After a day and a half of no eucharitids, an Orasema appears in the net from sweeps of a desolate dry wash at the side of the road. Where there is one, there is always more! After 20 minutes and one more

adult I was beginning to get discouraged and after an hour, disillusioned. We started on our way back down the road and on a whim stopped at a similar-looking washed out part of the road. With the first few sweeps came a few more Orasema and then a few more. After assuming the official "lying-position" to watch the plants for any adults that might come into view, the first female Orasema landed on a flower bud of a small yellow composite (of a yet unidentified genus) and proceeded to oviposit into the sepals.

On arrivals at SWRS, the yellow composites which attracted the Orasema were found in several large patches. A few sweeps showed a large concentration of adults. Thanks to Dr. Vincent Roth for the use of his facilities, some initial insights into the biology were worked out by that evening. The females were ovipositing single eggs into the tissue of the sepals. There was a predominance of eggs in the unopened flower buds and first-instar planidial larvae on the disks of the opened flower buds. Every one of the flower heads had numerous oviposition punctures on the sepals.

The identity of the ant host remains a mystery. None of the colonies exhumed from the ground were parasitised. On the SWRS grounds, individuals of a red and black Formica species often walked over the opened flower heads. This is purely coincidental host evidence but promising since just this past year, Dr. Jim Johnson at the University of Idaho caught Orasema in emergence cages placed over the nest entrance of a Formica colony.

Eucharitids almost always occur in large numbers and are probably never very far away from the host ant or the plant on which they oviposit. This makes them well suited to biological investigation. Not only would more known life histories help in understanding the group but there also seems to be a uniformity of planidial morphology within genera which could prove useful in the future determination of relationships. I only hope that this little exposition can show just how easy it is over a short period of time to collect information on the oviposition, development, and hosts (plant and ant) of the Eucharitidae, and possibly spur some further studies in other parts of the world.

As an extra note, before going to Arizona we went through the painstaking process of getting collection permits for a few of the National Monuments. This arduous task was paid for when we were offered free accomodations at some of the less busy sites (which in August is almost all of them). Organ Pipe National Monument officials are interested in some biological surveys of their fauna and asked up to pass around the information that for a minimal or no fee, they can supply air-conditioned housing and lab space, without the usual request for holotypes or the first-born male child.

Canucks in Europe, or, excuse me sir, which way to the natural history musuem?

by

Gary A. P. Gibson (Edmonton, Canada)

From April 7 to June 9 of this year, myself and a fellow student, Jeff Cumming (an aculeate hymenopterist and therefore not worthy of further mention), visted 12 museums in western Europe (BMNH, Stockholm, Lund, Copenhagen, Leiden, Brussels, Tervuren, Paris, Geneva, Genoa, Venice and Munich). Aims of the trip were to examine the general collections, and particularly the types of eupelmid species and genera held in the above collections, as well as to study other Hymenoptera for projects in progress on comparative morphology.

The first three weeks were spent at the British Museum (Nat. Hist.). Chalcidoid primary types are segregated from the general collection and are in individual unit trays in a type collection. Each type has an assigned number and there is a card catalog alphabetical listing of taxa with type number. A label with name of the taxon and type number is also inserted in the appropriate place in the general collection. Type material is thus protected from 'everday' use, but is readily located for study. In addition to the collection, the B. M. is exceptional in having Zdenek Boucek and John Noyes as resources to be tapped. Lunch hours were spent duscussing eupelmids with

Zdenek and through his generosity I was able to get a concept of most of Girault's Australian eupelmid genera. Studies on relationships of eupelmids were also aided by John Noyes. One genus in particular which he brought to my attention (Cynipencyrtus Ishii from Japan) finally convinces me that tanaostigmatines are indeed most closely related to encyrtids. (If anyone has any Cynipencyrtus in alcohol I would be most grateful for a few specimens.)

From London it was off to Stockholm. The natural history museum contains the important collection of J. Dalman, but K. J. Hedqvist's personal collection is larger and more diverse, at lease for eupelmids. Through the kindness of Dr. Hedqvist I was also able to get eupelmids from the Noona Dan expedition which were on loan to him from Copenhagen.

After very quick visits to Lund and Copenhagen I stopped off in Ankeveen, The Netherlands, to see Theo Gijswijt. The visit with Theo was noteworthy for two reasons. Firstly, his personal collection was one of the best collections of european eupelmids that I saw on the trip, composed of recently collected and well mounted specimens. Secondly, Theo introduced me to the sensual pleasures of Belgian beer, which promptly proved the age-old adage that too much of a good thing is bad for you.

Leiden proved to be an exceptionally interesting stop. Kees van Achterberg (braconid specialist) appears to have a dynamic group of students working on everything from chalcidoids to my old love, sawflies. The museum also has, and is continually building, a major collection of Hymenoptera from Panama and Surinam. Anyone working on Neotropical Hymenoptera should not overlook this collection. I also spent a fascinating afternoon touring Leiden with J. van den Assem, as well as getting a tour of his lab. Most interesting were videotapes of fighting and mating behavior of Melittobia, and recordings of species specific sounds that different chalcidoids make during mating. Apparently Dr. van den Assem initially had trouble in getting people to believe that the sounds were not simply an artifact of recording. I must admit that I too would have doubted that anything so small produced such sounds if I hadn't heard them for myself!

From Leiden it was off to Brussels and Tervuren. Tervuren is the more significant collection for chalcidologists, having some type material of J. Risbec and a large collection of African material. Most specimens were collected during the 1950's from the Belgian Congo, but there are also smaller amounts from elsewhere in Africa. The general collection does not have room for all the material so the numerous boxes of unsorted chalcidoids are kept "in the attic". Much of the collection has to be sorted to at least family level before it is readily available, but inquiries can be sent to the curator of Hymenoptera, Dr. Eliane De Coninck.

Only a week was spent in Paris, much too short of a time to examine the collection, much less to see the sights of Paris. Most of the week was spent studying the type material of J. Risbec. Material of his that was once in the ORSTOM collection in Bondy is now in Paris so that the task was at least made easier. Specimens are dry-mounted on minuten pins, glued to card rectangles, or are in wells on microscope slides. The wells are made out of wax and are covered with cover slips so that the dried specimens typically are free moving within, though some specimens are stuck to or are covered by wax. Pinned material is contained in various boxes in the general collection, whereas slides are in two different series of slide boxes, the Paris museum collection and the ORSTOM: Bondy collection. Species contained in the collections are alphabetically listed in a card catalog kept in the room for the general collection. Each card gives the collection the specimens are in, the slide box number if applicable, and the slide number(s) within the box. This card catalog is invaluable for finding slide mounted material. I also examined the type material of Ch. Ferriére kept in Paris, but was unable to locate the types of Mercetina algirica, M. berlandi and M. longicauda. Not much time was left to search for these types so that they could be in the collection, but does anyone have any further information?

After Paris it was on to Geneva to study the Ferriére collection, though the types of most of his species are housed in the British Museum. The last major stop was Genoa to study the types of L. Masi that are held in that collection. Venice was simply a pleasant diversion to reunite with Jeff, though I don't see how Venetian's put up with all the tourists! From Venice it was off to Munich and the magnificent Nymphenburg estate where the zoological collection is presently maintained. The collection will soon be (or perhaps by this time is) moved into a new "state of the art" building. Though working conditions and maintenance of the collection will certainly be improved, it is too bad the location had to be changed. Germany turned out to be a bad place to end the trip since we begain to relax and did a comparative study of the beer halls of Munich (where we heard from a couple of Yanks that the Edmonton Oilers won the Stanley Cup). Certainly the trip ended on a 'high' note.

The strongest general impression we got from the trip was the friendliness of Europeans. Curators opened their collections for us, many made special trips in on weekends or holidays so that we could work, and we were treated to home-cooked meals that at least saved our digestive systems, if not our lives. Jeff and I would like to thank everyone, we much appreciate your kindness.

As for scientific results of the trip, types of approximately 280 eupelmid species were examined. Obviously, extensive notes could not be made for all taxa, but notes were at least made as to 'correct' generic placement under my concepts. This will prevent me from describing a number of 'new' genera from the New World that are described, but are presently unrecognized. General collections were also examined and numerous specimens were borrowed for more leisurely study at home. It quickly became apparent that the Palearctic eupelmid fauna is not as diverse as the Nearctic, most probably because the Nearctic fauna is enriched by Neotropical elements. I was also surprised that some genera of Eupelminae which I thought were restricted to the New World are closely related to taxa in Africa and Madagascar, and that the most primitive Calosotinae appear to be in the New World. Finally, the trip reinforced my obviously well founded opinion that eupelmids are the most intersting of all chalcidoids.

Nearctic Trip

by

Christer Hansson (Lund, Sweden)

In the course of my work with the Nearctic species of Chrysocharis Förster (Hym., Eulophidae), I visited Canadian National Collections (CNC) in Ottawa and United States National Museum of Natural History (USNM) in Washington, during April and May 1984. I stayed three weeks in Ottawa and another three weeks in Washington. The reasons for my visit to these museums were to study type-specimens and to sort out additional material from the general collections, and of course to meet the Chalcid-people working there (it is always interesting to talk to a colleague!). The Nearctic types of Chrysocharis are, so far, concentrated to CNC, USNM and the British Museum. In CNC it is mainly the types of species described by Carl Yoshimoto, there are also type material of a species described by Provancher. In USNM there are types of species described by Ashmead, Crawford, Gahan and Girault. All the types are glued on points, and I think that this method is too unsafe for type-specimens. Many of the older types are more or less damaged, by accident or on purpose (Girault's crush-mounting of heads). There is a cure for this and the method described by John LaSalle in Chalcid Forum No. 3 page 1, protects specimens on points better than the point alone.

Apart from type-studies I also sorted material from the general collections. In CNC all mounted material (of Chrysocharis) were sorted to genus by Carl Yoshimoto, but there were also an extensive collection in alcohol. This collection is usually sorted geographically only, so if one is interested in a specific group one has to look through all the vials from the zoogeographical region(s) one is interested in. During my 3 week stay in Ottawa I spent most of the time looking through these vials, but it was worthwhile and I

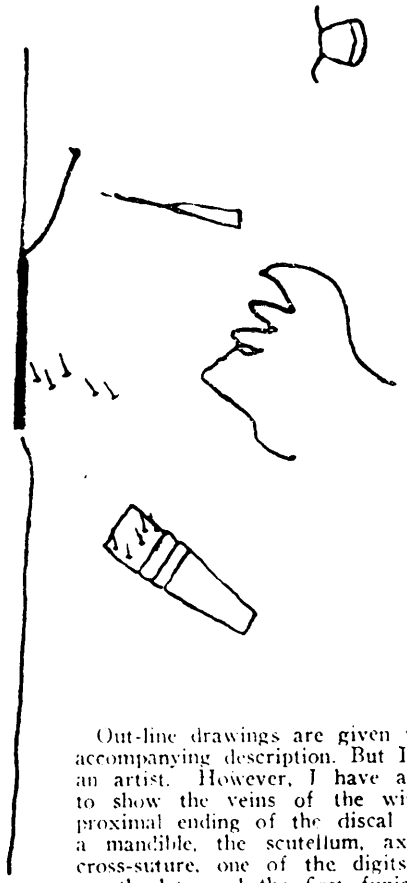
found something between 1000-1500 specimens. The USNM-collection is mainly consisting of mounted specimens (thank heavens!), and very little seems to be kept in alcohol. The material of chalcids is usually sorted to family, a work performed by the matchless couple Eric Grissell and Mike Schauff, part of the Chrysocharis-material was sorted to genus though.

On the whole it was a very profitable trip I had (expensive though), I met kind, helpful and interested people, saw all the types I wanted to see and found quite a lot of additional material to borrow with me home.

Since I returned back to Sweden I have dried, mounted and labelled the specimens in alcohol. I have also done some preliminary studies of the material. Already now I can say that quite a lot of the species in the Nearctic also occur in the Palearctic, the majority of the species seem however to be confined to the region.

The revision of Nearctic Chrysocharis will, hopefully, be brought to an end and be published later on.

GIRAULT AGAIN: In CF No. 3 (p. 16) we mentioned that Karl Krombein had discovered what appears to be Girault's first privately printed paper. Chris Darling and Paul Hanson (Corvallis, Oregon) now submit for exhibit what appears to be Girault's only published illustration. Perhaps we can now understand why he never illustrated any taxa that he described. Girault's own caption for the drawings is interesting in its candidness. (From the North Queensland Naturalist, 1939, 7:2.)



Out-line drawings are given with the accompanying description. But I am not an artist. However, I have attempted to show the veins of the wings, the proximal ending of the discal ciliation, a mandible, the scutellum, axilla and cross-suture, one of the digits of the mouth-plate and the first funicle joint, ring-joints and the pedicel.

TECHNIQUES

Several interesting techniques have been submitted: one suggests a relatively inexpensive chemical method for drying soft-bodied insects when a critical point dryer is not available; the other discusses humidity control during the shipment of living insects.

Humidity Control During Shipment and Rearing of Parasitic Hymenoptera

by
Paul DeBach[1] and Mike Rose[2]

The provision of optimum conditions for live insects during shipment in small packages and/or during development to the adult stage, particularly for minute parasitic Hymenoptera utilized in biological control research projects, has been a long-sought goal. Air transport allows for rapid transfer of natural enemies and international exchange of natural enemies is now occurring on a greater scale. However, many beneficial insects are short-lived as adults and both adults and immature developmental stages are highly vulnerable to low humidity or to condensation. This is especially true of minute parasitic Hymenoptera.

During foreign exploration for new parasites abroad the explorer often finds that the target host is rare. Thus, it is most opportune to collect all available stages of developing parasites and their hosts. The oftentimes few specimens of immature and adult parasites collected must be provided optimal controlled conditions for survival during shipment and in the laboratory. Temperature control is usually maintained within reasonable limits by the use of well insulated containers. However, in the past inadequate humidity control has caused death of parasites due to desiccation or, conversely, to condensation of water vapor accompanied by mold growth which either traps adult parasites or kills immatures within the host.

Humidity regulation is often complicated by both the biology of the parasite(s) and quarantine regulations and restrictions. For example, Encarsia spp. are generally internal parasites of whitefly and armored scales and often produce male progeny as a result of hyperparasitization by virgin females (adelphoparasitism). To avoid high rates of male-producing hyperparasitization and mortality that result from virgin females laying male eggs in previously parasitized hosts, hosts containing developing parasites must be individually isolated. Thus, little or no humidity-producing plant material can be included. Isolation is also necessary when other facultative or obligatory hyperparasites are present.

Often quarantine regulations and importation permits limit shipping of plant material to inclusion of very small bits bearing parasitized hosts. Larval whitefly harboring internal parasites, for example, are regularly isolated by us as 0.5 cm diameter circles cut from leaves with a hole-punch. Scale insects on foliage are isolated in the same manner. Such tiny bits of foliage are very prone to desiccation.

In the quest to obtain and import parasites, particularly Aphelinidae, for use in biological control research projects we were repeatedly faced with making adequate collections in foreign areas, isolating developing parasites and their hosts on tiny bits of host plant material, shipping or returning with viable material to the Quarantine Laboratory, and then rearing the parasites to maturity; all prior to desiccation or condensation and mold growth.

During 1981 various methods were examined in an attempt to maintain a relative humidity level of 70-80 percent in closed containers without condensation. Materials tested included water-saturated chalk blocks, water reservoirs, moistened sponges and agar/ sugar/ water mixtures. None of these methods proved satisfactory for more than a few days.

Historically, we have utilized salt and distilled water slurries ($NaCl/H_2O$) within closed rearing units to regulate humidity in parasite cultures in the laboratory. This technique was used extensively during the parasite importation and colonization phases of the successful biological control project on woolly whitefly, Aleurothrixus floccosus (Maskell), in southern California (DeBach and Rose, unpublished information). Until recently this effective technique was limited to laboratory use because, due to obvious spillage problems, a salt slurry could not be included in shipments. The solution to this problem was to contain the salt slurry and permit the passage of water vapor in either direction.

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2. Biological Control Center, Entomology, Texas A&M University, College Station, TX 77843-2475.

During the past two years we tested a self-adhesive, semi-permeable membrane (Op-Site Post Operative Dressing[3]) enclosing a $NaCl/H_2O$ slurry to provide humidity control in closed shipping and rearing containers. The Op-Site and $NaCl/H_2O$ slurry has proved very effective for shipping and rearing parasites from hosts on isolated leaf bits in the three container sizes tested; 0.25 L, 0.5 L and 2.0 L with 35 g, 35 g, and 95 g dry salt plus 8 ml, 8 ml, and 22 ml H_2O respectively. (Note: greater amounts of plant material require larger $NaCl/H_2O$ slurries).

We measured RH in 0.5 L containers, each with an Op-Site enclosed $NaCl/H_2O$ slurry, with color-range Humidicator[4] paper at ambient laboratory and outdoor temperatures and found that RH remained in the 80 percent color-range for 3 weeks and more. The same was true when the 0.5 L containers were held in glasshouses with fluctuating temperatures reaching highs of ca 32° C. Under laboratory conditions we found that newly emerged adult Aphytis spp., Encarsia spp. and Eretmocerus spp., held in clean glass vials with honey for food and fine organdy-screen covers on the open end of the vials, lived for long periods -- up to three weeks in one test -- when kept in what we now call the "Humiditron".

Most importantly, we were able to successfully rear Encarsia spp. and Eretmocerus spp. -- developing inside individually isolated whitefly hosts on 0.5 cm circles of citrus leaf in 1/4 dram vials with cotton stoppers -- from the larval stage for the first time. Isolated Aphytis spp. pupae and Trichogramma platneri Rao larvae in Amorbia cuneana (Walsingham) egg masses on avocado leaf bits were also tested and readily reared in the Humiditron.

The Humiditron has been extensively field tested during the past two years. Consignments of both adult and immature parasites of whitefly, aphids and scale have been shipped intra- and intercontinentally with great success. For example, we successfully imported immature parasites of bayberry whitefly, Parabemisia myricae (Kuwana), on 0.5 cm bits of mulberry leaf, Morus spp., and isolated pupae of Aphytis yanonensis DeBach and Rosen to California from Japan in the Humiditron.

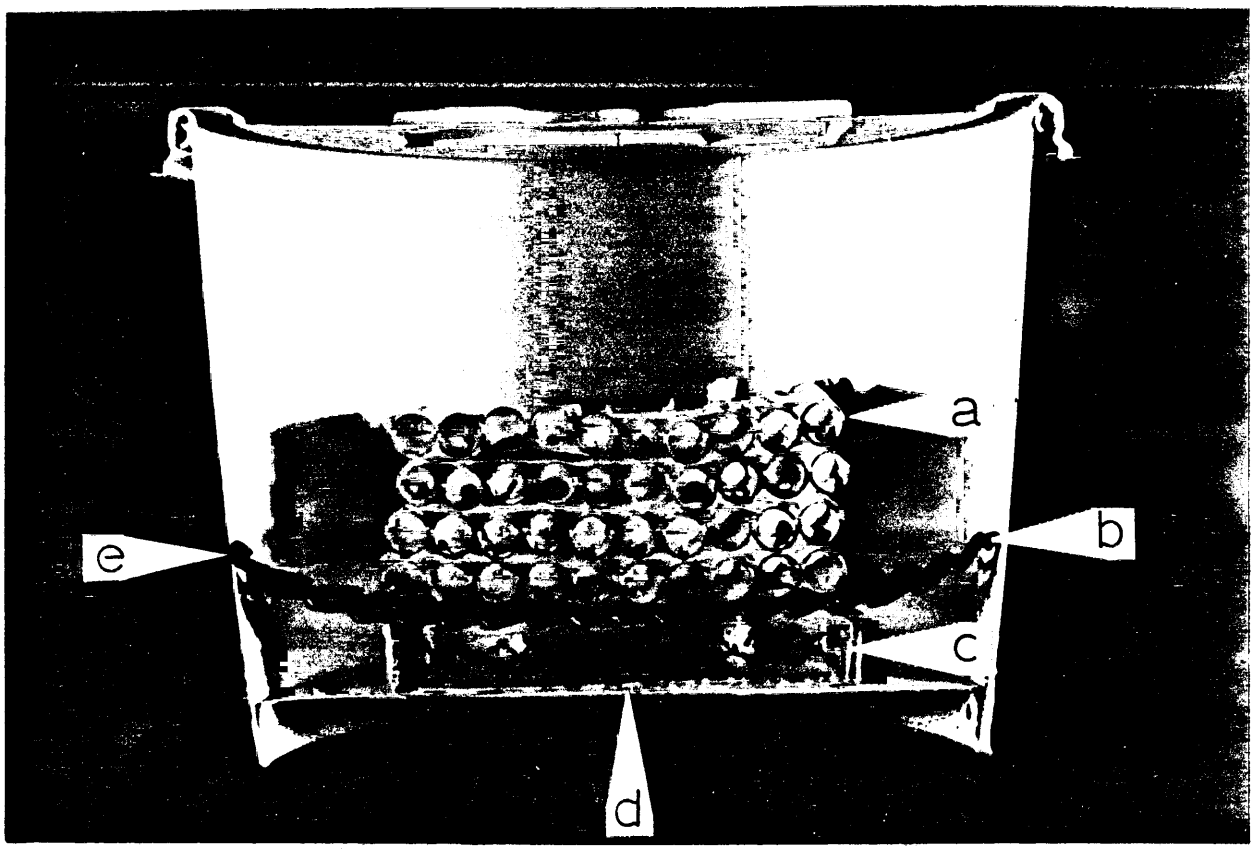
Futhermore, we provided Humiditrons to E. J. Dietrick, President of Rincon-Vitova Insectaries, Inc., to test for shipment of adult Aphytis melinus DeBach and several species of predacious mites. According to Dietrick, "The Humiditron has allowed us to provide live Aphytis and predacious mites to areas of the world which previously we had been unable to serve."

We regularly utilize glass desiccators with large (ca 250 g NaCl) Op-Cite enclosed $NaCl/H_2O$ slurries as Humiditrons in Quarantine and in the laboratory to rear parasites from isolated hosts to assure positive host associations so critical to biological control. Further advantages of isolation include greater accuracy in determination of age and sexual status of emerging parasites and ease of handling.

The Humiditron (Figure 1) is a simple device which can be of great assistance to practitioners of biological control and to taxonomists who must accurately determine host associations. The components (Figure 2) are lightweight and are easily carried during foreign exploration; table salt and water are generally available everywhere. We are testing a number of other salts which will maintain different levels of humidity in the Humiditron.

We express our thanks for helping test the Humiditron to Daniel Blumberg, the Volcani Center, Israel; E. J. Dietrick, Rincon-Vitova Insectaries, Inc.; Kaichi Furuhashi, Shizuoka Citrus Experiment Station, Japan; R. M. Hendrickson, Jr., U.S.D.A. Beneficial Insects Research Laboratory, Newark, Delaware; Arturo Teran, C.I.R.P.O.N., Tucuman, Argentina; F. E. Gilstrap, J. W. Smith and J. B. Woolley, Biological Control Center, Texas A&M University; and R. Ferrentino and S. Key, formerly of the Division of Biological Control, U.C. Riverside.

3. T. J. Smith and Nephew Limited. Welwyn Garden City and Hull. England. Distributed by Acme United Corporation, Medical Products Div., Bridgeport, Conn. 06609.
4. Hydrion Humidicator Paper, Micro Essential Laboratory, B'klyn, N.Y., 11210.



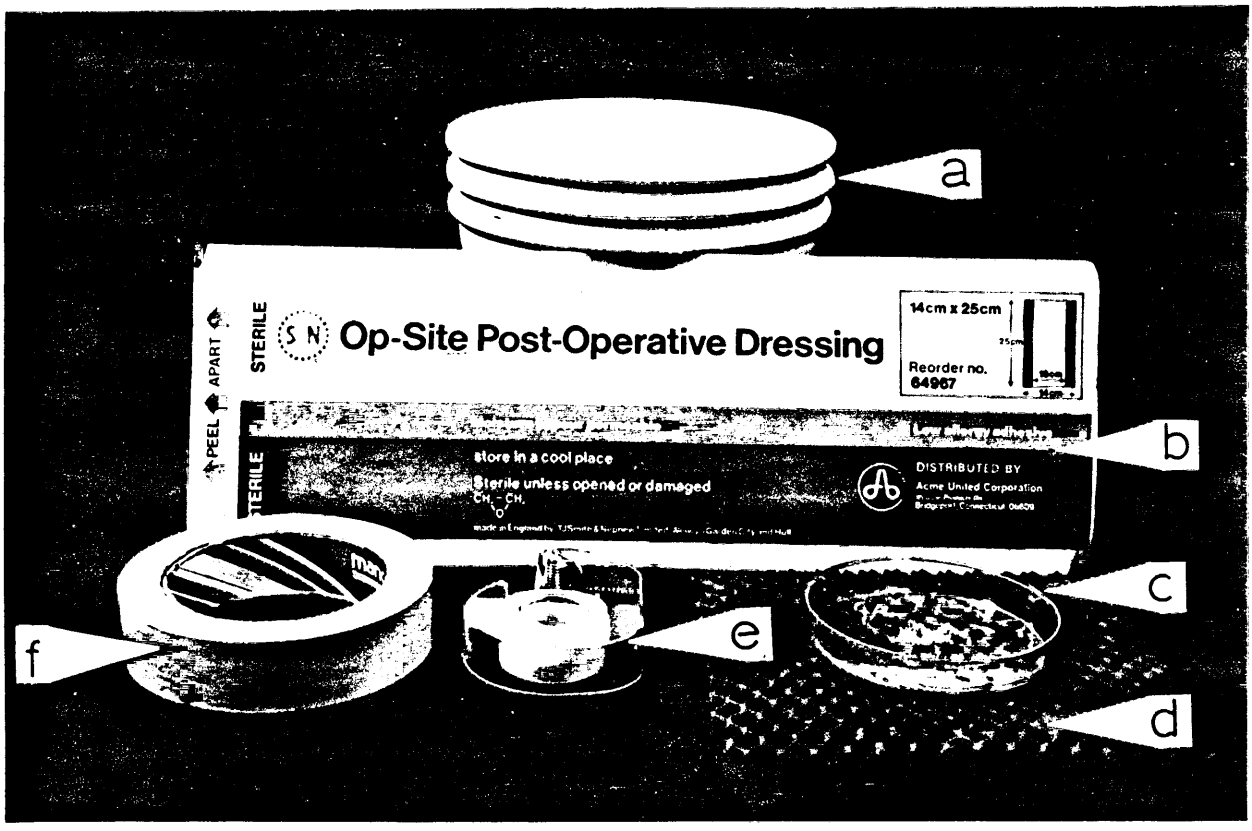


Figure 1. Assembled 2 L Humiditron used for rearing isolates on small leaf bits. (Important: fill all space with non-absorbant material for shipping.) a) 0.25 dram vials with cotton stoppers. b) Rubber matting. c) $NaCl/H_2O$ slurry in plastic petri dish covered with semi-permeable membrane. d) Double-stick tape to secure $NaCl/H_2O$ slurry. e) Reinforced strapping tape to secure rubber matting.

Figure 2. Components of a 2 L. Humiditron. a) 2 L moisture-proof carton with snap-on lid. b) Semi-permeable membrane. c) Plastic petri dish. d) Open-weave rubber matting. e) Double-stick tape. f) Reinforced strapping tape.

The application of Cymorek's method for dry-preparation of larval Hymenoptera

by
Martin Sorg (Koln, West Germany)

This method was first published by Dr. S. Cymorek in 1969*. During the last six years I have applied this technique especially to larval stages of Aculeata. Cymorek's methods should be used as an alternative to freeze-drying and critical-point-drying techniques. The results are quite equivalent in most cases, the process is not difficult, and the materials needed are obtainable for persons with small budget.

Chemicals and material:

Carnoy fluid (absolute ethyl alcohol, chloroform, glacial acetic acid, 6: 3: 1)
Methylene chloride with 1% glacial acetic acid
Dried silica-gel granules ("blue-gel" is preferred to prevent discolouration)
Polished cover glasses, e.g., flat weighing glasses

The preparation-process:

1.The objects (fresh or alcohol stored material) were fixed in Carnoy fluid, small objects for several hours, larger for 24 hours; heating accelerates the hardening process.

2. Within the Carnoy fluid during the beginning of hardening the attitude of the larvae can be corrected.

3. Polished cover glasses were covered with a film of dry silica-gel and a solution of 1% glacial acetic acid in methylene chloride.

4. The fixed objects were inserted between the silica-gel granules in the fluid.

5. According to density and size of the receptacle and the height of the layer the methylene chloride evaporates at room temperature in three to ten days (evaporation should last at least three days otherwise the results are not always satisfactory).

The objects then are ready to be stored dry or mounted as fixed, hardened, dehydrated and degreased preparations.

The background colour of preparations becomes pastel-shaded to chalky white, due to dehydration. Therefore, taxonomically important characteristics of the objects such as strongly sclerotic parts, spots, carinae, spikes, hair and stigma stand out more clearly when the background is no longer opaque. Black and white photographs of good quality can be taken and preparations for SEM-technique is possible and very useful to see especially fine details of the objects.

* Cymorek, S. 1969. Tockenpräparation von weichhäutigen Kleintieren, insbesonders Arthropoden und Pflanzenteilen mit Dichlormethan-Eisessig-Silikagel. Natur und Museum, 99(3): 125-126.

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FORUM

IN A FOG. -- The response to John Noyes' comments on chalcidoid numbers and fogging (CF No. 3, p. 4-5) has been most rewarding. Before we present this information, however, the editors are extremely embarrassed to admit to a misspelling of the name of one of our own closely allied colleagues. In CF No. 3 we allowed John Noyes to refer to the noted Coleopterist Terry Erwin as Terry Irwin. We now understand that this mistake was due to a Welshman trying to anglicize an Irish name. Herewith follow some additional matters of interest related to chalcidoid numbers.

On the Numbers of Species of Chalcidoidea

by

Stephen Compton (Grahamstown, South Africa)

"As a sequel to John Noyes' 'In a Fog' I thought readers might be interested in this extract from the 1904 Proceedings of the Entomological Society of Washington" [vol. 6:66]:

'Dr. Ashmead exhibited proof sheets and illustrations of his forthcoming classification of the Superfamily Chalcidoidea, commenting on many of the strange and interesting species figured. In reply to a question as to the number of species of Chalcid-flies, he stated that he believes that there are between 3,000,000 and 4,000,000 species of Chalcidoidea in the world.'

A London Fog

by

R. R. Askew (Manchester, England)

John Noyes' presentation of Brunei thermal fogging sample data in the last issue prompts me to give a breakdown of the composition of a sample obtained from oak canopy in Richmond Park, England. This sample also was collected by Nigel Stork, on one afternoon in August 1983, and the method used was essentially the same as that employed in Brunei, so comparison of the data is permissible. In the table below, Brunei figures are in parentheses.

	Specimens collected	%of total	numbers of species	%of total
Aphelinidae	431	11.51(17.41)	8	5.44(19.98)
Encyrtidae	1915	51.15(20.61)	27	18.37(23.25)
Eulophidae	433	11.57(35.65)	50	34.01(31.32)
Eupelmidae	53	1.42(7.31)	2	1.36(5.61)
Eurytomidae	28	0.75(1.60)	2	1.36(1.77)
Mymaridae	15	0.40(3.92)	6	4.08(4.92)
Ormyridae	7	0.19(0.28)	1	0.68(0.27)
Pteromalidae	761	20.33(4.25)	41	27.89(4.38)
Torymidae	79	2.11(4.94)	7	4.76(3.28)
Trichogrammatidae	22	0.59(0.77)	3	2.04(1.37)
Agaonidae, Chalcididae, Elasmidae, Eucharitidae, Signiphoridae, Tanaostigmatidae		0 (3.28)		0 (3.84)
Total	3744 (1436)		147 (731)	

By any diversity index, family and species diversities are very much greater in the Brunei sample and give no support to the postulate that parasitoid diversity is depressed in tropical latitudes. Percentage representation of families by species in the Brunei and English samples is not dissimilar and the major discrepancies have been indicated by John: the poor representation of Pteromalidae and richness of Aphelinidae in Brunei. To these may be added the paucity of Eupelmidae in England.

Hespendeide (1979) and Morrison et al. (1979) suggest that egg parasites will be proportionally more abundant in tropical regions. Taking Mymaridae and Trichogrammatidae as certainly egg parasites, they comprise just over six percent of species in both Brunei and Richmond Park but nearly five percent of individuals in Brunei and less than one percent at Richmond Park. Undoubtedly several species in other families (eg. Eupelmidae, Encyrtidae) fall into this category in Brunei but few do in England. This and the fact alluded to by John that small chalcids may have been lost by dawn upcurrents will augment the egg parasite catagory in Brunei.

The large number of Encyrtidae in the Richmond Park sample was something of a surprise (923 individuals were of one species of Microterys) and raises the question, how representative of the English oak chalcid fauna is the Richmond Park sample? Next year we may have a better idea. Nigel Stork is taking a break from tropical forest fogging to run a programme through 1984 in Richmond Park.

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Morrison, G., Auerbach, M. & McCoy, E.D. 1979. Anomalous diversity of tropical parasitoids: A general phenomenon? Amer. Nat. 114: 303-307.

Some Collecting Statistics for Mexico

by
John Huber (Riverside, U.S.A.))

In Chalcid Forum No. 3 John Noyes tabulated numbers of chalcidoids collected by canopy fogging in Brunei, gave some interesting estimates, and drew some surprising but perhaps not completely unrealistic conclusions. Anything seems to be possible in Chalcidoidea. One hopes that enough tropical forest will be left for future generations to sample adequately and find out how accurate John's conclusions are.

I present some data from collecting in Mexico on two occasions, October 1981 and July 1982, using the screen sweeping method developed by L. Masner, Biosystematics Research Institute, Ottawa. Total sweeping time for the October trip was about 26 hours in 14 localities and 7 states (Jalisco, Michoacan, Morelos, Nuevo Leon, Tamaulipas, Sinaloa, Veracruz) and the Distrito Federal. Sweeping time was not available for the July trip (I was not there) but there were six collectors who swept in 14 localities in Nuevo Leon only. On both occasions a variety of vegetation was swept. I counted all parasitic Hymenoptera, including Cynipidae, from the October trip but only the Mymaridae from the July trip. Results are tabulated below. Because my pet group is the Mymaridae I analyse it further.

Table I. Results from October, 1982, trip.

Family	Specimens collected	%	% of total micro-hymenoptera
CHALCIDOIDEA			
Mymaridae	847	13.89	8.79
Trichogrammatidae	611	10.02	6.34
Encyrtidae	695	11.40	7.21
Chalcididae	77	1.26	
Perilampidae	17	0.28	
Eucharitidae	23	0.38	2.32
Elasmidae	19	0.31	
Signiphoridae	30	0.49	
Eupelmidae	58	0.95	
Other chalc. groups	3721	61.02	38.60
Total	6098	100.00	63.26
NON-CHALCIDOIDEA			
Proctotrupoidea(s.l.)	2385	67.35	24.74
Cynipoidea	246	6.35	2.55
Ichneumonoidea	850	24.00	8.82
Bethyloidea	60	1.69	0.62
Total	3541	100.00	36.74
Grand total	9639		100.00

Most of the sweep nets had quarter inch square screening across the mouth to sift out debris and large insects. The catch reflects this sorting with relatively few large Parasitica e.g. Ichneumonoidea, being collected compared to the large number of chalcidoids and proctos.

A total of 2022 Mymaridae were collected from both trips. They made up almost 14% of the chalcidoid catch from the October trip. This compares with 25% for New Zealand (Field, J.P. 1982, Antenna 6: 226, quoting counts made by J. Noyes), and an estimated average of 7% for the rest of the world (Field, 1982). Collections made by D. M. LaSalle (John's brother) in French Polynesia in September 1984 yielded only 33 mymarids (2%) (1586 chalcidoids total). The sample from Brunei yielded almost 4% mymarids (Chalcid Forum 3). There is obviously a considerable range in the percentage of mymarids collected.

Gonatocerus made up 57.3% (1159) of the Mexican mymarids (58% or 686 from the July trip and 56% or 473 from the October trip). This genus alone made up 23-93% of the mymarid catch depending on locality. The other genera collected were Anagrus about 261 (12.9%), Polynema 223 (11.0%), Acmopolynema 158 (7.8%), Erythmelus 58 (2.9%), Neomymar 32 (1.6%), Anaphes 16 (0.8%), Alaptus 11 (0.5%), Camptoptera 5 (0.2%), Dicopus 2 (0.1%), and Litus and Omyomymar, 1 of each. The figures do not quite add to 2022 because some of the Anagrus, Polynema and Acmopolynema were stored in gelatin capsules and not counted accurately.

Three genera, Gonatocerus, Anagrus, and Polynema, thus made up about 81% of the mymarids. The other speciose genus, Anaphes, was not well represented whereas the usually uncommon genus, Acmopolynema, was. Screen sweeping only samples vegetation that can be swept conveniently. Thus the layer very close to the ground and the forest canopy are not usually sampled. Pan trapping which samples the fauna next to the ground and fogging or, preferably, some other method which collects canopy insects without loss due to drift will probably yield different proportions of the various genera. Of course, depending on what part of the world one is in the proportions and genera will also vary but I think that the three large genera listed above will always make up most of any mymarid collections.

SOME TAXONOMIC THOUGHTS:

Some thoughts on Publication Syndrome

by

Mohammad Hayat (Aligarh, India)

Publication syndrome is a serious malady that afflicts all, novices and authorities both. This disease is only more apparent among authors 'this side of the Suez'. Instead of controlling this disease we nurture it. I do not know the conditions that obtain in the americas and Europe, but here promotions normally and as a matter of practice are 'awarded' on the basis of the number of papers published, and to hell with the quality of the papers. The sufferers are those authors who foolishly prefer to stick to certain standards. In such a situation and especially when most of the journals are in the hands of firms interested in making money by running the journal somehow, honest authors are the losers. I would, therefore, request the FORUM readers to look at the matter from our side. It is very easy to talk of 'agreeing' to review only articles that purport to revise species of a genus, or that includes a key (or revised key) to species of a genus, or a key to the genera of a family, or a paper that discusses phylogenetics, or one that has a cladistic approach.

But I suggest the reviewers sitting in places with adequate facilities to come here and try doing some solid work under the conditions in which I am working. I assure you that you will either go mad in a month or else very bravely beat your steps back to your taxonomic heavens.

I am all for rejecting papers describing single species (except those which might be useful in biocontrol or otherwise interesting). I am all for accepting papers written to solve taxonomic problems (and in the process create a few more problems!). I am all for review, revisional and similar articles. But is there any way you can stop publication of 1-2 page articles by authors who refuse to move a bit above Girault's method of descriptions. It depends on the authors' attitude to taxonomy, which is governed more or less by the working and other conditions obtained in their place of work. Only a few devoted maddies try to go against the established norms. They contribute to enhance the prestige of taxonomy, but in that process they also suffer. So, sit with your fingers crossed or Cross yourself, or pray in whatever way you like, and hope (only hope) for the best for taxonomy. Alas, there is no INTERNATIONAL TAXONOMIC STANDARDS INSTITUTION!

Of Aphelinids and Elasmus
by Mike Schauff

Over the course of the five or six years that I have spent studying chalcids, I have been struck by how many times colleagues working on various groups of chalcids and on other Hymenoptera have remarked about the sorry state of the current system of classification of chalcidoid higher taxa. Many of you I am sure have been assailed by stories of how this or that group can not be defined or can not be reliably keyed out. I would like to comment briefly on one particular group that seems to illustrate a problem with our classification and what I believe needs to be done so that we might arrive at a more stable and less arbitrary system.

I recently spent some time immersed in a batch of identifications of various aphelinid genera now referred to as the Eriaporinae (Myiocnema, Euryischia, and related genera). I had seen these genera previously, but only in passing, and I had not really looked them over carefully. Having done numerous identifications of species of Elasmus, I was naturally struck by the similarities between these groups and decided to do some investigating into prior thoughts on their relationships.

The various authors who have looked at these groups have diverged considerably in their opinions (emphasis on opinion) about their relationships. Some have allied Elasmus closely with Euryischia and the other genera. Others have laid the similarities between the two to convergence. Recently, the genera except for Elasmus have been most often referred to the aphelinids (or elevated to some higher rank, e.g. Euryischidae). Elasmus is then placed in its own family or as part of the eulophids and so on. Unfortunately, the papers that have dealt with their classification have said very little about the various characters that they possess and what impact they have had on deciding who gets grouped with who. The primary factor influencing prior authors seems to be the continued reliance on certain characters, (especially numbers of tarsi in this case) which have historically carried great weight in deciding groupings. In this case, I believe that what this does is obscure the evolutionary relationships of the groups by leading us to believe that Euryischia and the rest evolved from Coccophagous-like aphelinids while Elasmus evolved from some unstated and unrelated eulophid ancestor and that the numerous characters which seem to arise in a rather straightforward progession among the aphelinid-like genera must have been evolved again independently by the first Elasmus. I believe that all of these groups evolved from a common ancestor and should be grouped together.

The pitfall here is that once again, like those before me, I have just expressed another opinion about the matter. The failure to adequately discuss what characters were used to make the taxonomic decision has led to one more in an unending stream of such opinions. All of which have failed to arrive at a conclusion that we can all agree upon and use as a basis for further work.
What I am proposing, then, is not that we now immediately transfer Elasmus to the aphelinids based on my opinion, but rather that the next reviser of these groups takes the time to study all the characters that vary among the groups and then discuss those findings in detail so that the rest of us know what evidence they are basing their decisions on. If indeed the majority of characters argue that Elasmus evolved independently from Euryischia, then I will gladly agree to the two groups being classified separately. If on the other hand, the weight of the evidence suggests that Elasmus are nothing more than a recently evolved and differentiated group of eriaporine species then it makes no sense not to transfer them to that group. The important thing is that we all see the evidence laid out so that we can judge whether the taxonomic decision is justified and so that we can check those findings and add to them or correct the mistakes. All of our problems will not be magically cured, some groups will continue to defy us and as Dr. Hayat points out in a separate letter, this requires more work and attention to detail than cranking out large numbers of small papers. Nonetheless, the forthright and detailed discussion of characters is the only way that we will make real progress towards a stable and workable classification.

ETCETERA

REQUEST: Ed Barrows (Washington, D.C.) writes "I have started compiling a bibliography and reprint collection of references on chalcidoid behavior. The bibliography is on computer disk and can be easily updated using the Word Perfect wordprocessing program and an IBM PC. If you have published on chalcidoid behavior and have not sent me a reprint(s) of your publications(s), I would greatly appreciate a copy(ies) from you. The Smithsonian Institution chalcidoid reprint collection emphasizes taxonomic work. Therefore eventually, I plan to donate my behavioral reprint collection to help complete this Institution's collection." (Ed would also like to know taxonomists' estimates of how many species of Chalcidoidea are extant and how many are likely to go extinct before they are even named.)

NEW SOURCE OF PUBLICATION (no page charges): The following information is provided as a public service and describes a new publication called INSECTA MUNDAE, a serial for Insect Systematics of the World. The series is published by FLORA & FAUNA PUBLICATIONS, 4300 NW 23rd Avenue, Suite 100, Gainesville, Florida 32606 USA.

> "The editors of this series wish to provide authors with early publication (within 3 months) of papers dealing with species of insects, especially data to be included in catalogs and books.
>
> This is an irregularly published serial for the prompt publication of short papers on the systematics of insects of the world, including descriptions of new taxa, informal taxonomic notes, bibliographies, checklists, catalogs, and reviews. New literature is announced and reviewed. Selected news items of general interest are published as space permits.
>
> Page charges. Because papers are printed from camera ready copy (CRC) no page charges are made. However, in place of page charges all authors are required to subscribe to the series. The cost of each complete volume of approximately 288 pages of text is $25.00. Subscriptions are payable in advance. (Should an author desire to pay the full cost of publication, no subscription is required.)"

MEMBER IN THE NEWS: It has come to our attention that Gerhard Prinsloo (Pretoria, South Africa) is editor of ROSTRUM, the Newsletter of the Entomological Society of Southern Africa. It is nice to have friends (and fellow chalcidoid workers) in high places. He writes in ROSTRUM of a new book on the insects of Southern Africa which is presented in the next section.

FAUNISTIC NEWS:

SOUTHERN AFRICA. -- (The following information is extracted from ROSTRUM -see above- and was written by Gerhard Prinsloo):

New Book on Insects of Southern Africa

> "Clarke Scholtz and Eric Holm of the Department of Entomology at the University of Pretoria are in the advanced stages of putting the contributions for the above book together.
>
> The book now contains contributions by 48 authorities and deals with the systematics and biologies of approximately 600 families of insects known to occur in southern Africa. It is illustrated with 1500 black and white and 150 colour sketches and it contains some 800 selected references to the major works on southern African insects.
>
> The main theme throughout the book is the identification and biology of each of the major groups. A different order is treated in each chapter. Illustrated keys to the major taxa as far as families, and in large families, to subfamilies, are provided. A general descriptive diagnosis of each group is given and the general biology of each family or subfamily is discussed. Under most families common or interesting species

are dealt with in some detail.

The book is to be published by Butterworths and will hopefully be out by the end of 1984. It will retail at under R40. A limited number of signed and numbered subscriber's copies will be available at R200 each. Orders can be placed now with the publishers in Pretoria. The royalties that accrue from the book will be paid into a bursary fund for post-graduate study in insect systematics at Pretoria University."

NEW ZEALAND. -- (The following information was purloined from our sister newsletter SPHECOS and was provided by Cleveland Dural, editor of a new series of works on New Zealand insects):

Fauna of New Zealand

"The idea of publishing a series of volumes on New Zealand's insects, comparable to the 'Faunas' that have long been available for many other countries, was first advanced in the early 1960s when DSIR [Division of Scientific and Industrial Research, Auckland] established a Systematics Section within Entomology Division. The Section has since built up a large collection of well documented specimens from throughout New Zealand and the adjacent Pacific region. Housed at Entomology Division, the New Zealand Arthropod Collection (NZAC,) to which this material belongs is the most comprehensive holding of New Zealand arthropod material in the world. This ample resource, open to study by all specialists, is complemented by other instutional collections both in New Zealand and overseas. Most insect groups, and many other invertebrate taxa, are now sufficiently well represented in NZAC and elsewhere to allow the preparation of publications based on the 'Fauna' model.

In the Fauna of New Zealand series, each contribution will cover a group of insects with sufficient explanatory text, keys, and illustrations to make it widely usable. It is this Division's objective to provide authoritative and comprehensive guides to identifications, in a medium accessible to all would-be users, and that will evolve as an accumulating descriptive index of our insects, spiders, mites, and other terrestrial invertebrates."

HELP!!!: Jonh Heraty requests the following:

"TYPE WANTED: Is there a known location for the holotype male of Pseudochalcura chiliensis Kieffer (1904, Neue Eucharinae und Chalcidinae. Entomol. Zeitschr. Berlin 49:242) which may have either the label "Concepc., Pablo Herbst" (from original description) or "Concep 1904, p Herbst" (from a female at the MCZ). Please contact J. Heraty, Dept. Environ. Biology, University of Guelph, Ontario, Canada N1G 2W1. No reward."

DIRECTORY

Now that we've had almost 2 years to build up our readership and contact a majority of the chalcidoid workers, we are planning to assemble the first international directory of our ranks. We intend to arrange data alphabetically by workers, by geographic area, and by taxonomic group. We will also list your willingness to identify and/or exchange material for other workers.

We are asking everyone to fill out the form at the end of this issue and return it, even though you have already mailed one form back. If you do not return this form we will list you as best we can (which may not be too good). Although you may feel that this is yet another imposition on your time, we believe the information generated will repay all of us manyfold.

We believe that the directory will be a very useful tool for helping workers communicate among one another. We also believe that it will take at least a year to finish, so don't hold your breath.

MAILING LIST

The following new names should be added to the mailing list:

Dr. Andy Austin
Commonwealth Institute of Entomology
c/o British Museum (Natural History)
Cromwell Road
London SW7 5BD
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Dr. E. Chiappini
Istituto di Entomologia
Facolta di Agraria
Universita Cattolica del Sacro Cuore
Via Parmense, 84
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Mr. Lonny D. Coote
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The following are changes and/or corrections (please note these in your mailing list):

N. Storozheva
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India_

S. G. Compton
Department of Zoology
and Entomology
Rhodes University
Grahamstown 6140
South Africa_

Mr. Jim DiGiulio
Department of Entomology
Oregon State University
Corvallis, Oregon 97331
USA_

change Dzhanokem to Dzhanokmen

LATE ENTRIES - not to be taken seriously

Chalcid Wars (Chapter 9)

Long long ago in a museum far far away the
rebel cladist camp fought for it's life
against the evil forces of the
dark lord Grossimilaritius
Fleeing the slimy fog bound planet Homoplasium
our hero Luke of Apotypy and his beautiful princess
Lay-ya are pursued by a squadron of dreaded
Paralellismos in their T-wing trichotomies
relentlessly blasting away with their reverso-beam.

As we resume our story, Luke and Lay-ya are up
a minimum length tree surrounded by a horde of deadly
CI's who cannot be polarized by Luke's reciprocal
illumination sword. Suddenly on the horizon looms
the most dreaded creature in all the universe:
Please-e-o-more-phee the Hut.

Heironymus anonymous 85.

DIRECTORY OF WORLD CHALCIDOID WORKERS: Reply Form

NAME: Dr. Mr. Mrs. Miss. Ms.

ADDRESS:

Willing to identify material:
Yes___
No___
If yes, what groups (name genus, subfamily, family):

What geographic areas:

Terms of identification (i.e., how do you want material prepared; what percentage of material will be kept, etc.):

Willing to exchange material?
Yes___
No___

Current area of research (name specific group(s), geographic scope, type of research - e.g., taxonomic, biology, behavior, etc.):