Metaleptea

The ORTHOPTERISTS' NEWSLETTER

Vol. 15, No. 1 | THE ORTHOPTERISTS' SOCIETY | July 1994

In this Issue . . .

A MESSAGE FROM THE EDITOR

Well, it finally happened to me! The nightmare everyone using a computer fears came true for me: my computer crashed while I was in the throes of final formatting of this issue of *Metaleptea* . . . and I didn't have a back up copy! I had gotten so immersed in formatting my document and making rearrangements on the twenty pages of the newsletter that I failed to take into account that it could ever be lost. But it was. I imported a document from another program, and then ZAP!#@. . . my cursor froze — completely failed to work. After trying everything to remedy the problem, I was left with no alternative but to close down the machine, losing all of my work. When I restarted the computer and tried to get into my document, its impersonal message was "damaged document", which meant "dead document" for me. My only back up was an old, very outdated version of this issue, meaning that essentially I had to start over from the beginning and reformat everything from memory. And so that's why this issue is late. Everyone has told me, "You should have been saving and backing up your document regularly." I've learned but all in hindsight.

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In addition to *Metaleptea*, I have been busy doing final editing of manuscripts for the *Proceedings* of the Hilo Meeting. By the middle of July everyone who submitted a paper should have received reviewers' comments returned from me. These manuscripts should be corrected and returned to me by early September, so that I can generate the final galley for the *Proceedings* by November and final publication by December.

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This issue of *Metaleptea* includes several interesting articles by Carlos Carbonell. They bring to mind some of the headaches and mysteries associated with the many names attached to grasshopper species that taxonomists face so frequently. Daniel Perez also submitted an article of interest on grasshoppers of Hispaniola. An Weissman has an update on Tinkham's types. I would appreciate any of the members to likewise submit articles of interest for future issues of *Metaleptea*. We already have two that will appear in the next issue in December.

§

Finally, in this issue is our membership directory, a complete listing including new members to date. If there are mistakes in your address, please send the amendments to me and I will publish the corrected addresses as a list in the next issue of *Metaleptea*.

§

I will be in Peru from August 6 to September 4. My office will be closed until then, but I will look forward to returning to finish the *Proceedings* and begin the next issue of *Metaleptea* throughout the month of September. Please continue to send me news!

David A. Nickle
Editor, Orthopterists' Society

COMMENTS

THE EXECUTIVE DIRECTOR'S COMMENTS

S. K. Gangwere

Mail ballots are in . . . . . .

This note finds me in the second month of my sabbatical leave from Wayne State University. Today, during one of my infrequent visits to campus, I am catching up on some delayed Orthopterists' Society business, at the same time as I welcome Editor Dave Nickle for a departmental seminar and continue preparations for a spring research trip to the Canary Islands, Spain.

§

The Society's Elections Committee, headed by Chairman Doug Spiller, examined the ballots from our recent special election. His committee's formal report is in preparation to be mailed to President Dave Rentz. However, Spiller is able to make the following advance report necessitated by time constraints imposed by the Society's Constitution and By-Laws: Reg Chapman was approved overwhelmingly for the Society 1994 Honorary Membership; the several proposed amendments to the Constitution and By-Laws were approved almost unanimously; and Ted Cohn was named President-Elect in a closely-contested election. Ted will take office in 1997 on the occasion of the Society's next international meeting. We send Reg and Ted our felicitations on the high honor accorded each of them.

Next Meeting Location . . . .

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Speaking of the 1997 meeting, the Site-Selection Committee headed by President Dave Rentz is currently investigating Cairns, Australia, as venue. Dave provides details elsewhere in this number of *Metaleptea*. I can report a gratifying response to the request for contributions both to the society's general program and to its Research Awards Program. We are grateful to all donors for whatever amount contributed, large or small, whether to our general operation or specifically to our awards program. The Society is officially recognized by the Internal Revenue Service of the United States Government as a tax-exempt organization. Hence, United States citizens may apply their Orthopterists' Society contributions toward a deduction in federal income tax, which we encourage. Upon request, I shall be pleased to send a letter to contributors. Non-citizens of the United States are unable to avail themselves of this financial advantage, for which reason we are all the more grateful for their support.

Awards Committee . . .

§

I've just finished talking by telephone to Ted Cohn, Chairman of the society's awards program for promising young orthopterists. You will remember that the awards program is funded by member contributions matched, dollar for dollar, by an anonymous source. Part of the principal is to be maintained in an interest-bearing bank account that will accrue research funds for future years, at the same time as part is expended to fund a few research awards per year. Anyone who wishes to contribute to this worthy cause should contact me. I have in stock lots and lots of Society stationery and color frontispieces suitable for framing and will gladly send them to donors.

§

Cohn tells me that, this year, his committee has recommended cash awards of a few hundred dollars each to five young research workers from countries ranging from Brazil, to Russia, to China, and to the United States. The Society is pleased to do what it can to facilitate the research of these deserving orthopterists, and we wish them well as they undertake their promising projects.

Editor Activity. . . . . .

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Our untiring editors have been hard at work since I was last in touch, and there is news to report from their activities. JOR Editor Dan Otte tells me that the *Journal of Orthoptera Research* Vol. 2, No. 1, is in press

COMMENTS

and will soon be available to the Directorate for mailing. *Proceedings* Editor Dave Nickle tells me that *JOR* Vol. 2, No. 2, the Hilo *Proceedings*, is also well along. Nickle expects No. 2 to go to press this fall, for late distribution in 1994.

§

The Directorate notes with sadness the demise of our distinguished friend and colleague Felice Capra (1896-1991), of Genoa, Italy. Dr. Capra, of Genoa's Museo Civico di Historia Naturale, was a truly outstanding scientist and prolific research worker on Coleoptera and Orthoptera. The Orthopterists' Society was so impressed with his contribution to the field that we awarded him one of our prestigious Honorary Memberships. We send our heartfelt respects to Dr. Capra's family and his associates at Genoa and to his friends throughout the Mediterranean world of entomology. He leaves a void that will not easily be filled.

.... In memoriam, F. Capra

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Our checking account and savings account balances are $6,739 and $6,384, respectively, as of 1 March, 1994, for a total of $13,123 (all U. S. dollar figures rounded). Attached, please find our final 1993 financial report prepared by Treasurer Roger Bland and cleared through the society Audit Committee.

.... Finances

S. K. Gangwere
Executive Director
3 March, 1994

MEMBERS' NEWS

W. Chapco: My laboratory is presently undertaking an analysis of rDNA sequences with the view to constructing a molecular phylogeny of the major families of Acridodea and subfamilies of Acrididae. We would be grateful to receive (preferably live) specimens of representatives not normally found in my part of North America — *e.g.*, of Tetrigidae, Eumastacidae, Pyrogomorphidae, Romaleidae, Cyrtacanthacridinae, Hyalopteryginae, Acridinae. If you can help, please contact: William Chapco, Department of Biology, University of Regina, Sask, Canada, S4S OA2. Phone: 306-585-4478. Fax: 306-585-4894. E-mail: CHAP@MAX.CCUREGINA.CA.

W. Chapco, continued: My graduate student (M.Sc.) Wanda Kuperus was awarded the first Keith Kevan Scholarship Award at the 43rd Annual Meeting of the Ent. Soc. of Canada (Sept. 27, 1993) Sault-Ste. Marie, ONTARIO. Wanda is studying molecular systematics in Orthopteroid insects.

R. Chapman: I am working on a phylogeny of the genus *Schistocerca*. If anyone is able to collect fresh material, preserved in ethanol, of any species of *Schistocerca* from Central or South America, or the Caribbean I should appreciate hearing from them. I am also interested in other genera of Cyrtacanthacridinae from anywhere in the world. If you might be able to help, please contact: Reg Chapman, Division of Neurobiology, University of Arizona, Tucson, AZ 85721, U.S.A.

Y. L. Chen: Present research: Studies on the mechanism of ecological adaptation between acridoids and plants and their influencing stress factors. Studies on the structure, function and succesion of acridoid communities in grassland ecosystems. Recent publications: "The Biology of the Migratory Locusts in China", 1991, pp. 1-591, Quo Fu, Chen Yong-lin, Lu Bao-lian, Shandong Science and Technology Press (in Chinese); "Ecology in Biology Going to the 21st Century - Prediction of Prospective Biology (1991-2020)", 1992, pp. 112-126, Hua Xia Publ. House (in Chinese). Awards: Studies of the Acridoids in Xingiang Uygur Autonomous Region, China won second prize of Natural Science of Chinese Academy of Sciences in 1992. Bring to sucess of the 19th International Congress of Entomology as the Member of Orgainzing Committee and Program Committee (former chair) in Beijing in 1992.

W. H. Clark:
CALIFORNIA ACADEMY OF SCIENCE
TYPE USED UNIT TRAYS FOR SALE

1/2 size (1 7/8" x 3 1/2" x 1 5/16" tall) are $0.35 each; 1/2 size "tall" (1 5/16" x 3 1/2" x 1 11/16" tall) are 0.25 each; or I would exchange for determined Orthoptera or other insect groups. Hundreds are available. The buyer is requested to pay Library Rate postage. Those interested are requested to contact:

William C. Clark
O. J. Smith Museum of Natural History
Albertson College of Idaho
Caldwell, Idaho 83605
USA.

T. J. Cohn: Research: S.A. Macropathinae, N.A. Ceuthophilinae; Research needs: Camel crickets from region around Lago Colhue-Huapi and Lago Argentino, Patagonia.

E. R. Eaton: Inquiries: Does the Othopterists' Society have a category of membership for amateur naturalists like himself? He is also writing an article about tree crickets, on speculation for *Harrowsmith Country Life* magazine, and would like to contact anyone in the society who is studying the insects. Lastly, he has a few specimens of *Neoconocephalus* in Cincinnati and needs some assistance in identifying them. Could any cone-headed katydid experts could help him in exchange for the specimen data or other useful info?

R. Ehrmann: Inquiries: He is working on a "Systematika Mantodea". He is seeking the bibliographies of the following authors: A. N. Caudell, M. Hebard, and J. A. G. Rehn.

A. Ewen: On March 31, 1994 and after 8 1/2 years on the job as an unpaid volunteer, A. Ewen will retire as Scientific Editor of *The Canadian Entomologist*.

R. Guerra: Family notes — Prof. Guerra has "two beautiful boys" named Francisco and Felipe. They are twelve and nine years old. "They are very lovely, because I can travel with no problems (my husband also.....)" notes Prof. Guerra.

E. Zamorano Ponce: I am studying the economic and food importance of bivalve molluscs. With Dr. Esponda, from Spain, I continue studies in cytological aspects of *Tettigonia* sperm, as membrane antigens and cytoskeleton elements. The last year we received a grant from Spain for the *V Century of America Discovery* and traveled for 3 months. More travel is in store for September 3 until the 30th of November. Dra. Nelly Lafuente was "exonerated" in 1982. It was a dramatic

continued on page 8

FROM THE PRESIDENT

PRESIDENT'S REPORT
DAVID C. F. RENTZ

This is a happy and sad occasion. I am happy to be able to address you in this first report but sad that I am doing it now and not four years hence when I should have been doing it. The reason for the change is that Reg Chapman, our president elect, has had to withdraw for health reasons and so I have moved up the scale to become your president. We wish Reg all the best in his efforts to regain his health. I will attempt to further the interests of our membership in as many ways as possible. The big news in this report concerns the Conference held in Hilo this past July. The venue was very appropriate, even though there were a few glitches at first. Once the air conditioning was restored, things seemed to be much more pleasant. The Organizing Committee did a very good job and we were all accommodated in a comfortable fashion. As I understand it, there were 66 delegates from around 15 countries. It was surprising that more North Americans were not in attendance, since Hawaii is so close and relatively inexpensive. It was good to see many new faces at the meetings and several countries represented for the first time.

§

The content of the talks was stimulating, as usual. There was something for all orthopterological interests on offer. I won't mention any highlights; you will hear more about the meetings elsewhere, and it won't be long before the *Proceedings* are available. The Conference Fieldtrips were real eye-openers, especially for me. Ashley Gurney and I described Cave Crickets from the lava tubes in the 1970's, and it was a thrill to see first hand where the species live and actually see them alive. Frank Howarth and Fred Stone have expended great amounts of time, effort and risk to body in studying and collecting the many creatures that live in the Hawaiian lava tubes. Their enthusiasm for these insects was quite evident as they guided us around the islands. It is a sad comment on the state of endemic Hawaiian insects that, in the week or 10 days I spent at Waikiki, I did not see a single orthopteroid, native or introduced.

§

The next meetings will probably be held in Australia in 1997. But we need some feedback as to the best time of year to hold them. Remember, Australian seasons are reversed from those in the northern tropics. A response to the question from many attending the meetings in Hilo was that August or September seemed to be the most suitable. If this is the decision, then we would meet in Cairns, Darwin, or Perth. What do you think?? Please let us know fairly soon.

§

This is an important time for orthopteroid insects. They are fairly high-profile insects in Australia and are being used as "indicator" or "flagship" species in several environmental surveys. One odd zaprochiline katydid, *Kawanaphila nartee*, has appeared twice in two years on the cover of *Nature*. Recently, a CD has appeared with the calling songs of more than 70 tettigoniids, including some of the holotypes themselves. This is probably the first CD used in such a manner. And there are more to come. And the latest in Monsters, *Cooloola* sp. nov., appeared in the July 19 edition of *Time*, the Australian edition.

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One way we can all help the Orthopterists' Society is to try and promote our society to others of similar interests. Please send a copy of *Metaleptea* or an application form to someone you might feel should join. And help Dave Nickle out by sending information he can use for *Metaleptea*.

1993 FINANCIAL STATEMENT
ORTHOPTERISTS' SOCIETY
(In Dollars, US Currency)

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Checking account balance, January 1. . . .10,158.39

Receipts
- Dues 2287.0
- Publication receipts. 4,277.46
- Gifts and contributions 788.00
- Interest on account (checking) 159.02
- Miscellaneous. 90.00
- 6th Meeting. 0.00
- Other (specify). 0.00
- Total receipts. 7,601.48

Disbursements
- Stationery and clerical supplies. 1,165.37
- stamps, mailings and telephone. 143.83
- Publication and printing 7,096.48
- Bank transfers to savings account. 0.00
- Miscellaneous 56.94
- 6th Meeting 4,980.00
- Other (specify). 0.00
- Total disbursements. 13,442.62

Receipts less disbursements. . . . . [5,841.14]

Jan. 1 balance (=surplus). 10,159.39

Checking account balance Dec. 31. . . . . 4,318.25

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Savings account balance Jan. 1. . . . . 4,129.08

Deposits
- Cash transfer. 0.00
- Interest on account (savings) 98.48
- New deposits 1,556.48
- Total deposits. 1,654.48

Withdrawals
- Total withdrawals. 0.00

Deposits less withdrawals (=surplus). . . . 1,654.48

Jan. 1 balance plus surplus. 5,783.56

Savings account balance Dec. 31. . . . . 5,783.56

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Society financial status
(=checking +savings totals). 10,101.81

FEATURE

The Strange Case of *Pegasidion volitans*

Carlos S. Carbonell

Casilla de Correo 490
11000 Montevideo, URUGUAY

From the beginning of my studies in neotropical acridiology, I have been intrigued by Henry de Saussure's *Pegasidion volitans*. It was at first just a name that sounded unusual to my ears, but in later years it has in some way materialized in a vague and imprecise image, which has not been confirmed by my finding of the insect itself.

From 1961 to 1970, I visited the Museum of Geneva several times for the study of Saussure's neotropical acridid types, but I never found that of *Pegasidion volitans*. The last time I was there, after examining carefully all that was marked as a type, I made a search in the general collection and in the boxes of unidentified materials. By then I had already found several "lost" types in several museums. Neotropical acridid types in European museums had original descriptions, and the vicissitudes of two wars, when collections had been moved away from the museums into safer places and back again to them, had been the cause of some confusion. Some types had become separated from their labels, and it took someone familiar with the neotropical fauna to recognize them. And occasionally an author had at first decided upon a certain name for a new species, and then changed his mind about it when writing its description, but forgot to change the label on the specimen, with the result that it was not recognizable as a type, and the name on its label was actually a *nomen museorum* without any validity. But a student of the neotropical fauna would always be able to suspect at first, and eventually recognize the species of which that particular specimen was the type. So I was conscious of the possible problems, and on the lookout for anything that could be that type. But this time my search was fruitless. A considerable hindrance for me was that the Mexican fauna (even its neotropical part) was not well known to me, and I might have missed the specimen for that reason.

By then, I had began to think of this matter as a private affair between Saussure and myself, since I had not heard *Pegasidion volitans* mentioned by anybody else. But I was once working in Ann Arbor, Michigan, and next to me was Irving Cantrall occupied in some task, when suddenly he interrupted his work as if he had remembered something that had been bothering him, and said: "Carlos, do you know of a grasshopper called *Pegasidion volitans*? Have you ever found out what this insect is?"

So I wasn't the only one who worried about the beast. There are at least two of us who have been intrigued by Saussure's species. According to this author, the insect belongs in what he (in 1861) calls "Oedipodiformes", a group which does not quite coincide with what we now call Oedipodinae, since he mentions, in his description of the genus, the presence of a prosternal tubercle. In his *Prodromus oedipodorum* of 1884, even if he still considers as "Oedipodae", besides the present Oedipodinae, all of the Tristiridae and a few Romaleidae and Pamphagidae, etc., he does not include his genus *Pegasidion*. It is not mentioned either in the 1888 *Additamenta* to the former opus. So Saussure seems to have, in his mature years, forsaken his early child. Here is a translation of his Latin description of the genus and species (*).

"Genus *Pegasidion*. Body elegant, elongate, compressed. Head slightly declivent. antennae wide, ensiform; eyes prominent, elongated, ovoid; vertex barely produced between the eyes, foveolate, slightly declivent, truncate. Frontal carinae elevated, truncated anteriorly; prosternal tubercle cylindrical, acute; hindlegs gracile, very long; internal spines of hindtibiae longer than outer ones; tegmina very long and narrow."

"*Pegasidion volitans*. Head narrow, its vertex short; frons slightly slanting, subrugose, marked with four prominent carinae; median carinae subparallel; frontal costa not excavated above the median ocellus, coarsely punctate; pronotum compressed, coarsely punctate throughout, almost rugose, slightly carinate; anterior angle of the lateral lobes acute, arcuate; main (posterior) sulcus placed slightly before mid-pronotum; tegmina amply surpassing hindfemora, with rounded apices. (Color light reddish yellow?). Length to tip of tegmina 37 mm. Easternmost Mexico."

What easternmost Mexico (Mexico orientalior) might mean, I do not know. It may mean Veracruz, Tabasco, Campeche, Yucatan, Chiapas or Quintana Roo, and this increases the possibility of this insect belonging to a eotropical group. Which species it is Saussure's description may decide. Its being a rather large specimen (37 mm) and having a prosternal tubercle, an almost rugose integument, internal spines of the hind tibiae longer than outer ones, are all vague indications of possible romaleid affinities. Even its color is doubtful; the question mark after "color fulvo albescens?" is Saussure's, not mine. The specimen must have been badly discolored.

And this is all I know about *Pegasidion volitans*, which, I must admit, is next to nothing. Unless some unforeseeable circumstance throws this insect my way, I believe that the solving of this mystery will not be possible for me in the time of useful activity that may now be still in store for me. So I am giving it as a present to younger colleagues, especially those working in Mexico. To one of them may befall the opportunity of solving this riddle.

(*) H. de Saussure, 1861. Orthoptera Nova Americana (Diagnoses praeliminares). *Revue et Magasin de Zoologie Pure et Appliquee*, Paris, 2e. Serie, 13:319.

Montevideo, August 1992.

NOCTURNAL TRAVELS OF A PHOSPHORESCENT GRASSHOPPER

Carlos S. Carbonell

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In 1908, Lawrence Bruner described the genus *Aptoceras* and its type-species *Aptoceras margaritatus*. The type material for these taxa were two males from Bartica, Demerara, British Guiana (Bruner, L. 1908. *Biologia Centrali Americana*, vol. 2, p. 286). One may wonder how an insect from British Guiana found its way into the *Biologia Centrali Americana*, but, after the descriptions, its author explains everything. At the bottom ot page 286, and continued as a footnote on page 287, Bruner, in his inimitable style, says:

"While it is only a surmise on the part of the present writer, it may prove to be a fact that this insect is nocturnal in its habits and that the pearly granules or follicules, which adorn the metapleura and hind femora are phosphorescent. Should this be true, it would certainly be interesting in the extreme. The insect, on this account, may prove to be much more widely distributed and should reach the Isthmus of Panama."

In 1970 I had the opportunity of studying Bruner's types in the collections of the University of Nebraska at Lincoln. I was very curious about the strange "phosphorescent" grasshopper, and it did not disappoint me. It was indeed a strange-looking insect, evidently related to Vilerna as Bruner says, dull-colored except for its bright-red hindtibiae. Its thoracic metapleurae and hindfemora are beset with light-colored and shiny tubercles which, however, failed to impress me as luminescent organs. They suggested pearls to Bruner ("pearly granules or papillae"), hence the name *margaritatus*.

Six years later than this, my first encounter with Bruner's *Aptoceras*,

Marius Descamps and I spent three months in the region of Madre de Dios, an unspoiled area of the Peruvian Amazon. There we found another species of the same genus, closely related to Bruner's *margaritatus*. Bruner's assumption of a much larger distribution was thus confirmed, at least for the genus. But the insects, which also had some pearly tubercles, were not luminescent at all. Other species found and described later indicate for the genus an amazonian distribution. It doesn't seem to to reach Central America at all, as it did in Bruner's imagination.

I am not criticizing Lawrence Bruner. There is nothing more unfair than to base criticism of a scientist on knowledge and criteria which did not exist in his lifetime. Any student of zoology today knows more zoology than Linnaeus, but had he lived in Linnaeus' times, he would be unknown to us. I cannot look down on Bruner while I stand on a pile of papers published by him, which are the basis of my own knowledge. Lawrence Bruner did much good work in acridiology. Very many of our South American species were described by him. For us southern South Americans his work is particularly important. His stay in Buenos Aires and in the Argentinian province of Santa Fe, and his work with the grasshoppers of Argentina resulted in the description of a large number of species and a much better understanding of the orthopteran fauna of Argentina and Uruguay. In 1964, more than half a century after his visit, Alejo Mesa, Miguel Monne and I spent some time in Carcarana (province of Santa Fe, Argentina) in order to collect topotypes of the many species he had found there and described in 1900), most of which also live in Uruguay. We found that region cultivated to the road edges; in most places not a trace of its original insect fauna was to be found. However, in a very small area on the Carcarana river where nothing had been planted for years and only a few horses were kept, we got specimens of almost every one of his species.

Bruner was often careless in his work. He used to describe his species more than once, without taking a look at the types of his formerly described ones, apparently assuming that if the specimens came from another part of the continent, they could not belong to the same species he had described before. He hid new species in keys and in footnotes. And he had a wonderful imagination, as illustrated by the present example. I never met him of course; he visited this part of South America seventeen years before I was born. But by the reading of his works, even if I would not follow some of his practices as a taxonomist, I have developed a sincere liking for the man and his florid imagination, which frequently takes the dullness away from the too often arid literature we have to deal with in our daily work. Wherever he is now, I heartily wish for him an orthopterist's paradise, where every specimen belongs to a new species and phosphorescent ones are not at all uncommon.

Montevideo, May 1993.

NICHELIUS FUSCOPICTUS, WANTED DEAD OR ALIVE

Carlos S. Carbonell

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11000 Montevideo, URUGUAY

The story begins sometime before 1888 in the Island of Cuba. There, an entomologist by the name of Juan Gundlach collected a small series of a rather large and strange grasshopper, light-yellow in color, but profusely mottled with black. According to his own words (1891:343) "it is a very rare species, I found it in April in the savanna of the Cienaga de Zapata, and in August on the coast of the Bay of Guantanamo". Cienaga de Zapata is not far from Habana, while Guantanamo is near the eastern end of the Island; this can be taken as an indication that the species was then widespread throughout the island, or at least that it was not restricted to a single and particular place.

Juan Gundlach sent two of his specimens to Don Ignacio Bolivar Urrutia, in the Madrid Museum. Don Ignacio described the species, erecting a new genus for it, as *Nichelius fuscopictus* (Bolivar, 1888:144-5). He was not too sure about the relationships of such a strange grasshopper, but found that "most of its characters seem to relate it to Acridium" — meaning those species which are now placed in *Schistocerca*, as he clearly indicates with examples when referring to the species). Some features, however, such as the shape of the pronotum, reminded him of *Lophacris*. So his new genus seemed to be a mixture of what we now call the Romaleidae and the Cyrtacanthacridinae subfamily of Acrididae.

continued on page 8

THE ORTHOPTERISTS' SOCIETY
FIELD GUIDE SERIES

The *Field Guides* are pocket-sized publications intended for use in the field by workers concerned with pest species of locusts or grasshoppers, in English, French or Spanish, or combination of these, as appropriate for the intended region.

The series originally was arranged in four parts: Introduction; General Topics; Specific Pests; and Pest Species of a Region. It was set up as an open-ended series in each of the latter three categories so that other *Field Guides* could be added in any of them should this become desirable.

Field Guides are not intended to be sold; they are for free distribution by FAO, CIRAD/PRIFAS, or other organization in a region where they will be useful.

All manuscripts are subject to peer review (after general editing) and may be returned to authors for revision; all pages from the printing firm will be sent to authors for checking before final printing. [I was unable to have authors make final checks before printing in 1991, due to unexpected deadline imposed on funding so that all *Guides* had to be printed and printing firms paid by that date. Some errors exist in 4 of the printed *Field Guides*].

Only one paper was written in the B series, that by Dr. S.K. Gangwere and published as B4E. It might have been better to dispense with the B series. I deliberately shelved the Introductory (A) series, although these were ready for printing in all three languages. It seemed pointless to pay for printing the introductory *Guides* unless funds were available for publication of the entire series. Also, I decided not to print the *Field Guide* on North American pest species because other parts of the world have problems that are more serious than in that region. I have shelved the four *Field Guides* that I have written at a cost of considerable personal time and effort. I may eventually have the North American guide printed at personal cost but the introductory ones are permanently shelved.

If the project has to be discontinued, Dr. Gangwere has undertaken to publish the manuscripts at hand in a single volume, provided that I supply him with the completely edited manuscripts.

Should another source of funding be found, I am prepared to continue working on the *Field Guides* on behalf of the Society. I thought there would be no difficulty in obtaining funding once the quality of the original 12 *Field Guides* was seen, but so much for day dreams. This has not happened, except in the case of the *Guide* on pests of Australia for which the cost was underwritten by The Biological and Chemical Research Institute, Entomology Branch, New South Wales Agriculture. This guide was published and has been sent to Australia.

The following lists show the intended topics and the results to date. E=English; F=French; S=Spanish.

A. Introductions to the Field Guide Series [E, F, and S--ready for printing--on hold, pending funds for remainder of Guides]

These include diagrams of the structure of the insects, discussion and a glossary of the terms used [all written by V.R. Vickery].

A 1 E Introduction to the Orthopterists' Society *Field Guide* Series.

A 1 F La Serie des guides de la societe des orthopteristes.

A 1 S Introducción a las guias de campo de la Orthopterists' Society.

Continued on page 12

FEATURE

Nichelius, continued from page 7

Up to there, the story seems banal enough. A hundred years ago, the neotropical species were not easy to place because their classification was practically non-existent, and most orthopterists in Europe and the U.S. (South American orthopterists were non-existent also) tried to classify them using criteria taken from the Old World or the nearctic faunas, usually without much success. So, for the moment, there is nothing unusual about it. But we are in 1888, with more than a century before us for new developments and complications.

And the first of these complications is this: from the times of Juan Gundlach to the present, this species has not been found again. I have corresponded with Cuban entomologists, and went to Cuba in 1989 and talked with them, and even spent a few hours in the Cienaga de Zapata (I wish I could have stayed a month, but that was not possible for me). But nobody ever found the species again after Gundlach's original collecting of the type-series. There is one female in the collection of the Academy of Sciences of Cuba in Habana, and one male and one female (Bolivar's types) in the Museum of Madrid, all of them collected by Gundlach, and that is all there is. Mentions of the species in the literature after the Bolivar and Gundlach papers refer always to the type series, or repeat what has been said before. The Cuban entomologist Fernando de Zayas (1976) is the only author who adds something new to the *Nichelius* story, in the form of a good drawing of a female of the species. But from his text it is clear that he never found it; the drawing was certainly made from that female collected by Gundlach which is in the collection of the Cuban Academy of Sciences.

Two females and one male, one may think, is quite enough to place the species in our modern system of classification. When I first went to Madrid to study Bolivar's neotropical acridid types there, I anticipated no trouble in getting an idea of the affinities of the genus Nichelius. But I found an unexpected complication. The three known specimens are in a reasonably good state of preservation, but the smaller of the two Madrid specimens, which is a male according to Bolivar, lacks the tip of the abdomen, apparently eaten by dermestids. No epiproct, no cerci and, which is most important, no genitalia. Had this genus a clear affinity to some other, this would not be so important, but in this special case, it becomes tragic. The Madrid collection is in excellent condition. All of the Bolivar types are there, well preserved in spite of the vicissitudes of the Spanish civil war of 1936-39, when Madrid was under artillery fire and was bombed from the air. But just this specimen has been damaged by dermestids. As an entomological corollary to Murphy's law, I have invariably observed that dermestids always eat the most important specimen. The rarest unique specimen. The holotype of a small type-serles. The genitalia of the only male known, in this particular case.

And this, together with the insects not being like anything I had seen before, kept me from getting any idea of thelr affinities. But recently the types were borrowed from Madrid by Christiane Amedegnato who, with more time and better knowledge at her disposal, reached some conclusions as to their affinities. She says (pers. comm. to CSC) that the proportions of their thoracic sternal sclerites point to the Cyrtacanthacridinae, and that several details of the female genitalia also point that way. So, Don Ignacio was right when saying that "most characters" related his new species to *Schistocerca*.

To the best of the existing knowledge then, *Nichelius* belongs in the Cyrtacanthacridinae, and it may seem that our problems have thus come to an end. But that certainly isn't so. As everybody knows, the Cyrtacanthacridinae are an Old World group. The two American genera previously assigned to it were *Schistocerca*, widespread in the Americas, and Halmenus from Galapagos, which is clearly an insular derivate of the former. How *Schistocerca* had reached America was a moot question for a long time, but *Schistocerca gregaria* herself recently gave an answer by coming to America across the Atlantic Ocean with the help of a hurricane, and doing it now when the ocean is much wider than in the past. And by doing so, it passed the problem over to *Nichelius*. Which are the ancestors of *Nichelius*? Certainly not *Schistocerca*. When and how did they reach America? Which of the Old World cyrtacanthacridine genera is closest to it? Might it be the only descendant of pre-cyrtacanthacridine stock left in the American part when the rift separated it from Africa? It will take somebody much wiser than me to solve these riddles. Perhaps Christiane is already on the track of the answers.

Also, what happened to *Nichelius* in Cuba? It has not been found for more than a hundred years. Cuba is densely populated and has been so for many years, and its original environment has been much modified in most places. But it is hard to believe that the species is extinct. A bird which was thought to be extinct for a long time was found recently there, and a bird is much more visible than an insect. This is a problem that only our Cuban colleagues can solve by devoting to it enough time and field work.

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Zayas, F. E. 1976. Entomofauna cubana, tomo 3, subclase Polyneoptera. Editorial Cientifico-Tecnica, Instituto Cubano del Libro, La Habana, 130 pp.

Montevideo, June 1993.

MEMBERS' NEWS, *continued from page 3*

situation. The Faculty of Sciences was suddenly broken and the headmasters and other academics were put out. He was sent to the Medicine School with nothing to do in grasshopper research. Nelly is now in Santiago where she continues her work with Acrididae emphasizing toxicological and genetic lines. Her address is: Universidad de Chile, Facultad de Ciencias Quimicas y Farmaceuticas, Laboratorio de Toxicologia, Olivos N 1007, Santiago, CHILE.

L. Herrerra: Relevant professional activities: Vice-Rector of the University of Navarra. Awards: Humboldt Research Award of the Alexander von Humboldt Foundation (Federal Republic of Germany). Recent publications: "Distribution of Tettigoniidae in Cantabria (Spain) (Orthoptera, Tettidoniidae)", 1992, Bol. R. Soc. Esp. Hist. Nat. (Sec. Biol.), Vol. 88, (1-4): 39-48.

L. Kang: Present research: Studies on ecology of grasshopper community and biodiversity of Orthoptera. Recent publications: "The Grassland Insects of Inner Mongolia", 1-467 pp., Ma Yao, Li Hongchang and Kang Le, Tianze Press (in Chinese with Engliah summary); "Comparative studies on the number, biomass and energy value of r populations in typical steepe", Kang Le and Chen Yonglin, 1991, Res. Grass. Ecosys. Vol. 4, 141-149; "Temporal and spatial heterogeneity of grassland grasshoppers", Kang Le and Chen Yonglin, 1992, Res. Grass. Ecosys., Vol. 4, 109-123. "The analysis of numerical taxonomy to the interrelationships among different geographic populations of *Locusta migratoria* (L.) phase *solataria*. Kang Le and Chen Yonglin, 1991, Sinozoologica 8:71-82. "Gradient analysis of grasshopper communities on the flood-land of Xilin River Basin, Inner Mongolia", Kang Le, Zhang Aigou et al. 1991, Trans. Chin. Ecol. Soc. Youth, 1: 152-162. "Studies on the micorscopic features of leaf epidermises of grasshopper food plants with a key to these plant species", Kang Le and Chen Yonglin, 1992, Research on Grassland Ecosystem, 4: 125-239.Y. A. Kashkari: Meetings attended during 1993: Desert Locust Emergency Meeting for the Red Sea Area, Cairo, Jan. 14, 1993. Meeting of Donor Countries to Access the

continued on page 10

The little known grasshopper fauna of Hispaniola

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The Caribbean region contains a heterogeneous group of oceanic islands traditionally divided into Greater and Lesser Antilles. They are situated in the New World Sub-tropical zone, which makes their natural communities neotropical in character. Special evolutionary forces triggered by isolation and diversity of habitats have endowed these islands with a wealthy entomofauna. Although not comparable to the megadiversity of Central and South America, the Caribbean insects are most interesting for their high degree of endemicity. This is specially so in the larger islands: Cuba, Hispaniola, Jamaica and Puerto Rico. Despite this fact, many insect groups in these islands are still largely unknown. The whole order Orthoptera appears to be one of such cases. Of the greater islands, partial listings of Orthopteran species exist only for Cuba and Puerto Rico, and these were done as part of general insect surveys. In the cases of Jamaica and Hispaniola, the description of some of their species appears scattered and most of the time unavailable.

Table 1. Species of Acridomorph grasshoppers reported for Hispaniola. References cited are not necessarily where the species was first described. Endemic species in Hispaniola are indicated by +.

SPECIES	REFERENCE
ACRIDIDAE	
Gomphocerinae	
Orphulella decisa (Walker) +	Rehn and Hebard (1938)
Orphulella nesicos Otte	Otte (1979)
Orphulella punctata (DeGeer)	Otte (1979)
Orphulella (Parachloebata) scudderi (Bolívar)	Rehn and Hebard (1938)
Rhammatocerus cyanipes (Fabricius)	Otte (1981)
Oedipodinae	
Sphingonotus haitensis (Saussure)	Rehn and Hebard (1938)
Cyrtacanthacridinae	
Schistocerca pallens (Thunberg)	Harvey (1981)
Schistocerca serialis (Thunberg)	Harvey (1981)
Schistocerca quisqueya Rehn and Hebard	Rehn and Hebard (1938)
Opshomala caribea Rehn and Hebard	Rehn and Hebard (1938)
EUMASTACIDAE	
Espagnola darlingtoni Rehn and Rehn+	Rehn and Rehn (1939)
Antillacris explicatrix Rehn and Rehn+	Rehn and Rehn (1939)
TETRIGIDAE	
Paratettix frey-gesneri Bolívar	Rehn and Grant (1957)

In conducting my B.S. Thesis studies with Acridoid grasshoppers in the Dominican Republic (Hispaniola) a few years ago (Perez 1988), I realized how little is known about the grasshopper species in the island. An indicator of that is the fact that only 12 species of Acridoid grasshoppers have been recorded for Hispaniola (Table 1). This is a very low record compared to the number of species that actually exists. Moreover, there is very little information on the species that are exclusive to the island.

Due to the current situation, I have begun an initiative to inventory and catalog all the grasshopper species in Hispaniola. To the present about 35 distinct forms have been collected from a sampling of less than 30% of the Dominican Republic area. Preliminary observations tell me that most of the species are small, wingless or brachypterous and may have restricted habitat ranges. At the genus level, the group partly resembles what De Zayas (1974) reports for Cuba, but species endemism is possibly high. Ultimately, the cataloguing and assessment of the distribution patterns of the Acridoidea in the whole Caribbean should provide valuable faunistic and zoogeographic information. It should also get us closer to a complete taxonomic comprehension of the order.

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Rehn, J. A. G. and M. Hebard. 1938. New genera and species of West Indian Acrididae, with notes on previously known species (Orthoptera). Trans. Amer. Entomol. Soc. 64: 201-206.

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Grasshopper Integrated Pest Management (GHIPM) Project

The final annual meeting for the U. S. Department of Agriculture's GHIPM Project was held in Boise, Idaho, on February 28-March 3, 1994. With the 8-year project closing in September, emphasis was placed on technology transfer and the completion of the GHIPM *User Handbook*. The loose-leaf *Handbook* is a compilation of research findings falling within the following seven subject matter areas: Biological Control, Chemical Control, Management, Decision Support Tools, And Future Directions. Target audiences for the *Handbook* include Federal and State land managers, extension service personnel, State Departments of Agriculture, land grant universities, and farmers/ranchers. USDA's Animal and Plant Health Inspection Service (APHIS), which oversees the GHIPM Project, expects the *Handbook* to be published next winter and plans to update it as new technology becomes available.

BOOK REVIEW

BOOK REVIEWS

Biological Control of Grasshoppers and Locusts
C. J. Lomer and C. Prior [eds.]
CAB International. 394 pp.

[reviewed by Jeffrey A. Lockwood]

Biological Control of Grasshoppers and Locusts, (C. J. Lomer and C. Prior [eds.]), CAB International. 394 pp., is the proceedings of a workshop held in Benin, Africa. All things considered, the editing of the book is one of the most impressive features. Textual errors are rare, the graphics are generally clear, and the translations are remarkably well done. There are only a few distracting oversights (*e.g.*, a mixed bag of monetary units and the consistent use of masculine nouns and pronouns where nonsexist alternatives could have been easily used). Although the title of the book overstates the contents (it should be, *"The Biological Control of African Grasshoppers and Locusts with North American Pathogens"*), it is the uncredited and uncaptioned photograph of a fungal-infected grasshopper on the cover that ironically captures the nature of the contents — fuzzy and open to interpretation. The book is divided into six sections, of which only the first was not refereed (and it shows, with claims that locusts eat their body weight in food each day and assertions of acridid populations being in equilibrium).

The first section is a survey of the perspectives of various governments and agencies. As expected, much of this section consists of administrative platitudes (we should all work together), expressions of good intentions (biocontrol will be the primary tool of the future), statements of the obvious (money and knowledge are limiting factors), programmatic outlines (what would be done if there really was enough money and expertise), and picayune particulars (the number of boots and goggles in Senegal), but amidst this array of vagaries and details lie some interesting insights and tidbits, including some almost-explicit allusions to the ultimate obstacle to locust management — continuing military and political conflicts. There are also some valuable references to those impossible-to-find government agency reports and some terribly relevant (but largely undeveloped) programmatic facts (*e.g.*, the last locust outbreak cost about one-quarter billion dollars and used 13 million liters of insecticides to protect 4% of the region's crops).

The second and third sections address existing biocontrol agents and the discovery and characterization of new agents. The range of topics is laudable, from molecular biology to ecology. Perhaps the clearest message is the lack of information on native biocontrol agents in Africa. Indeed, there appears to be only one instance, over a decade ago, of a quantitative population study of a tropical, African grasshopper (later claims of pathogens as "key factors" in population regulation notwithstanding). As such, the focus is neoclassical biocontrol, with the introduction of exotic agents from North America to Africa — a sort of biological neocolonialism. There is considerable confusion regarding the existence and form of environmental safety and quarantine procedures, although there appear to have been few problems with moving organisms between continents so far.

The fourth section provides an impressive array of topics related to production, application, and formulation. In the context of previous sections, a definition of a goal for African biocontrol emerges: success depends on finding a safe, host specific, fast acting, highly virulent pathogen that can be produced in a simple, inexpensive process, and applied with existing technology at the right time and place. This would seem to be an honest portrayal of a massive, but perhaps not insurmountable, challenge. Unfortunately, the implications of this synthetic definition are not clearly or explicitly confronted anywhere in the text.

The fifth section is the real meat of the book, as it promises to reveal the biology, ecology, and environmental impacts of acridid biocontrol agents. There are four field studies of biocontrol agents, which reveal that: *Nosema locustae* and *Beauveria bassiana* failed to control grasshoppers in Cape Verde and Niger, *B. bassiana* failed to control grasshoppers in Mali, and *N. locustae* apparently failed in Canada (although this study at least included some inspired views regarding field experimentation). In a notable example of Nimitzian science ("Damn the torpedoes, full speed ahead"), the panel discussion includes the forecast of a biocontrol product in the hands of farmers by 1998. This expectation is based on the remarkable claim that biocontrol of locusts developed, "from unproven theory to proven kill" in 18 months.

The promise of new information of environmental impacts turned out to be a single, albeit intriguing, study of the safety of *B. bassiana* to tenebrionids. It is remarkable that with all the information on the importance of indirect effects of pathogens (*e.g.*, reductions in egg production, feeding, etc.), only the research on nontarget organisms seems to have taken these effects into account. The balance of the discus-

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MEMBERS' NEWS, *continued from page 8*

Desert Locust Situation, FAO Headquarters, Rome, March 1, 1993. FAO International Workshop on Research & Training for Desert Locust Control, Marakech, Morocco, May 24-28, 1993. Technical Group Meeting of the Desert Locust Control Committee, FAO Headquarters, Rome, September 13-17, 1993. Seminar on Desert Locust Control with Existing Techniques: An Evaluation of Strategies, Wageningen Agric. Univ., Holland, Dec. 6-11, 1993.

S. Masaki: Professor Masaki retired in March, 1993. He was granted the title of emeritus and was professor from Hirosaki University. He will continue cricket studies, especially diapause selection in the subtropical ground cricket in his home laboratory.

P. Matyat: I have been collecting material in various parts of the Seychelles archipelago so as to be able to draw up an annotated checklist of Seychelles orthopteroids. In the process I have discovered several apparently new/undescribed species, as well as species known from elsewhere but hitherto not recorded from these islands. My next step will be to study the biology and ecology of some of the endemic species.

B. Nagy: Present topics in work in cooperation with B. Kis/Cluj-Romania: Catantopinae of the Carpathian Basin; Phaneropterinae of the Carpathian Basin/Kees, descriptions and dispersion. Publications: "Locust outbreaks on Hungary in 1933", 1993, B. Nagy, Novenyvedelem/Budapest 29: 403-411 (in Hungarian, with English abstract). "Role of Activity Pattern in Colonization by Orthoptera", 1991, B. Nagy, Proceed. ECE/SIEEC/Godollo 351-363.

M. Richards: I am working on two New Zealand genera of weta (Orthoptera: Stenopelmatidae: *Denacrida* and *Hemicleina*). For a phylogenetic study using allozyme electrophoresis I am very keen to obtain Australian or South American species of Stenopelmatidae to use as an out-group. Would anyone be able to provide frozen tissue or frozen specimens of this family?

A. Saeed: Research needs: Mr. Saeed is presently working on "Tetrigidae of Pakistan". He requires recent literature (1970 and on-

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BOOK REVIEWS

LOCKWOOD REVIEW, *continued from page 10*

sion of environmental safety largely reflected a lack of serious attention to the issues. The effort to summarily dismiss the potential for harm is reflected in odd definitions (*e.g.*, insects are not wildlife), conservation myopia (*e.g.*, there is no explicit consideration of non-target acridid species), conceptual oxymorons (*e.g.*, "test releases" of pathogens, as if the organisms could be recovered after release), and conflicting claims (*e.g.*, fungi have the mutually exclusive advantages of being nonpersistent [via biodegradation] and exerting prolonged control [via establishment]). Despite the tendency towards vague assurances based on little or no data, some methodological problems were noted (*e.g.*, the need for species-level assessments in the absence of sufficient taxonomic expertise and the necessity for continuous long-term monitoring which is almost universally omitted from biocontrol programs). Finally there was apparent interest in the concept of indicator species, an idea that has been extensively tested in aquatic systems and thoroughly discredited as a viable approach to environmental monitoring.

The final section of the book is a summary of a closing discussion of the issues in which voices of caution and objectivity were silent or omitted from the text. It seems there's no sense letting the data get in the way of a good idea. A single, vague allusion to "tensions during the workshop", unfortunately provided no explanation of what the contentious issues might have been. While the actual data provided no basis for optimistic forecasts, there was even less encouraging news with respect to experience from other systems. Although the placement of the reports from other systems was distracting, their message was clear: effective biocontrol relies on thorough understanding of host and agent biology and ecology which is only achieved with patience, hard work, and good science. According to some historians a great deal of technology does not depend upon science, and it may be possible to load up the ecological shotgun and win an intercontinental game of biocontrol roulette, and this may be the strategy of choice under the economic and political constraints of the day. Indeed, when discussions of training cited the lack of entomopathologists in Africa, the problem was quickly solved: "Dr. Lomer wanted to put on the record that insect pathology is not difficult and that any entomologist at the end of two months of microscope training should know enough pathology to do field experiments" With this sort of approach to biocontrol, it is easy to understand how one can forecast an available product in the hands of farmers within the next few years. New mothers are often unable to recall the trauma of childbirth (which may account, in part, for why women are willing to repeat the experience), and there appears to be a similar phenomenon in acridid biocontrol; the painful lessons of *Nosema locustae* in North America appear to have been quickly expunged from collective memory, and we are again pregnant with anticipation of the newest, impending, birth of a "final" solution to the problem of African grasshoppers and locusts.

Camouflage and Mimicry in Insects
Photographs and text by Kazuo Unno
Heibonsha Ltd. Publishers
5 Sanbancho, Chiyoda-ku
Tokyo 102, Japan. 88 pp.

[reviewed by Paul D. Brock]

Photographs and text by KAZUO UNNO. 7 1/2" (19 cm) x 11 1/2" (26.3 cm). 88 pages. 1993. Heibonsha Ltd. Publishers, 5 Sanbancho, Chiyoda-ku, Tokyo 102, Japan. ISBN 4-582-52932-1. Price: Japanese Yen 2,900.

Kazuo Unno's photography is more stunning than ever in this beautifully designed book, showing the world of camouflage and mimicry of insects. The reproductions often depict action shots of insects in the wild with stunning colours and variety. The colour reproductions are outstanding, always very sharp and detailed. The Japanese text (with English summary) is minimal.

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MEMBERS' NEWS, *continued from page 10*

ward) on Tetrigidae so that he may complete his thesis.

K. Vahed: I have recently completed my PhD. thesis on "the evolution and function of the spermatophylax in bush crickets" and am now lecturing in animal behavior at the University of Derby, Kedlesan Rd., Derby DE22 IGB, U.K. I plan to continue research on the mating behavior of crickets and bush crickets.

M. Vasanth: Involved for about two decades in research on the Grylloidea of the Indian subcontinent. Several papers published on the taxonomy of Indian Gryllidae. One monograph is in press. Currently working for Mass. Audubon Society (on contract) on the first phase of a project on New England orthopteroids. Presently on the look-out for a full time position. I am a permanent resident of the U. S.

N. Veshima: Major interest: Cytogenetics and speciation of Orthoptera. Recent publications: "Karyotypes and meiosis of the Australian Tettigoniidae (Orthoptera). II. The genus *Nanodectes* Rentz". "Karyotypes and meiosis of Phasmodinae, Zaprochilinae and Austrosaginae. (In Tettigoniidae of Australia, Vol. 2, Rentz, D.C.F.).

J.-T. Yang: Dr. Yang earned his doctorial degree in the end of June, 1993 with the dissertation titled as "Biosystematics of the Gryllinae from Taiwan. Address: Lab of Insect Taxonomy, Department of Entomology, National Chung Hsing Univ., Taichung, 402, Taiwan, Republic of China.

S. A. Woods: I have recently moved from Bozeman, MT to a new position at the U. of Maine.

Hawaii Tribune, Aug. 6, 1993, p. 5:

"Orthopterists meeting in Hilo: Grasshoppers, earwigs, crickets, cockroaches and related insects are subject of an international gathering of the Orthopterists' Society this week in Hilo. Scientists from the far reaches of the world are discussing the songs of the crickets, habits of the katydids and the effects of neem tree extract on grasshoppers. The Orthopterists' Society is meeting through today at the University of Hawaii at Hilo in the Campus Center. Francis Howarth presented the keynote speech at the opening of the conference, and yesterday William Mull shared his photographs of the delightful insect fauna of Hawaii's rain forests, including camivorous caterpillars. Howarth and Mull are coauthors of "Hawaiian Insects and their Kin" published by the University of Hawaii press. Orthopteran insects are of great economic importance as crop pest and household nuisances. Scientists at this meeting are presenting their research findings on ways of controlling pest species. Other researchers study orthopterans with aesthetic values such as crickets kept as houshold pets or used for cricket fights in China and Japan. Hawaii's native crickets living in rain forests, caves and lava flows give insights into evolutionary processes and adaptations to island habitats. Hawaii's uniquely adapted insects are the focus of several field trips organized by Hawaii Community College biologist Fred Stone. The group is traveling to the edge of the new lava flow, the dense rain forest, the desert mosaic of Ka'u. and the frozen summit of Mauna Kea, to gain an understanding of the evolutionary processes taking place."

BOOK REVIEW

BROCK REVIEW, *continued from page 11*

Many insect orders are included in three sections:

1. Camouflage. This section includes a remarkable full-page example of camouflage in the West Malaysian leaf-insect *Phyllium giganteum*, followed by nine extreme colour variations in the same species, reproduced on one page.

The Orthoptera are well represented, with many bush-crickets and mantids included.

2. Warning colouration and mimicry. A series of often very colourful examples are used.

3. Frightening display. The saturniid genus *Automeris* are well represented, with a series of 12 "eye-spot" pictures and many other insects are included. Being biased towards Stick-insects, there are some superb reproductions of the defensive displays in the brightly coloured winged species *Tagesoidea nigrofasciata* from West Malaysia and *Prisopus flabelliformis* from Brazil.

I was asked to identify the Phasmida photographs prior to publication and it is a pleasure to be associated in a small way with this book. Some orders are, however, only identifid to family or genus level — scientific names are given, where known, along with the country of origin.

The author's pleasure in seeking insects from West Malaysia, of which he has a vast knowledge, is evident in the photographs, although many countries are represented. Those members who own a copy of 'The Orchid Mantis and Insects of Malaysia' (Nippon Television Network Corporation, Japan, 1989) will need no introduction to the superb standard of photography and I highly recommend this new volume to anyone interested in insect photography or the subject matter covered. The Orthoptera enthusiast will particularly appreciate this book, with a beautiful cover design (and dust jacket) of two different colour forms of *Phyllium giganteum* on the front, and a *Mantis* on the back.

Kazuo Unno's other photographic books are little-known to many entomologists, although my own book collection includes fine volumes on beetles and South American Insects. This latest book will enhance the author's reputation as one of the premier nature photographers in Japan.

FIELD GUIDES, *continued from page 7*

B. General Topics. (Each in E, F, S). [MSS for only one of these received, see B4E below]

B 1. Population Monitoring and Dynamics
B 2 . Periodism and Life Cycles
B 3. Biological Control: Infectious Diseases
B 4 E. "Feeding Habits and Feeding Behavior of Locusts and Grasshoppers" by S.K. Gangwere, published, 1991; 56 pp.
B 5. Chemical Control
B 6. Biometeorology and Migration

C. Single Specific Pests.

C 1. The Desert Locust, *Schistocerca gregaria*, George Popov. (E and F) [MSS for both at hand — F version ready for printing].
C 2 E. "The Migratory Locust in Africa and in Madagascar" by M. Lecoq, published, 1991; 28 pp.
C 2 F. "Le criquet migrateur en Afrique et a Madagascar" par M. Lecoq, published, 1991; 31 pp.
C 3 E. "The Migratory Locust, *Locusta migratoria*, and its Asiatic Subspecies" by Yong-Lin Chen, published, 1991; 34 pp.
C 4. The Moroccan Locust, *Dociostaurus maroccanus*. (E and F)
C 5 E. "The Red Locust, *Nomadacris septemfasciata*, in Africa" by J. A. Whellan, published, 1991; 13 pp.
C 5 F. "Le criqet nomade, *Nomadacris septemfasciata* (Audinet-Serville) en Afrique" par J.A. Whellan, published, 1991; 13 pp.
C 6. The Brown Locust, *Locustana pardalina* (E and F)
C 7 E. "The Senegalese Locust, *Oedaleus senegalensis* (Krauss, 1877), in West Africa" by M. Launois and M.H. Launois-Luong, published, 1991; 20 pp.
C 7 F. "Le criquet senegalais, *Oedaleus senegalensis* (Krauss, 1877) en Afrique de l'ouest" par M. Launois et M.H. Launois-Luong, published, 1991; 22 pp.
C 8 E. "The Variegated Grasshopper, *Zonocerus variegatus* (Linne, 1758)" by J. Chiffaud and J. Mestre, published, 1991; 15 pp.
C 8 F. "Le criquet puant *Zonocerus variegatus* (Linne, 1758)" par J. Chiffaud et J. Mestre, published, 1991; 16 pp.
C 9. The American Locust, *Schistocerca americana*, in the United States and Mexico (E and S), J.R. Hilliard. [MS at hand].
C 10. The Central American Locust, *Schistocerca piceifrons piceifrons* (S)., L. Barrientos-Lozano. [MS at hand].
C 11. The Peruvian Locust, *Schistocerca piceifrons peruviana* (E), O. Beingolea-G. [MS at hand].
C 12. The South American Locust, *Schistocerca cancellata* (S)
C 13. *Schistocerca pallens* (S) — on hold, may be omitted.
C 14. *Rhammatocerus pictus* in South America (S)
C 15 S. "*Pterophylla beltrani* (Bolivar y Bolivar, 1942) (Tettigoniidae: Pseudophyllinae)" por L. Barrientos-Lozano y J. Den Hollander, published, 1991; 11 pp.

D. Regional *Field Guides*, covering the serious pests of a region.

These are intended to cover all of the most serious pest species in the region. They will also include the species listed in C, but the sections on these species will contain much less detail.

D 1. South America (S).
D 2. Mexico and Central America (S). L. Barrientos-L. [MS at hand].
D 3. Europe, Mediterranean and Middle East (E and F).
D 4. Subsaharan Africa (E and F) on hold, region already covered in other publications.
D 5. Western Asia (E).
D 6. China (E). Y.-L. Chen. [MS at hand--ready for printing].
D 7 E. Russian Republics "Locusts and Grasshoppers, Pests of U.S.S.R." by S. Storozhenko, published, 1991. 89 pp.
D 8. Southeastern Asia and Pacific (E).
D 9. Australia, G. Baker, published 1993, 66 pp., funding from NSW Agriculture, Australia].
D 10. North America, North of Mexico. V. R. Vickery. (E) [MS at hand--ready for printing], S if considered necessary.
D 11. The Caribbean Region. R. Manuel. (E) [MS at hand] [possuibly also F].

Field Guides published (13); manuscripts at hand (12); ready for printing (6), edited (4), not edited (2); manuscripts promised (10).

V. R. Vickery, Editor, *Field Guide* Project

MEETING NOTICE

International Plant Protection Congress (IPPC) Symposium

Grasshopper and Locust Management: A World Perspective is the title of a symposium being organized for the next IPPC, July 2-7, 1995, at The Hague in The Netherlands. The theme for the once every four year Congress is *Sustainable Crop Protection for the Benefit of All*. Questions/ideas for the organization of the grasshopper/locust symposium can be addressed to Gary Cunningham, International Convener, 3380 Americana Terrace, Suite #340, Boise, Idaho, 83706, tel. (208) 334-9644, FAX (208) 384-3290. A general call for papers (oral or poster) for the Congress will be issued this summer in the IPPC's provisional program.

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REPORT OF THE RESEARCH COMMITTEE

The Research Committee is pleased to re-port the first grants made from the Research Fund. Five projects were funded in amounts ranging from $400 to $700. Successful applicants were from Brazil, China, Russia and the United States; three were graduate students and two were young professionals. Projects included behavior, evolutionary history, ecological interactions, phase phenetics, and taxonomy and biogeography. Rejections resulted largely from lack of in-formation provided by applicants, or from funding requirements beyond the resources available.

§

The Committee was surprised that only four graduate students applied for aid (of whom three were funded), perhaps because of the short time for application. We therefore wish to announce that the next round of funding will probably take place in October of this year.

§

Funds contributed by members have been matched by the anonymous donor, and these have all been invested in a stock growth fund under the supervision of our Treasurer. In the next Metaleptea we will announce further incentives offered by members for contributions to the Research Fund.

Ted Cohn
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NOTICE

Lyman Entomological Museum and Research Laboratory Note 17
Publications by the late Dr. D.K.McE. Kevan

The list of publications by Keith Kevan has been compiled by V.R. Vickery to the end of 1992. The list, together with a brief profile of Kevan, has been published by the Lyman Entomological Museum, 68 pages. As the museum is in financial difficulty, there is a small charge ($5.00) per copy. In addition Canadian postal rates have been increased recently so that the following postage charge has to be added:

within Canada--$1.50; U.S.A.--$2.35; foreign--$5.00

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BOOKS AND NOTICES

THE ORTHOPTERISTS' SOCIETY

The Orthopterists' Society (formerly *Pan American Acridological Society*) is an international scientific organization devoted to facilitating communication among those interested in Orthoptera and their allies. Research and publication are fostered in all aspects of the biology of these insects from ecology and taxonomy to physiology, endocrinology, cytogenetics, and control measures.

The Society was founded in 1978 by some 50 orthopterists meeting at San Martin de los Andes, Argentina. Its constitution and by-laws were adopted in 1979, and it was accorded tax-exempt status by the United States government shortly thereafter. The meetings held since San Martin have been at Bozeman (United States), Maracay (Venezuela), Saskatoon (Canada), and Valsain, Segovia (Spain). The last meeting was held on August 2-6, 1993, at Hilo, Hawaii (USA).

Symposia, round table discussions, and research papers presented at the Society meetings are published in the *Proceedings of the Orthopterists' Society*, and a newsletter, *Metaleptea*, is issued semi-annually. Information regarding these publications can be obtained from the editor, Dr. D. A. Nickle, USDA, c/o National Museum of Natural History, NHB-168, Smithsonian Institution, Washington, D.C. 20560, USA.

The 1990-1994 Governing Board comprises President Daniel Otte (United States), President-elect R. F. Chapman (United Kingdom), Past President V. R. Vickery (Canada), Treasurer Roger Bland (United States), Regional Representatives Aiola Richards (Australia), Al B. Ewen (Canada), and B. Baccetti (Italy), Executive Director S. K. Gangwere (United States), Editor, D. A. Nickle (United States), and Editor of the new *Journal of Orthoptera Research*, N. D. Jago (United Kingdom).

Society business and finances are handled by the Executive Director, Prof. S. K. Gangwere, Department of Biological Sciences, Wayne State University, Detroit, MI 48202, USA.

All correspondance relating to *Metaleptea* or the *Proceedings of the Orthopterists' Society* should be addressed to the Editor, Dr. David A. Nickle, USDA, Systematic Entomology Laboratory, c/o U.S. National Museum of Natural History, Smithsonian Institution NHB-168, Washington, D.C. 20560 USA.

Correspondance and information regarding the new journal series, *Journal of Orthoptera Research*, should be addressed to Dr. D. Otte, Managing Editor, Academy of Natural Sciences, 19th & the Parkway, Philadelphia, PA 19103 USA.

MEETINGS: Meetings of the Orthopterists' Society are held on a triennial basis, in the United States, Latin America, Canada, or other location, worldwide, in rotation. Symposia, research papers, and business conducted at the Meetings are published in the *Proceedings of the Orthopterists' Society*.

MEMBERSHIP: Membership is open to anyone expressing an interest in Orthoptera and related orders. Annual dues for members are US $15 for Active Members, US $7 for students and US $25 for institutions. Members receive *Metaleptea*, and, upon payment of an additional charge, other Society publications.

PUBLICATIONS: The Society's publications include a newsletter, *Metaleptea*, which is published as news becomes available, but on at least a biannual basis, the *Proceedings of the Orthopterists' Society*, which is published triennially in conjunction with the Meetings, *Occasional Papers*, an irregularly published journal for medium- to large-sized papers dealing with research on any aspect of Orthopteroid orders, and a new journal series, the *Journal of Orthoptera Research*, a refereed journal devoted to research articles of a small to medium size. For information regarding any of these publications, contact the Editor, Dr. David A. Nickle, Systematic Entomology Laboratory, c/o U.S. National Museum of Natural History, Smithsonian Institution NHB-168, Washington, D.C. 20560 USA.

NOTICE

Members needing copies of past PAN AMERICAN ACRIDOLOGICAL SOCIETY or ORTHOPTERISTS' SOCIETY publications are reminded that a small number of virtually all volumes and numbers is on hand at the Directorate. Prices (in US currency) are as follows: *Metaleptea* @ $1.50 per number or $3.00 per volume of 2 (two) numbers, *Proceedings* @ $10.00 per volume, and *Occasional Papers* No. 1 @ $4.40. Please advise of the volumes and numbers desired and send remittance to: S.K. Gangwere, Executive Director, Orthopterists' Society, c/o Department of Biological Sciences, Wayne State University, Detroit, MI 48202, USA. Orders may also be filled by invoice; simply ask to be billed.