Readers of **CF** will note that this issue has been produced using a laser printer. Unlike our sister newsletters, **Melissa** and **Sphecos**, we do not yet have a scanning system and desktop publishing. However, the laser printer does allow us to cram a lot more on a page for cheaper production and distribution. The task of formatting and producing the laser printed text fell to Jennifer Read. We are happy to announce that Jennifer has now been hired in a permanent technical position at BRC in support of chalcidoid research. Many thanks to Jennifer for all her work in getting this issue out. For the first time **CF** was also inputed into an IBM PC, using WordPerfect 5.0. It would save us a lot of typing time if readers could submit lengthy contributions on a disk written in WordPerfect (either version 4.2 or 5.0), but without such formatting commands as bold, italics, or underlining. An article sent as an ASCII text file on an IBM compatible diskette is also acceptable.

Readers of **CF** probably have also noticed that the "January" issue never arrived. There is a very good reason for this: we never produced it. Contributions to **CF** over the last year dropped off precipitously and there was insufficient "news" to produce a "newsletter". This is unfortunate because the effectiveness of a newsletter depends on it being current.

These have been exciting times at BRC. Zdeněk Bouček has been visiting since May 9 and was here through September (see his report in this issue). Zdeněk's identifications and curation resulted in major improvements to the CNC, but his visit was also planned to enable him to participate in a cooperative project to produce illustrated keys to the genera of Nearctic Chalcidoidea. A meeting of mostly North American chalcidologists was held in Ottawa in July as part of this project (see following report).

Last, but certainly not least, John Huber finally took the plunge. He and his new bride, Beth DeSchutter, were married on September 30 and spent a week honeymooning in Banff, Alberta. Beth has a daughter, Lee-Ann, from a previous marriage, so John probably will be learning a lot about the "real world" for the next while. Congratulations John!

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CHALCID COMMINGLE, Ottawa, July 17-21, 1989.

(Gary A. P. Gibson)

Sitting (left to right): Ozzie Peck, Luis De Santis, Carl Yoshimoto.
Standing (front): Gerard Delvare, Jim Woolley, Chris Darling, Greg Zolnerowich, Steve Heydon, Zdenek Boucek.
Standing (back): Jeff Halstead, John Pinto, Jim DiGiulio, Eric Grissell, John Heraty, Lonny Coote, Gary Gibson, John Huber.

John Pinto, Jim Woolley, Carl Yoshimoto, and Greg Zolnerowich. The purpose of the meeting was to formalize a plan to produce illustrated keys to the genera of Nearctic Chalcidoidea. The idea for a single manual of illustrated keys for North American chalcidoids was the brainstorm of Zdenek, first voiced at the second Parasitic Hymenoptera Conference in Gainesville, Florida, 1987. Zdeněk noticed that the numbers of North American chalcidologists had blossomed, and for the first time in history the combined expertise probably encompassed virtually every chalcidoid family. The idea of a cooperative project was discussed further by North American workers whenever they happened to get together, such as at the XVIIIth International Congress of Entomology in Vancouver, in 1988. At that time, those attending the Congress agreed to have a meeting in Ottawa during 1989 to formalize the project.

Though an entire week was set aside for the meeting, formal discussions relating to the project were limited to a single day, July 17. This was possible because a general concensus about scope of the project and individual responsibilities had largely been formed through the informal discussions of the preceding two years. The rest of the week was left for participants to examine the CNC collection for specimens of interest to their studies. A day was also set aside for participants to give seminars about aspects of their current work. Seminars given were:

Lonny Coote: "*Elasmus* Girault, a case of spines and color (Elasmidae)."

Gerard Delvare: "Current problems concerning the classification of the Chalcididae, with particular emphasis on the subfamily Chalcidinae."

Gary Gibson: "Eupelmidae, a case study in functional complexes, homoplasy and systematic indigestion."

Eric Grissell: "Monodontomerinae: an exhausted look at a troubled concept (Torymidae)."

John Heraty: "Systematics of the Oraseminae (Eucharitidae)."

Steve Heydon: "Taxonomic papers of the 21st century: interactive keys and graphics."

John Huber: "Fairy flies and other fantasies: an overview of the Mymaridae."

Jim Woolley: "Removal of plant material from screen-sweep samples"; and, "The mesofurca in Chalcidoidea, what it tells us about relationships."

Greg Zolnerowich: "Male genitalia: key to unlocking the Copidosomatini (Encyrtidae)."

during the meeting show an interesting aspect about chalcidologists. The "official" group photograph in front of BRC shows a group of dour faces; one would think that they had been asked to say something nice about Arnold Menke (see his book review of **THE HYMENOPTERA** in this issue). However, based on photographs taken at the party it is evident that most chalcidologists can indeed lighten up after a couple of beers.

The formal meeting of July 17 to plan the project started with discussion about geographical boundaries, i.e. whether or not to include the Mexican fauna. It was agreed that elements of the fauna from Mexico generally considered as Nearctic would be included, but that decisions as to whether genera are Nearctic or Neotropical would be left to the authors of each chapter. It is planned that the manual itself will consist of an introduction, a chapter on morphology and terminology, self-contained superfamily and family chapters, and an index of generic names and synonymies. John Huber is responsible for the introduction, covering the purpose and organization of the manual, region covered, etc; Gary Gibson is responsible for the chapter on morphology and terminology, including trying to get a concensus on terms used (wishful thinking); and Eric Grissell is responsible for the superfamily chapter, including an illustrated key to families. Responsibilities for the family chapters are:

Agaonidae	Bouček
Aphelinidae	Woolley, LaSalle
Chalcididae	Halstead, Bouček
Elasmidae	Coote
Encyrtidae	Woolley, Noyes, Zolnerowich
Eucharitidae	Heraty
Eulophidae	Schauff, LaSalle, Coote
Eupelmidae	Gibson
Eurytomidae	Grissell, DiGiulio
Leucospidae	Bouček
Mymaridae	Huber
Mymarommatidae	Huber, Gibson
Ormyridae	Hanson (?)
Perilampidae	Darling
Pteromalidae	Heydon, Bouček, Darling
Signiphoridae	Woolley
Tanaostigmatidae	LaSalle
Tetracampidae	Bouček
Torymidae	Grissell
Trichogrammatidae	Pinto

phylogenetic relationships, classification, or biogeography. The chapters will have brief summaries of biology, diversity in the Nearctic region, etc. The keys to genera in each family will also be annotated, i.e. each terminal couplet to a genus will have notes on approximate number of described species for that genus in the Nearctic, host range and biology, distribution, etc., if appropriate and brief.

It was decided that, if possible, Research Program Services of Agriculture Canada (publishers of the "Manual of Nearctic Diptera") would handle publication. Because of this Gary Gibson and John Huber were selected as editors; participants have agreed to submit initial drafts of their chapters to the editors by the middle of 1991.

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RESEARCH NEWS/HELP

Badrul Amin Bhuiya (new: 237). I have been working on the biology and taxonomy of the Chalcidoidea in Bangladesh since 1979. I visited the British Museum (NH) from March to June, 1989 to work on chalcidoids I collected in Bangladesh, comparing the collected species with those of the Ethiopian, Palaearctic, Oriental and Australian regions. There I also had the opportunity to work with Drs. Z. Bouček, J. Noyes, J. LaSalle and A. Polaszek. Dr. Boucek and I haved described a new genus and species of Pteromalidae and the paper has been accepted by the Entomologist's Monthly Magazine.

Zdenek Boucek (16). Since early May, 1989, I have been working in the Canadian National Collection of Insects at the Biosystematics Research Centre (BRC) in Ottawa. This was made possible mainly with support from CANACOLL, the Canadian Department of Forestry, and John Huber. The main purpose of my visit is to prepare keys to the genera of Nearctic Pteromalidae, and to curate the greater part of the collection of pteromalids as well as some other chalcidoid groups. The work is progressing well, but naturally still more material has to be studied for the pteromalid-key project. Therefore, I will supplement my studies of the CNC chalcidoids with visits to Texas Entomological Institute in Gainesville, and the U. S. lies with Steve Heydon (now in USNM) and myself. Within the limited time it is not physically possible to examine all the unidentified collections in North America, but if any readers of CF believe that they have some very unusual forms in their collections, we would like to examine them. If you can not reach me, the specimens should be sent to Steve Heydon.

I am also responsible for the Agaonidae. If you have any fig wasps from North America, especially both sexes from dissected figs, such material would be very welcome. Specimens are best preserved in alcohol, and it would be of great help if the *Ficus* species was identified. It is possible that such material from the southern U.S. will include some genera not yet known by me.

In December I shall be back in England, but from January 1, 1990, I shall be in France, working for one year at the Biological Station of the INRA in Versailles (near Paris).

Jose A. Alvarado Castro (new address: 23). During 1983 I collected approximately 1000 specimens of Chalcididae from Nuevo Leon, Mexico. At the present time I am working on the specific identifications of these specimens.

Robert H. Crandall (new: 239). I am interested in, and collecting, all the families of Chalcidoidea encountered in the process of building up a substantial collection. I have material for research or exchange in the Ormyridae, Torymidae, Encyrtidae, Eupelmidae, etc.

Last summer I had the opportunity to beat two different but adjacent trees high on the mountain side above Pasadena, California, and they produced what appeared to be an inexhaustable source of chalcidoids. This spot on Labor Day, our hottest day of the year at 111 degrees F., kept me busy for 3 hours and even the fourth sweeping/beating was highly productive. This gold mine was good all Fall and after. On January 31, in the dead of winter and the bleakest of days in that even the occasional honey bee was not about, a workover of the trees yielded 30 chalcidoids representing 22 different species! This high ratio of diversity to specimens collected was stunning. I made a point of returning this Labor Day just past. Hard work in the hot sun produced one individual. Nirvana has faded.

"THE PHYLOGENY AND CLASSIFICATION OF THE CHINESE MISCOGASTERINI AND SPHEGIGASTERINI (HYMENOPTERA: CHALCIDOIDEA: PTEROMALIDAE).

The present paper, divided into four chapters, deals with the Chinese genera and species of the pteromalid tribes Miscogasterini and Sphegigasterini.

In the first chapter the taxonomic history, biology, geological distribution and some methods for collecting and preserving chalcids are briefly reviewed.

The external morphology of *Halticoptera circulus* (Walker) is studied in detail and comparisons of other genera and species with this species are carried out in the second chapter.

In the third chapter, an attempt is made to infer the phylogeny of the genera of Miscogasterini and Sphegigasterini using the MIX program from PHYLIP written by Dr. Felsenstein. Both the Wagner and Camin-Sokal parsimony methods are invoked to choose the phylogeny, on which the fewest changes of character state need be assumed, among the competing cladistic hypotheses. *Pachyneuron, Cerocephala, Asaphes, Chrysolampus, Systasis* and *Pteromalus* are used as the outgroups to polarize the characters. Both the equivalent weighting and the differential weighting for the characters have been used. The differential weighting, ad hoc character weighting, can be useful in resolving difficult instances of homoplasy. By using the differential weighting, the number of equally parsimonious phylogenetic trees for a given data can be decreased. The CONSENSE program from PHYLIP is used to resolve the problems that the multiple equally parsimonious trees have produced. The consensus tree is accepted as the phylogeny for the given taxa. The most parsimonious phylogenetic tree (fig. 55) is obtained by using the Wagner parsimony method, invoking "W" option. After the phylogenetic analysis, the classification is established (Table 12). The Miscogasterini and Sphegigasterini are respectively confirmed as monophyletic groups. The Miscogasterini is divided into two genus groups. The Tumor genus-group has one genus, *Tumor*; *Stictomischus*, *Lamprotatus*, *Sphaeripalpus*, *Seladerma*, *Thektogaster*, *Xestomnaster* and *Skeloceras* make up the Lamprotatus genus-group. Sphegigasterini is divided into four genus-groups. The Cryptoprymna genus-group is composed of *Cryptoprymna* and *Notoglyptus*; the Drailea genus-group of *Drailea*; the Miscogasterini comprises 8 genera and 49 species; Sphegigasterini comprises 11 genera and 52 species. Two genera and 67 species are described by the author as new to science since 1986".

Patricio Fidalgo (54). I have 5 works in press on the genera *Acmopolynema*, *Agalmopolynema*, *Tetrapolynema*, *Erdoesiella*, and *Parapolynema* (Mymaridae). Completed works are on *Stephanodes*, key to Neotropical genera of Mymaridae, and male external genitalia of Mymarinae (Mymaridae). Also completed is *Aditrochus* (Pteromalidae) in collaboration with Dr. L. De Santis and S. Ovruski. I am working presently on *Doriclytus* and *Polynema* (Mymaridae). With Dr. De Santis and S. Ovruski I am also working on insects associated with galls on *Nothofagus* spp. of southern Argentina, and with F. Cuezzo on the use of the prosternum in systematics of Formicinae.

Tom Goodman (new: 241). I have been sorting Hymenoptera ex Sulawesi for Dr. J. Noyes. In my capacity as chairman of our wildlife charity, the job of sorting and identifying (where possible) Microhymenoptera falls to me. We are short of entomologists so I, as a mere dipterist, have been pressed into service. It is difficult to resist the charms of Chalcidoidea, and I think I might be inclined towards taking up one of the more manageable families. Encyrtidae, possibly, since there are only about 250 on the British list (at present anyway) and I have a handy expert in John Noyes who can check any doubtful identifications.

John Heraty (79). I am continuing my studies on the Eucharitidae at Texas A&M University. Although the major thrust of my dissertation remains a revision of the New World species of the genus *Orasema*, I have extended myself into the Old World and now plan to attack the Old World Oraseminae. I am entirely lacking any biological information on most of the species in the latter region. There are a few scattered host records from the ant genus *Pheidole* and some plant host records on tea and a few other things made by Kerrich and Das back in the sixties. Otherwise the area is devoid of any significant biological information. I would greatly appreciate ANY specimens or especially first-instar larval collections for Old World orasemines.

obligatory hitch-hikers on the thrips. This relationship was well described by Clausen (1940) but unfortunately Clausen never described the larvae. A number of features indicate that this genus, together with *Anorasema*, may be the sister group to the rest of the Eucharitinae and any biological information at all would help to analyze the relationships among the Oraseminae and Eucharitinae. *Losbanus* as described in Boucek (1988) is found distributed throughout the Indo-Australasian region and is just waiting to have its biology uncovered!

John LaSalle (new address: 111). I an now working for the CABI Institute of Entomology, stationed at the British Museum, starting in April 1989; where I am taking over the position that was vacated when Zdeněk Bouček retired last year. My research interests remain in the Eulophidae, particularly the Tetrastichinae. Due to several extremely busy months during which I was preparing for my move to London from Riverside, I did not have time to notify all my friends and colleagues about my change of job and address, and I hope that those who were not notified earlier will forgive me.

Luis Roberto Hernandez Lopez (new: 244). I am working on my doctoral thesis and require information about *Spilochalcis*, *Brachymeria*, *Chalcis*, *Phasgonophora*, *Trigonura*, *Xanthomelanus* and *Ceratosmicra*.

T. C. Narendran (134). My monograph, "Oriental Chalcididae (Hym.: Chalcidoidea)" is published and copies are available to chalcidologists who request a copy. However, I should appreciate receiving the cost of shipping the monograph (440 pp.) by air mail book post. A draft in American dollars or British pounds equivalent to 112 Indian rupees (about equal to $8.00 US) is necessary to send it registered air mail.

Robin J. Rathman (new: 248). I am currently working as a postdoctoral researcher at the University of Hawaii. In September (1988) I received a Ph.D. in entomology at Washington State University. I worked on species pool influences on arthropod colonization of young apple trees. My research at the University of Hawaii involves genetic improvement of the leafminer parasitoid *Diglyphus begini* (Eulophidae) for increased pyrethroid trichogrammatids) and has focused on host selection by the parasitoids, characterization of geographic variability, and interactions of these parasitoids with plant resistance. I am currently working on the biology of scelionid and trichogrammatid parasitoids of chrysopid eggs. Very little is known regarding the biology and distribution of these parasitoids, due to the difficulties associated with collecting host eggs in the field. To date, my work has concentrated on thermal responses and host ranges of the parasitoids. I have been working with two geographic races of the eulophid egg parasitoid, *Edovum puttleri*, attempting to characterize them biologically and evaluating their potential as biological control agents. I have also been studying the biology of a species of the *Trichogramma minuum* complex which attacks chrysopid eggs.

Mike Rose (160). Now that I have obtained most of the existing representative specimens of named *Eretmocerus* spp., I have begun work on an annotated list. Recent collections and acquisitions (particularly from the People's Republic of China), of undescribed species are really expanding the morphological concept of this genus. I would very much appreciate receiving any specimens of *Eretmocerus* and hosts (preferably dry) that readers of CF may have or collect. Thank you for all your cooperation and collaboration.

A search is on for the missing slide-mounted type specimen of Mercet's (1931) *Eretmocerus mundus*. The slide with the type (female) is missing from the Museum of Madrid, and there are currently no leads. The help of readers of CF in searching for the missing slide will be greatly appreciated.

David Rosen stayed at Texas A&M for 3 months this summer (1988). He presented an excellent seminar series titled, "Analysis of Biological Control Projects" (with rave reviews by those attending) and worked on several systematic projects with Jim Woolley and me. Further, we initiated several cooperative and long-term projects. We are working to bring David back to Texas A&M for a full year and have nominated him for a Fulbright Scholar-in-Residence grant to help make this happen.

Andrey Sharkov (168). I and my family have decided to leave the USSR. We plan to leave on the 28th of

Academy of Sciences (Leningrad), I published 15 papers on taxonomy of Encyrtidae, Pteromalidae and Eupelmidae; 3 papers (including a key for 270 species of the Encyrtidae of the Soviet Far East) are in press.

If any scientific or agricultural institution needs a specialist on taxonomy of Chalcidoidea, please, contact me at: **Andrey V. Sharkov, c/o Emma Levina, Apt. 480, 2000 84 Street, Brooklyn, New York, 11214 USA.**

S. P. Singh (new: 250). I am a Ph.D. student, working for the past 3 years on hymenopteran parasites of Agromyzidae (Diptera), under a P.L. 480 Research Project Programme granted by the U.S. Department of Agriculture. I will submit my thesis on the biology of the chalcidoids very soon.

P. M. Sureshan (232). I am now doing revisions of various genera of the subfamily Pteromalinae from Peninsular India, for my doctoral thesis, under the guidance of Dr. T.C. Narendran. Since several of the available descriptions of the little known species are very inadequate to identify them, this has placed me in considerable difficulty. I am trying to get some of these holotypes from various museums on loan, but this is not possible in all cases because of various reasons. I will be very grateful if anyone could send me the following determined specimens for my study. I need only a week or two to study them (specimens will be handled with extreme care). The species are: *Norbanus biramus* (Masi), *Norbanus indorum* (Masi), *Platecrizotes sudanensis* Ferriere, *Pteromalus semotus* (Walker), *Pteromalus sequester* (Walker), *Chlorocytus xanthopus* (Cameron), *Callitula rugosa* (Waterston), and *Cyrtoptyx latipes* (Rondani).

I am also willing to exchange determined Indian pteromalids and literature on Pteromalidae, and ready to deposit my holotypes in various international museums after my study. If you need any references about me and my work you can contact my supervisor, Dr. T.C. Narendran, Dept. of Zoology, University of Calicut, Kerala, 673635, India.

Teja Tscharntke (194). I am working on parasitoids and phytophagous insects on grasses (primarily *Phragmites australis*). Phytophagous and entomophagous Eurytomidae are included. I am mainly interested in the determinants of microhabitat selection, population dynamics and diversity.

typeset and I expect proofs in January (1989). We have also prepared a volume of chalcidological works dedicated to the memory of Prof. M. N. Nikolskaya (editor E. S. Sugonjaev). I am now working on encyrtids of the Leningrad region and a computer key to genera of Encyrtidae of the world.

Rogerio L. Vianna Jr. (new: 252). I am now doing an M.Sc. in ecology of parasites of leaf-miners and gall-makers in some species of Myntacea, Proteacea, Vochysiaceae, and Melastomataceae in the Brasilian Cerrado vegetation (wooded-savanna). As part of my degree I am training at B.R.C. (Ottawa) in the systematics of Chalcidoidea and Proctotrupoidea. Next year I plan to start a Ph.D. program in chalcidoid taxonomy, perhaps revising the genera *Eulophus* and/or *Diglyphys*. I would appreciate any help and material related to these genera. In addition, my plans include developing a chalcidoid collection in the future Museum of Brasilia, which is planned to open at the end of 1990. This will facilitate anyone who wants to receive material from Brasil (and especially from Brasilia). Any help that you can give me to develop the Museum collection is also welcome. Please contact me at Fundacao Universidade de Brasilia, Depto. Biologia Vegetal, Laboratorio de Ecologia, Brasilia - DF, C.E.P. 70910, Brasil.

Greg Zolnerowich (221). I am working on the tribe Copidosomatini, family Encyrtidae, under the direction of Jim Woolley. I would appreciate seeing specimens of *Copidosoma*, *Copidosomopsis*, *Apsilophrys*, or *Paralitomastix* from anyone, and will do my best to put a name on undetermined material. Specimens received in alcohol will be critical-point dried and/or mounted in balsam.

Bob Zuparko (new: 253). I am a graduate student in entomology at U.C. Berkeley, studying the biocontrol of street-tree aphids. With regard to this, I'm involved in identifying and studying the primary (aphidiids) and secondary parasitoids attacking the aphids. These secondary parasitoids include genera from the Pteromalidae, Encyrtidae, Megaspilidae and Cynipidae (Alloxystinae).

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flagellomere [see CF 11: 9]". This is incorrect because a true segment is defined (Snodgrass, 1935, Principles of Insect Morphology) as "any part of an appendage independently movable ... by muscles inserted on its base". In other words a segment has a muscle attached to it. Under this definition the antenna of any hymenopteran consists of three segments: the scape, pedicel, and the flagellum (again see Snodgrass). The units of the flagellum in Hymenoptera are not endowed with such musculature, and as Snodgrass himself says the "... subsegments (of the flagellum) ... are never provided with muscles in insects". Although Snodgrass calls the divisions of the flagellum "subsegments", to me "flagellomere" is more informative because it is immediately clear as to what is being discussed or described.

Hayat also errs in spelling of the word annellus. Examination of a Latin dictionary shows that "annellus" is the diminutive of the Latin word "annulus", which means ring. Hayat states that "chalcidologists - a species far superior to other 'ologists' ... are a conservative lot which means we refuse to change and refuse to agree with others in almost everything ...". In view of the above, all I can say about the last statement is heaven help the world of chalcidology!

ANELLUS, FLAGELLUM, ETC. (REVISITED AGAIN) **[Roy R. Snelling]**.

Arnold Menke just passed on to me his latest salvo on the Great Antenna Question. Ah, old antennae never fade away; they just fall into their component parts (i.e., segments). Menke's response to Hayat is well taken and to the point. And, I concur. With reservation. I continue to be slightly amazed that Arnold insists on castigating Hayat for his erroneous spelling of "annellus" when he himself persists in championing a bastard ("flagellomere") **[Ed. note: hasn't anyone heard of hybrid vigor?]**

As for Hayat's characterization of chalcidologists - well, guys, he said it. On the other hand, is it possible that such is true of those who work on other groups of Hymenoptera?

[Ed. note: it seems only appropriate that with all the of CF are urged to make themselves familiar with this text, if for no other reason than to find new justifications for old arguments.]

LABEL PREPARATION FOR CHALCIDOIDEA (AND A RATIONALE FOR PROPER LABELLING, BY TAXONOMISTS AND NON-TAXONOMISTS ALIKE

[John. T. Huber (modified from article published in Biocontrol News #2, edited by M. Sarazin, BRC)].

In the Hymenoptera Unit of BRC we are trying to standardize our labels using the format given below for all new material being added to the collection. There is a 2-letter set of abbreviations developed by the U.S. post office for states and provinces of North America, which is widely used and included with this issue of CF along with a map listing the abbreviations. Although many other countries also have a system of abbreviations for smaller political units within their boundaries, we prefer to write them out in full. Faunal series such as the **Fauna Entomologica Scandinavica** and **Fauna of New Zealand** give abbreviations for use in the areas covered. Probably many other countries have accepted abbreviations for internal political units. Readers of CF are encouraged to let us know what systems they have in their countries so that we can print them, with maps, in CF. We hope that this will be useful to specialists borrowing material for study when they have to list localities for their "Material Examined" section in their revisionary works.

Rationale for proper labelling of specimens: Specimens sent in for identification to BRC often are poorly labelled. Either the label does not have the basic minimum data, or it is poorly organized or illegible. Cryptic code numbers often are the only "information" present, which is useless to the taxonomist. If the specimens are to be useful enough to be incorporated into a regional or national collection where they can be used for revisionary studies, or kept as voucher specimens, they must be labelled properly.

Identifications that are COMPLETE (i.e. to species), ACCURATE (i.e. correct according to the latest available knowledge of a group), and RELIABLE

way from being able to provide complete identifications for many groups. There are also many practical problems: insufficient numbers of taxonomists studying important groups, current inability to resolve problems in large or taxonomically difficult groups, lack of good literature and reference collections, etc.

People wanting names for organisms must be reminded that these names are not pulled out of thin air. They are based on existing collections, and continually updated revisionary works (including identification keys). The collections form the basis of revisionary works and keys. Poor collections (i.e. poor condition of specimens, few specimens, or badly labelled specimens) can only result in poor revisions and identifications. If fewer good revisions are produced as a result of lack of good collections (and, incidentally, lack of full-time professional taxonomists) then fewer reliable identifications to species level will be possible. Therefore, people sending in specimens will get relatively more incomplete or incorrect identifications. This, in turn, will affect the quality of YOUR scientific research and both the taxonomist and submitter lose.

Recommended arrangement of data on labels:

COUNTRY [*in* capitals and in full, except for commonly accepted abbreviations such as USA, USSR, UK]; LESSER POLITICAL UNIT [small print, abbreviated if standard and commonly accepted abbreviation exists]; EXACT LOCALITY [place name; altitude (if useful); latitude & longitude (if necessary)]; DATE [day, month in Roman numerals, year]; COLLECTOR; HABITAT [host and/or host plant, and collecting method (if relevant)].

PUNCTUATION: Colon after country, all other items separated by commas; no punctuation at end of lines or, at least, longest line [because it will tend to be cut off].

MINIMUM INFORMATION REQUIRED: Country, lesser political unit, exact locality, date, collector, host [if known, including genus, species, and author of taxon].

The above information can be put on two separate labels; one with locality data and date, the other with habitat, host and collecting data, and any code numbers or letters and other cryptic information printed, on white, acid-free paper of fairly heavy weight, e.g. 20 pound bond. If labels are photocopied then a fused-carbon photocopier should be used. We restrict labels to a maximum of 20 letters (including spaces and punctuation) per line, and 5 lines long.

PRESERVATION OF SOFT-BODIED INSECTS

[taken from **Sharkey, M.J.**, 1988. A taxonomic revision of *Alabagrus* (Hym.: Braconidae). Bull. Brit. Mus. (N.H.) Ent. Ser. 57: 311-437].

If specimens are collected into alcohol, which is usual for Malaise traps, care must be taken when they are prepared for mounting. If they are air-dried directly from alcohol, setae often adhere to the cuticle, obscuring many morphological structures. Air-drying also causes the soft tissues of the abdominal sternum to collapse and interesting characters are thereby lost. Critical-point drying avoids these problems and usually produces high-quality specimens. A simple method that achieves better or equal results is to immerse the specimens in 95% ethanol and 100% ethanol each for 24 hours, then in chloroform for two hours, after which time they are air-dried. This procedure stops the shrinking of soft membranes and all pilosity stands erect, away from the body. If sets of small cages or perforated polyester bags are used, the method is very rapid and great quantities of braconids may be processed in one run. [**Ed. note:** because most chalcidoids are much more prone to collapse than are braconids (the entire body, not just the metasterna), critical-point drying is still the recommended method for natural preservation of liquid-preserved specimens. However, the ethanol-chloroform method may be useful to those who do not have access to a critical-point dryer.]

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SUPERFAMILY	AUSTR	ETHIO	NEARC	NEOTR	ORIEN	PALEO	TOTAL
Apoidea	226	63	2050	1043	7	31	3420
Apiformes	226	63	2050	1043	7	31	3420
Spheciformes	149	1771	8067	2156	148	228	12519
Cephoidea	0	0	3	0	0	0	3
Ceraphronoidea	5	2	78	22	6	2	115
CHALCIDOIDEA	**38**	**81**	**1192**	**1453**	**5**	**43**	**2812**
Chrysidoidea	574	1886	4191	15285	198	128	22262
Cynipoidea	27	8	294	576	8	5	1098
Evanioidea	60	16	17	185	10	5	293
Ichneumonoidea	75	36	3050	544	15	81	3801
Megalodontoidea	0	0	2	0	0	0	0
Megalyroidea	0	0	0	0	0	0	0
Orussoidea	0	0	0	0	0	0	0
Proctotrupoidea	64	1	753	400	24	12	1254
Scelionoidea	35	10	1465	382	8	3	1903
Siricoidea	0	0	16	0	0	0	1
Stephanoidea	0	0	0	1	0	0	1
Tenthredinoidea	1	0	218	61	0	1	281
Trigonaloidea	0	0	1	1	0	0	2
Vespoidea	2012	6049	12071	11405	206	214	31867
Xyeloidea	0	0	2	0	0	0	2
TOTAL	3266	9923	33470	33694	635	663	81651

HYMENOPTERA BY REGION:	
Nearctic	41%
Neotropical	41%
Ethiopian	12%
Australian	4%
Palaearctic	0.8%
Oriental	0.7%

SPECIMENS NOT INCLUDED IN TOTAL:	
Bees (in lab)	15000
Hymenoptera from Wagner Bog (Alta.)	33000

COLLECTION OF CHALCIDOIDEA AT THE TAIWAN AGRICULTURAL RESEARCH INSTITUTE (189 Chung-cheng Road, Wan-feng, Wu-feng Taichung, Taiwan, Republic of China). By K. S. Lin.

Through 1977-78, using the Doutt & Viggiani method of liquid Faure mounting, I mounted over 14,000 slides of Mymaridae and 7,000 Trichogrammatidae. Most specimens were collected by sweeping on the low land of northern Taiwan. In the last few years we have had a major project, "A Survey of the Insect Fauna of Taiwan", which was supported by grants-in-aid funding from the National Science Council of Taiwan from 1980-1986. Collecting was done mostly by sweep nets and Malaise traps for small insects at each altitude of central and southern Taiwan. The Chalcidoidea that were mounted from this collecting survey are as follows:

Agaonidae	164	Eulophidae		Mymaridae	375
Chalcididae	5629	Eulophinae	4722	Ormyridae	82
Elasmidae	3708	Elachertinae	1795	Perilampidae	298
Encyrtidae	17350	Euplectrini	2969	Podagrionidae	432
Eucharitidae	291	Entedontinae	10244	Pteromalidae	17382
Eupelmidae	117	Tetrastichinae	28602	Tetracampidae	3
Eurytomidae	4548			Torymidae	5629

COLLECTIONS OF CHALCIDOIDEA AT THE UNIVERSITY OF GUELPH AND THE ROYAL ONTARIO MUSEUM.

By **Lonny D. Coote.**

Whilst rummaging through over 1200 miscellaneous eulophids I borrowed from the University of Guelph, I realized that probably few chalcid workers are aware of the vast storehouse of these tiny gems at Guelph. This collection is primarily the result of years of accumulation from the undergraduate collection course, Insect Biosystematics. Professor D.H. Pengelly, being a hymenopterist, revelled in putting a half dozen or so of these enigmatic wasps on taxonomy tests. Thus I was lured into studying chalcids, first in a biocontrol capacity, then, due to gluttony for punishment, a systematic perspective at the Royal Ontario Museum (ROM), where I foolishly believe that phylogenetic relationships in the Chalcidoidea can be understood.

I took it upon myself to inventory the pinned collection of Chalcidoidea at Guelph in order to provide a list of specimens available for loan. I have not attempted to correct nomenclature (other than spelling), rather I list identifications as they appear in the collection. Number of specimens appears in brackets following each taxon. The end result is about 7250 specimens, representing 127 genera and 126 species. Interested systematists should write to **Dr. Steve Marshall** (a dipterist who, nonetheless, appreciates the superior beauty of chalcids and the advantage of identifying species without making genitalia slides): **Environmental Biology, University of Guelph, Guelph, Ontario, Canada, N1G 2W1.**

Inability to contain my counting frenzy prompted me to do the same inventory of available Chalcidoidea at the ROM. This material is largely due to the collecting efforts of Dr. Chris Darling from both before and after he took a position at the museum. Here there are about 5110 specimens, representing 167 genera and 137 species. Systematists interested in borrowing this material should write to **Dr. Chris Darling, Assistant Curator, Department of Entomology, Royal Ontario Museum, 100 Queen's Park, Toronto, Ontario, Canada, M5S 2C6.**

CHALCIDOIDEA AT THE UNIVERSITY OF GUELPH

AGAONIDAE: *Blastophaga* sp. (5)

APHELINIDAE: *Aphelinus semiflavus* (1) *Aphytis mytilaspidis* (1) *Coccophagus lycimnia* (1) *Coccophagus* sp. (1) *Encarsia formosa* (11) Misc. (12)

CHALCIDIDAE: *Anthrocephalus* poss. *satori* (5) *Brachymeria aeca* (5) *B. belfragei* (3) *B. carinatifrons* (1) *B. coloradensis* (13) *B. comitator* (1) *B. compsilurae* (19) *B. conica* (1) *B. intermedia* (6) *B. ovata* (96) *B. pedalis* (1) *Brachymeria* sp. (3) *Ceratosmicra debilis* (39) *C. immaculata* (1) *C. meteorelis* (1) *Chalcis canadensis* (34) *C. flebilis* (2) *C. lasia* (3) *C. microgaster* (15) *Chalcis* sp. (11) *Dirhinus texanus* (1) *Euchalcidia* sp. (1) *Euchalcis* nr. *nuda* (1) *Haltichella xanticles* (2) *Haltichella* sp. (1) *Hockeria* sp. (1) *Hybothorax* sp. (2) *Invreia* poss. *subaenea* (1) *Metadontia amoena* (3) *Phasgonophora sulcata* (3) *Spilochalcis albifrons* (115) *S. arcana* (1) *S. delumbis* (1) *S. elachis* (6) *S. exornata* (2) *S. femorata* (8) *S.* nr. *femorata* (5) *S. flavopicta* (1) *S. ?hirtifemora* (4) *S. igneoides* (4) *S. nigricornis* (6) *S. nortonii* (1) *S. phais* (2) *S. subobsoleta* (2) *S. toryniscapus* (2) *S. transitiva* (1) *Stypiura* sp. (1) *Trigonura elegans* (2) Misc. (114)

ENCYRTIDAE: *Aphycus annulipes* (9) *Aphycus* sp. (1) *Blastothrix sericea* (1) *Cheiloneurus* sp. (2) *Encyrtus saliens* (30) *Metaphycus* sp. (18) *Pauridia* sp. (2) *Rhopus* sp. (2) *Syrphophagus* sp. (6) *Tetracnemus* sp. (5) Misc. (518)

EUCHARITIDAE: *Pseudochalcura gibbosa* (4) *Pseudometagea schwarzii* (150) *P. montana* (104) Misc. (8)

EULOPHIDAE: *Aprostocetus* sp. (10) *Chrysocharis cuspidogaster* (1) *C. laomedon* (14) *C. nephereus* (2) *C. occidentalis* (8) *C. pentheus* (3) *C. polyzo* (1) *C. walleyi* (3) *Closterocerus tricinctus* (2) *Diglyphus begini* (1) *Elachertus* sp. (4) *Euderus solidaginis* (305) *Melittobia chalybii* (20) *Pleurotropis* sp. (4) *Pnigalio flavipes* (4) *P. proximus* (1) *P. uroplatae* (6) *Sympiesis marylandensis* (6) *S. sericeicornis* (5) *S. viridula* (1) *Syntomosphyrum esurus* (10) *Tetrastichus incertus* (4) *T. megachilidis* (2) *T.* nr. *racemariae* (7) *T. solidaginis* (2) *Tetrastichus* poss. n. sp. (1) *Zagrammosoma nigrolineatum* (7) Misc. (1320)

EUPELMIDAE: *Eupelmella vesicularis* (2) Misc. (38)

EURYTOMIDAE: *Bruchophagus* sp. (47) *Eudecatoma*

LEUCOSPIDAE: *Leucospis affinis affinis* (38) *L. birkmani* (1) *L. cayennensis* (1) *L. slossonae* (1)

MYMARIDAE: *Anagrus* sp. (3) *Anaphes* sp. (12) *Barypolynema* sp. (4) *Erythmelus* sp. (1) *Gonatocerus* sp. (26) *Mymar* sp. (2) *Ooctonus* sp. (5) *Patasson luna* (3) *Patasson* sp. (63) *Polynema* sp. (73) *Sphegilla* sp. (2) Misc. (17)

ORMYRIDAE: *Ormyrus vacciniicola* (23) Misc. (25)

PERILAMPIDAE: *Chrysolampus* sp. (5) *Euperilampus triangularis* (13) *Perilampus canadensis* (3) *P. chrysopae* (7) *P. fulvicornis* (102) *P. hyalinus* (112) *P. musebecki* (10) *P. prothoracicus* (8) *P. robertsoni* (23) *P. rohweri* (10) *P. stygicus* (11) *Perilampus* sp. (44) *Steffanolampus salicetum* (24) Misc. (20)

PTEROMALIDAE: *Amblymerus bruchophagi* (12) *A. verditer* (2) *Asaphes lucens* (1) *Asaphes suspensus* (1) *A. vulgaris* (8) *Caenocara oculata* (3) *Cecidostiba* sp. (1) *Cerocephala* sp. (2) *Coruna clavata* (2) *Dibrachys maculipennis* (4) *Dinotiscus* sp. (1) *Erixestus winnemana* (1) *Eupteromalus viridescens* (4) *Eupteromalus* poss. *viridescens* (20) *Habritys brevicornis* (4) *Halticoptera patellana* (5) *Halticoptera* sp. (1) *Hemadas nubilipennis* (25) *Lariophagus distinguendus* (5) *Meraporus graminicola* (1) *Musidifurax raptor* (2) *Nasonia vitripennis* (40) *Pachyneuron* sp. (3) *Psychophagus omnivorus* (2) *Pteromalus puparum* (5) *P. uenustus* (5) *Sceptrothelys ?intermedia* (1) *Scutellista cyanea* (1) *Stenomalina ?illudens* (1) Misc. (930)

TORYMIDAE: *Allotorymus splendens* (4) *Cryptopristus* sp. (1) *Diomorus* sp. (1) *Liodontomerus* sp. (8) *Megastigmus formosus* (8) *Megastigmus* nr. *specularis* (2) *Megastigmus* sp. (5) *Monodontomerus dentipes* (29) *M. japonica* (6) *M. montivagus* (10) *M. subobsoletus* (2) *Monodontomerus* sp. (1) *Podagrion brasiliense* (1) *P. mantidiphagum* (1) *Podagrion* sp. (1) *Torymus advenus* (4) *T. bedeguaris* (69) *T. californicus* (1) *T. cecidomyiae* (3) *T. diabolus* (1) *T. duplicatus* (2) *T. fagopirum* (27) *T. flavicoxa* (2) *T. fulvus* (1) *T. hainesi* (1) *T. koebelei* (1) *T. magnificus* (1) *T. racemariae* (4) *T. varians* (25) *T. vesiculi* (5) *Torymus* sp. (88) Misc. (100)

TRICHOGRAMMATIDAE: *Trichogramma minutum* (7 plus many on 4 slides) Misc. (3)

CHALCIDIDAE: *Asphirina* sp. (1) *Brachymeria compsilurae* (3) *B. carinatifrons* (1) *B. coloradensis* (2) *B. intermedia* (5) *B. molestae* (3) *B. ovata* (12) *B. robusta* (1) *B. tegularis* (21) *Brachymeria* sp. (38) *Ceratosmicra campoplegicis* (1) *C. debilis* (1) *Ceratosmicra* sp. (1) *Chalcis barbara* (1) *Chalcis* sp. (8) *Dirhinus texanus* (2) *Dirhinus* sp. (1) *Haltichella onatus* (2) *H. ornaticornis* (9) *H. xanticles* (13) *Haltichella* sp. (1) *Hockeria bicolor* (1 PARATYPE + 1) *H. eriensis* (2) *H. punctatipennis* (14) *Metadontia amoena* (6) *Phasgonophora sulcata* (7) *Platychalcis phalara* (4) *Schwarzella arizonensis* (1) *Spilochalcis albifrons* (6) *S. dorsata* (1) *S. exornata* (4) *S. femorata* group (18) *S. nigricornis* (2) *S. phoenica* (1) *S. subobsoleta* (4) *S. tanais* (1) *S. xanthostigma* group (8) *Spilochalcis* sp. (44) *Trigonura* sp. (1) Misc. (33)

ENCYRTIDAE: *Ablerus clisiocampae* (7) *Acerophagus* sp. (4) *Aenasius* sp. (6) *Blastothrix* sp. (1) *Blepyrus* sp. (5) *Bothriothorax* sp. (5) *Centrodora* sp. (1) *Cerchysius* sp. (5) *Chalcaspis* sp. (7) *Charitopus fulviventris* (1) *Cheiloneurus* sp. (9) *Coccophagus* sp. (2) *Copidosoma floridanum* (14) *C. frustellum* (1) *Copidosoma gelechiae* (15) *Copidosoma* sp. (45) *Ectromatospsis* sp. (4) *Encyrtus* sp. (3) *Epidinocarsis* sp. (2) *Ericydnus* sp. (5) *Eusemion* sp. (4) *Forcipestricis* sp. (11) *Ginsiana* sp. (2) *Homalotylus* sp. (4) *Lamennasia* sp. (2) *Mahenencyrtus* sp. (2) *Metaphycus* sp. (4) *Microterys* sp. (1) *Neodusmetia* sp. (1) *Ooencyrtus* sp. (18) *Paralitomastix* sp. (1) *Paraslatticida* sp. (1) *Pentelicus* sp. (1) *Prionomitus* sp. (11) *Pseudectroma* sp. (1) *Pseudleptomastix* sp. (1) *Psyllaephagus* sp. (1) *Rhopus* sp. (4) *Rhytiothorax* sp. (6) *Stemmatosteres* sp. (1) *Syrphophagus* sp. (6) *Tetracnemus* sp. (1) *Trichomastus* sp. (2) *Tyndarichus* sp. (1) *Zaomma* sp. (2) Misc. (111)

EUCHARITIDAE: *Eucharis* sp. (1) *Pseudochalcura gibbosa* (3) Misc. (9)

EULOPHIDAE: *Achrysocharoides* sp. (1) *Ardalus* sp. (1) *Aprostocetus* sp. (117) *Chrysocharis gemma* (1) *C. walleyi* (1) *Chrysocharis* sp. (71) *Chrysonotomyia* sp. (28) *Cirrospilus pictus* (1) *Cirrospilus* sp. (4) *Closterocerus* sp. (4) *Colpoclypeus* sp. (3) *Dahlbominus fuscipennis* (4) *Diglyphus* sp. (10) *Elachertus* sp. (15) *Entedon* sp. (1) *Euderus* sp. (26) *Eulophopteryx* sp. (2) *Eulophus brevicapitatus* (2) *E. viridulus* (3) *Eulophus* sp. (37) *Euplectrus mellipes* (2) *Euplectrus* sp. (45)

(82) *Pruggia maculipes* (14) *Pruggia* sp. (15) *Pseudolynx* sp. (5) *Quadrastichodella* sp. (2) *Sympiesis fragariae* (1) *Sympiesis* sp. (36) *Sympiesomorpha* sp. (1) *Tetrastichus crino* group (16) *T. evonymellae* group (12) *T. fumipennis* (5) *T. malacosomae* (22) *T. silvaticus* (2) *Tetrastichus* sp. (135) Tetrastichinae (168) Misc. (485)

EUPELMIDAE: *Anastatus floridanus* (10) *Eupelmus alynii* (2) *E. seculata* (20) *Eupelmella* sp. (1) *Eusandalum* n. sp. (2) Misc. (98)

EURYTOMIDAE: *Eudecatoma* sp. (1) *Eurytoma bolteri* (2) *E. diastrophi* (85) *E. gigantea* (18) *Eurytoma* sp. (95) *Harmolita* sp. (22) *Neorileya* sp. (1) *Rileya* sp. (1) *Systole* sp. (1) Misc. (120)

LEUCOSPIDAE: *Leucospis affinis* (22) Misc. (10)

MYMARIDAE: *Anagrus* sp. (2) *Anaphes iole* (1) *Anaphes* sp. (4) *?Australomymar* sp. (1) *Gonatocerus ashmeadi* (1) *G. ater* group (10) *G. litoralis* group (2) *G. mexicanus* (2) *G. novifasciatus* (1) *G. sulphuripes* group (12) *Gonatocerus* sp. (1) *Mymar* sp. (1) *Neomymar* sp. (1) *Ooctonus aphrophorae* (1) *Ooctonus* sp. (21) *Polynema* sp. (39) Misc. (40). [MYMARIDAE **AMBER FOSSILS:** *Ooctonus minutissimus* (HOLOTYPE + 1); *Ooctonus* sp. (2)]

ORMYRIDAE: *Ormyrus acylus* (1) *O. distinctus* (2) *O. dryorhizoxeni* (3) *O. hegeli* (1) *O. labotus* (7) *O. rosae* (2) *O. unifasciatipennis* (2) *O. vacciniicola* (2) *O. venustus* (4) *Ormyrus* sp. (13) Misc. (7)

PERILAMPIDAE: *Euperilampus brasiliensis* (1) *E. krombeini* (4) *E. triangularis* (25) *Perilampus anomocerus* (31) *P. auratus* (2) *P. canadensis* (5) *P. chrysopae* (16) *P. crawfordi* (2) *P. fulvicornis* (68) *P.* nr. *fulvicornis* (18) *P. gahani* (13) *P. granulosus* (6) *P. hyalinus* (82) *P. muesebecki* (24) *P. platigaster* (2) *P. prothoracicus* (3) *P. robertsoni* (1) *P. regalis* (2) *P. similis* (2) *P. stygicus* (19) *P. subcarinatus* (23) *P. tristis* (4) *Perilampus* sp. (1) *Steffanolampus salicetum* (42) Misc. (416)

PTEROMALIDAE: *Amblymerus subfumatus* (5) *Amotura* n. sp. (1) *Asaphes californicus* (1) *A. suspensus* (4) *A. vulgaris* (2) *Asaphes sp.* (124) *Australolelaps?* (2) *Brasema* sp. (3) *Cerocephala eccoptogastri* (2) *Cheiropachus quadrum* (1) *polycystus* (1) *C. vulgaris* (4) *Dibrachys cavus* (11) *Diglochis occidentalis* (2) *Dipara?* sp. (1) Diparinae (15) *Ecrizotes* sp. (2) *Eupteromalus* sp. (4) *Eutrichosoma flabellatum* (2) *E. mirabile* (1) *Eutrichosoma* sp. (1) *Gastrancistrus* sp. (5) *Habrocytus* sp. (42) *Halticoptera* sp. (1) *Hemadas nubilipennis* (1) *Heterolaccus* sp. (1) *Heydenia unica* (30) *Homoporus* sp. (27) *Hypopteromalus?* sp. (11) *Janssoniella caudata* (1) *Lelaps* sp. (13) *Mesopolobus verditer* (9) *Muesebeckisia mandibularis* (1) *Muscidifurax* sp. (6) *Neocatolaccus* sp. (3) *Panstenon axylus* (1) *Perilampidea* sp. (2) *Pirene* sp. (1) *Pseudocatolaccus* sp. (1) *Psilocera* sp. (1) *Psychophagus omnivorus* (4) *Pteromalus puparum* (1) *Pteromalus* sp. (50) *Spalangia cameroni* (14) *S. haematobia* (4) *S. nigroaenea* (6) *Theocalax formiciformis* (1) *Trichomalopsis dubius* (15) *Trichomalopsis* sp. (1) *Trimicrops claviger* (1) Misc. (1410)

TANAOSTIGMATIDAE: *Tanaostigmodes* sp. (4)

TORYMIDAE: *Megastigmus nigrovariegatus* (4) *Monodontomerus japonica* (2) *Monodontomerus* sp. (14) *Torymus bedequaris* (1) *T. brevicauda* (1) *T. fagopirum* (82) *T. magnificus* (1) *Torymus* sp. (8) Podagrionini (1) Misc. (113)

TRICHOGRAMMATIDAE: *Trichogramma pretiosum* (50+)

HONDURAN HYMENOPTERA (Depto. de Proteccion Vegetal, Escuela Agricola Panamericana, Apdo.93, Tegucigalpa, HONDURAS). By **Ronald D. Cave.**

Construction was completed in January, 1988, on the new Plant Protection Center at the Panamerican Agricultural School in Honduras. This building houses all the departmental collections of arthropods, mollusks, weeds, and plant pathogens. The pinned insect collection of approximately 30,000 specimens is kept in 27 Cornell cabinets and is the largest insect collection in Honduras, and one of the best in Central America. The larval collection numbers about 5,000 vials. The collection is expanding rapidly in all major groups, particularly in the areas of parasitic Hymenoptera. Similar to the work that Paul Hanson is doing in Costa Rica, we are rearing and collecting parasitic wasps in

program. Current specific projects include an inventory of the parasitoids of the striped grasslooper, *Mocis latipes*, parasitoids of Aleyrodidae, parasitoids associated with passion fruit, and parasitoids of the diamond-back moth, *Plutella xylostella*. We hope to eventually produce a catalog of parasitic Hymenoptera of Honduras. As with any Third World institution, our biggest drawback is lack of literature. Our relatively few library holdings just do not carry the specific publications concerning systematics. Thus, any reprints, or information about how to obtain some of the larger monographs from CF readers would be most appreciated. In return, we can supply specimens of your special research group. I should also mention, that, to encourage collaborators, we are instituting a research associate program, whereby interested taxonomists may study a particular group of Honduran insects resulting in lists or keys and the Plant Protection Department pays for all or part of the travel to Honduras and all of the in-country expenses. Interested taxonomists should contact me for more information and/or computer print-outs of our holdings and/or specimen loans.

The following is a tabulation of our holdings by family. Although the estimated numbers are small, it should be kept in mind that the collection here is less than 9 years old (all specimens collected before 1979 were lost to fungus and dermestids) and that parasitic Hymenoptera were not earnestly collected until a year ago when I joined the department. At that time there were only about 400 chalcidoid specimens. Familial divisions follow the North American Hymenoptera Catalog.

FAMILY	# species	# specimens
Chalcididae	30	100
Encyrtidae	20	250
Eucharitidae	2	2
Eulophidae	25	600
Eupelmidae	14	50
Eurytomidae	22	90
Mymaridae	5	40
Pteromalidae	30	250
Torymidae	8	90
Trichogrammatidae	1	40
TOTAL approx:	157	1500+

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non-chalcid groups, the second with due regard to their importance, entirely with chalcids. Lectures at the second meeting included a thought-provoking account by Brad Hawkins of patterns of parasitoid diversity, a fascinating talk by John Heraty on the biology of Eucharitidae, a beautifully illustrated presentation by Greg Zolnerowich on Encyrtidae, and an attempt by myself to summarize the biological and morphological features of the remaining chalcid families.

During the week between the two workshops, Larry Gilbert very kindly provided facilities at Brackenridge for me to study chalcids in the grounds of the Field Laboratory. This is situated in the north of Austin, bounded on one side by Town Lake, and is a delightful enclave of mostly natural woodland with areas of herb-rich, managed grassland. Chalcids were numerous and varied. A highlight was seeing *Leucospis affinis* Say in the field, but this only after first scrutinising very many eumenids. The *Leucospis*, along with numerous other Hymenoptera, were frequenting flowering bushes of Texas almond (*Prunus minutiflora*), and as they flew around the flowers in a fast, erratic manner, seldom settling, they bore a striking resemblance to vespoids. Another spectacular chalcid on the same blossoms was the large, bright green *Perilampus hyalinus* Say, whilst the smaller, darker *P. fulvicornis* Ashmead was not uncommon on foliage in shaded areas. Several *Monodontomerus obscurus* Westwood, familiar to me from Europe, were spotted by Al Hook investigating old nests of *Trypoxylon politus* Say, which were probably occupied by a bee. Sweep-netting was productive. Eulophidae (2/3 of them Tetrastichinae), comprising 35%, dominated a sample of 190 chalcids, followed by Pteromalidae (19%) and Encyrtidae (15%). Eupelmidae (8%) outnumbered Eurytomidae (7%), and Chalcididae, Mymaridae, Torymidae and Aphelinidae were present in smaller numbers. Single specimens only of Elasmidae, Trichogrammatidae and Perilampidae were included in this sweep-net sample. Notable species so far identified include males of a *Colotrechnus* which does not appear to be *C. ignotus* Burks, the only recorded species from the USA, *Ammonoencyrtus californicus* (Compere) and the allied encyrtid *Cerapterocerus ?floridanus* Ashmead, and *Sympiesis sericeicornis* (Nees) which Doganlar (1980, **Turk. Bit. Kor. Derg. 4**: 119-129) recognizes as a senior synonym of *S. conica* (Provancher). Finally, I must mention the capture of the magnificent *Epistenia coeruleata* Westwood at Bull Creek just outside Austin.

This part of Texas clearly supports a rich

several Cecidomyiidae were particularly plentiful and these could form the basis of a valuable investigation.

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BOOK NOTICES/REVIEWS

THE WORKS OF TETSUSABURO TACHIKAWA. Compiled and published by the Executive Committee to Commemorate the Retirement of Prof. T. Tachikawa.

This book includes all of the works - mostly Hymenoptera: Chalcidoidea - of Prof. Tachikawa. About 1,120 pages; hard and cloth covered; cased; size 26 x 19 cm. Date of issue: 1st March, 1989. Price: 9,000 Japanese yen, or US $80.00, including postage. Postal money order will gladly be accepted. Orders should be placed with: **Prof. T. Tachikawa's Committee, Entomological Laboratory, College of Agriculture, Ehime University, Tarumi, Matsuyama, 790 JAPAN.**

THE HYMENOPTERA. [Condensed version of a review submitted by **Arnold Menke** (122), 27/VII/89; complete review can be obtained by writing editors of CF.]

"The Hymenoptera", edited by Ian Gauld and Barry Bolton with contributions by I.D. Gauld, B. Bolton, T. Huddleston, M.G. Fitton, M.R. Shaw, J.S. Noyes, M.C. Day, G.R. Else, N.D.M. Fergusson and S.L. Ward; 332 pp., published 1988 by British Museum (Nat. Hist.), Oxford University Press; £35.

I finally got my hands on a copy of this long awaited book and it is an impressive tome. It is divided into a broad spectrum of chapters that cover biology, economic importance, collecting and storage, adult and immature morphology, classification and systematics, evolution, a key to superfamilies occuring in Britain, and finally overview treatments of the Symphyta, Parasitica and Aculeata, including keys to families and individual family writeups. These overviews make up two thirds of the book. Included is an up-to-date terminal bibliography that is referenced throughout the text to document each chapter's presentation. Responsibilities of the various authors is not given unfortunately, but one can assume that Mick Day wrote the treatment of cover the fauna of the British Isles, but as the editors point out, it is generally applicable to western Europe and to a lesser extent the Holarctic Region. In spite of this regional approach, **The Hymenoptera** is a modern, up-to-date synthesis of the Order and it includes much that is of general usefulness to a hymenopterist working anywhere in the world. This is particularly true of the chapters on biology, collecting and preservation, morphology, and evolution, where the subject matter is quite basic. Many fine illustrations are scattered through the book, including 8 pages of high quality color photographs depicting immature stages in particular but also some adults.

Not being particularly well versed in biology I found the chapter treating this subject enlightening. The word parasitoid is defined and used instead of the less appropriate word parasite, and each time a different biological term is used and explained it is highlighted in capital letters to make it stand out (ENDOPARASITOID, SYNOVIGENIC, etc.).

The chapter on mounting is generally ok, but I personally find that gluing small wasps to the side of a pin is not too wonderful because viewing the dorsal and ventral parts of the thorax in particular can be difficult because of the pin. Also, personal whimsy seems to have crept into the discussion on point vs. rectangular card mounting. I see no rational explanation for stating that chalcidoids "should be mounted directly onto card rectangles", while it is ok to mount cynipoids and proctotrupoids on points. The entire discussion on mounting could have been improved with the addition of illustrations.

I was glad to see a section on how to label insects, particularly the examples showing what should be included. However, insect labels should always include the name of the country! The first example simply states "NORTHANTS." (Northamptonshire, a county in England). These days taxonomy is global and material may be borrowed from all over the world. "Northants." may be meaningless to someone outside of England.

The section on morphology is excellent and, as in the biology section, each term is highlighted in capital letters and explained. Synonymous terms are often mentioned in parenthesis. Morphology is an area where personal preference has generated considerable duplicity in terms. The authors are to be congratulated for

word "segment" to denote these subdivisions [see my diatribe on this subject in **Sphecos** 14:28 and **Chalcid Forum** 9:12-13 (see also this issue under FORUM)], and also continue to use those quaint chalcidological things called the funicle, clavus, and "anelli". The last is incorrectly spelled. The diminutive of the Latin word annulus (= segment) is annellus; hence annelli is the correct spelling. I was chagrined to see yet another term for the thorax, i.e., "alitrunk"! It is bad enough that we have the mesosoma/thorax wars; alitrunk has been used primarily for the thorax of ants up to now - it should have stayed put! There is also some inconsistancy in the use and spelling of terms, which leads to confusion (e.g., correct use of "terga" and "sterna" in the description of Pompilidae (p. 241), but use of "tergite" and "sternite" on their figs. 7 and 8; using "gaster" for the apparent abdomen but calling the first gastral segment, segment 2). The wing terminology employed is based on the Ross/Needham system, but the recent work of Wootton (1978, **Syst. Ent.** 4:81-93) has been incorporated. Wing terminology will be familiar to most aculeate hymenopterists, but lovers of "radial cell", "cubital cell" and so forth, will doubtless find fault. Our current duplicity of wing terminology is unfortunate. It would be nice if all hymenopterists adopted the wing system used in **The Hymenoptera**, but that is like hoping for world peace.

The classification presented in Chapter 6 is noteworthy from an aculeate point of view since the authors recognize only three superfamilies (Chrysidoidea, Vespoidea and Apoidea), and appear to be inconsistent in their recognition of families. Although they recognize only the family Apidae for the bees, they maintain in Vespoidea the families Masaridae, Eumenidae and Vespidae (among others), while noting that Carpenter has united them under Vespidae in his cladistic analysis! This is rather amazing in light of their declaration (p. 88) that "Where two classifications differ, and only one of them recognized demonstrably holophyletic [monophyletic] groups, we have accepted the cladistic classification". I was also amused to see that the authors recognize 21 families of Chalcidoidea, while admitting that the group is about the same size as the Ichneumonoidea in which they recognize two families. Isn't it about time that chalcid workers break away from tradition and begin reducing the number of families? shelf of any hymen. lover. The deficiencies noted are relatively minor and do not detract from its overall usefulness. I feel, however, that the authors lost an opportunity to present a system of family recognition that comes closer to making them equivalent units. In their defense, however, I must add that, a) modern analyses are needed in some superfamilies before realistic family units can be achieved, and b) true equivalency of families probably will never be achieved since such concepts vary from one person to the next!.

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ETCETERA

LIST OF TAXONOMISTS OF NEOTROPICAL INSECTS [**G. Wilson Fernandes** (53)].

I have been working with Neotropical insect herbivores since 1980. At the beginning of my studies I had to face several problems. One major problem was the taxonomy of the beasts I was interested in; e.g., the species were not described, or there was no one studying that particular group for the Neotropics. Another problem was finding out who was doing taxonomic work of Neotropical insects, so I would be able to mail the insects to them for identification. The same problems are faced by hundreds of students of Neotropical insects. Most often, collected insects are mounted, but kept in a drawer until mold and Psocoptera destroy them.

To help in understanding the insect fauna of the Neotropics, and to establish more contacts among the students interested in Neotropical insects, I am planning to put together a list of taxonomists who are currently working with Neotropical insects or are planning to do so in the near future. Thus, I would greatly appreciate it if you would take a minute to fill out the form included in this issue and return it to me at your earliest convenience.

As soon as I have developed the proposed list, I will send a copy to those who submitted the questionnaire. Thus, you will also broaden your knowledge of who is working on the taxonomy of Neotropical insects. I certainly appreciate your time and consideration regarding this matter. If you have any questions or advice, please do not hesitate to contact me.

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REVIEW

'AUSTRALASIAN CHALCIDOIDEA (HYMENOPTERA) A BIOSYSTEMATIC REVISION OF FOURTEEN FAMILIES, WITH A RECLASSIFICATION OF SPECIES.' By Z. BOUČEK. 832 pp., 1328 figs. C.A.B. International, Wallingford, 1988. Price £89.95 (UK), £99.95 ($200) (abroad).

Students of the Australasian Chalcidoid fauna are fortunate in now having such an impressive work produced by an authority of the calibre of Dr. Bouček. Few except specialists can appreciate the immense amount of research, not to mention sheer labour, which has gone into the production of this volume.

The revision covers all the families occurring in the region with the exception of Encyrtidae, Trichogrammatidae and Mymaridae. A short history of Australasian research on Chalcidoidea is given, inevitably devoting considerable attention to the work of A.A. Girault. Dr. Bouček's painstaking revision of a multitude of Girault's types has quite transformed the situation in the taxonomy of the group. Workers in this field know only too well the problems connected with Girault's work and in this context the present book supplies a long-felt need. Other sections cover technique, morphology, biology and origins of Chalcidoidea. The main part of the work comprises a new key to subfamilies of Chalcidoidea, a key to genera for each family, and for each genus, a diagnosis and a list of the species kown to occur in the Australasian region. The following numbers of genera are dealt with in the individual families: Chalcididae, 31; Leucospidae, 1; Eurytomidae, 21; Torymidae, 31; Ormyridae, 1; Agaonidae, 39; Pteromalidae, 235; Perilampidae, 8; Eucharitidae, 19; Eupelmidae, 19; Tanaostigmatidae, 2; Rotoitidae, 1; Tetracampidae, 6; Eulophidae, 134. Several extralimital genera are mentioned for comparative purposes. New taxa are represented by 15 subfamilies, 13 tribes, 138 genera and 190 species. Replacement names are proposed for 35 species; 316 generic names and 210 specific names are newly placed in synonymy. Over 2360 valid Australasian species are mentioned, 1050 of which are involved in new combinations. Lectotypes are designated for 155 species. Comments are made on a number of species. The work includes an index to plants and another to Arthropod hosts. The many figures, some executed in considerable detail, fulfil the high standard we have come to expect from this author.

Apart from the intrinsic value of the keys and diagnoses of genera, the reader will discover many nuggets of interesting and important information placed unobtrusively in paragraphs introducing genera, and elsewhere.

As a student mainly of European Chalcidoidea, the writer has already found much relevant and significant information in this volume, the usefulness of which will extend well outside the confines of the Australasian region. — M.W.R. de V. GRAHAM.

[Dr Bouček has asked us to publish the following errors and omissions noted since the publication of his important book. — K.G.V.S.]

AUSTRALASIAN CHALCIDOIDEA (HYMENOPTERA): ERRORS AND OMISSIONS

Z. BOUČEK

It is always regrettable when errors and omissions are found in a taxonomic work, especially omissions of some taxa, incorrect placings and incorrect spellings of scientific names. Although the book was published only recently (7 June 1988) some colleagues, especially Dr John Noyes and Miss Joan Harvey, have been thoroughly checking many items and kindly brought most of the following Errata to my attention.

P69 '*Dirhinomorpha*' in couplet 2 change to: *Dirrhinomorpha*
P100 *queenslandensis* var. *nigra* . . . [206]: '251–252' change to 51–52
P117 L13 '*A. albicornis*' change to: *A. albitarsis*

P118 L13 '(figs 11, 164, . . .' replace by: (figs 4, 164,
P253 '*eupelmoides* . . .' change to: *eupelmoideum* Girault – *Agamerion eupelmoideus* . . .
P263 L15 [*Systolomorphella*] after 'designation.' add: Syn. n.
L20 Bouček & al., '1978' change to: 1979
P282 [*Cameronella*] change '*Cremneulophus*' to *Cremnoeulophus* on L7 (2x), L10, L12 and L38, as well as in Index P802;
L12 'Cremneulophini' change to: Cremnoeulophini
P296 L15, L29, L30 (2x), L35 [*Alloderma*] '*maculatipennis*' change to: *maculipennis*; the same on P302 L28 and P813
P300 insert before [*Encyrtocephalus*] *fasciatus* a line with:
bellus (Girault) comb. n. – *Neorileyella bella* Girault, 1921[359]: 187. QLD: Waugh's Pocket [NW of Innisfail].
P316 insert after [*Coelocyba*] *turneri:*
varicincta Girault – *Coelocyba varicincta* Girault, 1926[399]: 66. QLD: Brisbane, Wynnum.
P338 L23 [*Neocalosoter*] '*viridipronotum*' change to: *viridinotum*; also P831;
L32 '*Prosciatheras*' change to: *Parasciatheras*
P419 [*Isoplatoides*] delete line with '*fulvipes* . . .'; it is correct on P433.
P422 delete 'Syn. n.' after quotation of *Roptroceroidea* (correctly synonymised by Kamijo, 1981)
P438 [*Trichomalopsis*] delete '*pulchra* . . . Kuranda.'; it is correct on P688.
P459 L2 from bottom should read . . . possessing a sharply bidentate symmetric clypeus,
P465 L24 change '*Palatrigonogastra*' to *Paratrigonogastra*
P474 L27 *Mesopirene* '*fasciativentris*' change to *fasiativentris*; the latter is the (unfortunately 'correct') original spelling in Girault, 1919[348]: 55.
P478 L5 change '*Protanaostigma*' to *Proplesiostigma*
P482 bottom line delete '*Alveoderus*' and replace by *Trigonoderoides* [*niger*]
P504 L2 from bottom [*A. kuscheli*] . . . Paratypes: 6 females and 4 males, same . . .
P553 [*Xenanastatus*] '(Figs 1117–1119)' change to: (Figs 1017–1019)
P561 *longicorpus* Girault – . . . delete brackets around author's name
P567 L15 'prepectus is swollen' change to: prepectus is *not* swollen
P623 after L30 . . . Birkenhead, insert: 1 male,
P624 L20 [*N. venosa*] complete: . . . Paratypes. NZ: 2 females, Auckland area, . . . trap); 1 male, Nelson area, . . .
P629 [*Makarora obesa*] 'Further paratype female' change to: Further 8 male paratypes,
P631 *metallicus* sp. n. change 'Terarua' to: Tararua
P632 bottom 'Recorded from PNG . . . 1933: 92' concerns *T. pupivorus*
P650 *spadicicornis* Girault; delete brackets around author's name.
P682 *imago* Girault . . .; delete brackets around author's name and delete 'comb.n.'
P683 in alphabetical order *misericordia* should follow *mirus*
P684 *saliensis* Girault; delete brackets and 'comb.n.'
P688 [*Sigmophora*] insert before *otys*: *mediosulcata* (Girault) comb. n. – *Ceratoneuronella mediosulcata* Girault, 1924[373]: 4. QLD: Brisbane, Wynnum; ex galls on leaves [of *Alphitonia ?excelsa*; Dahms, 1984d: 805].
P702 [*Pediobius bruchicida*] and P733 [*Entedonastichus dei*] NZ: 'Coromandel area' change to: Central Otago area [both areas as 'CO' on a consulted map]
P786 insert: *Alphitonia excelsa* 688
P796 *Aplastomorpha* 414 (not '415')
P798 *Ausystole* 103 (not '105')
P808 delete '*fulvipes (Isoplatoides)* 419'
P814 insert before *mediterraneus*: *mediosulcata (Sigmophora)* 688
P820 insert after Parasaphodinae: *Parasciatheras* 338
P822 delete '*Prosciatheras* 388'
P823 '*Pterosmella*' correct to: *Pterosemella*; and delete '*pulchra (Trichomalopsis)*'

C.A.B. International Institute of Entomology, c/o Department of Entomology, British Museum (Nat. Hist.), Cromwell Road, London SW7 5BD. *December 3rd*, 1988.