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SOCIEDAD PANAMERICANA
DE ACRIDIOLOGIA

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The Pan American Acridological Society, or PAAS, is an international scientific organization with members in 24 different countries. Its purposes are to facilitate communication among those interested in, and concerned with, New World Acridology; to encourage collaborative research and control programs in Acridology among the countries of the New World; and to disseminate information and to promote, conduct, and foster other activities designed to increase knowledge and understanding of Acridology and its implications.

Some 30 interested persons met at San Martin de los Andes, Neuquen, Argentina, in 1976, and planned a society, PAAS, that took its formal inception in 1978 upon the adoption of a Constitution and By-Laws. Since then, PAAS has been engaged in a full range of programs and activities toward the satisfaction of its above-mentioned objectives and was recently accorded tax-exempt status by the United States Government.

Approximately 100 persons representing 10 different countries met at Montana State University, Bozeman, Montana, USA, in 1979, on the occasion of the 2nd Meeting of PAAS. The 3rd Meeting is scheduled for Maracay, Venezuela, in the first week of July, 1981. Subsequent meetings are to be scheduled on a triennial basis and will alternate between North and South America.

The present Governing Board includes President R. A. Zondaros, of La Plata, Argentina, President-Elect J. E. Henry, of Bozeman, Montana, USA, North American Representative C. R. Mulkern, of Fargo, North Dakota, USA, Central American Representative C. Marquez Maynadon, of Mexico City, Mexico, South American Representative Amilton Ferreira, of Rio Claro, Brazil, Executive Secretary & Past President S. K. Gangware, of Detroit, Michigan, USA, Editor-In-Chief Michael Tyrkus, of Detroit, Michigan, USA, and Co-Editors I. J. Cantrall, of Ann Arbor, Michigan, USA, and C. S. Carbonell, of Montevideo, Uruguay.

The present publications of PAAS include a semiannual newsletter entitled Metaleptea and a triennial Proceedings. A research publication is planned for the near future.

PAAS membership is open to all persons, professional or amateur, with an interest in New World Acridology by virtue of their research, teaching, or other activities. Inquiries may be addressed to Prof. S. K. Gangware at the PAAS Secretariat, Department of Biological Sciences, Wayne State University, Detroit, Michigan 48202, USA.

GRIGS, GRACES, GRAPHICS AND GRAFFITI: AN ESSAY ON ELEMENTS OF ETHNOENTOMOLOGY

By
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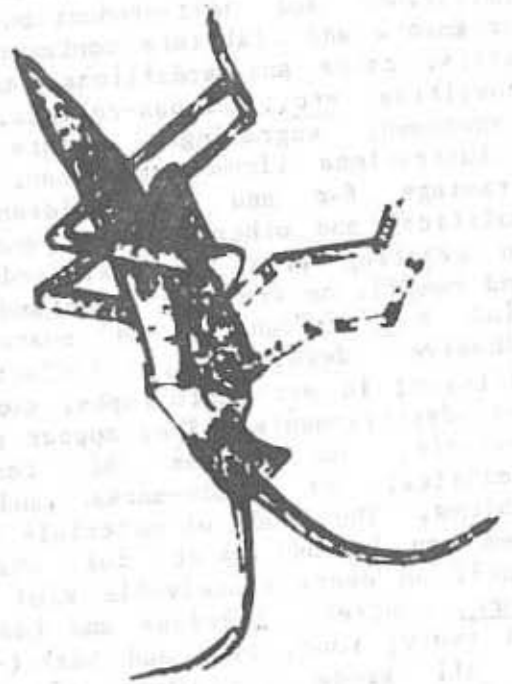
Since long before the dawn of history, Man has observed his fellow creatures in other lights than as sources of food, and long before he learned to communicate in writing, he told us so in pictures and other works of art. What is more, he did not confine his attention only to larger forms of life - the more familiar bison, mammoths, deer, etc. - but he left records of smaller creatures, including insects, and amongst them were "grigs" - which we may use to mean, not only saltatorial orthopteroids, but, by stretching a point, related orders of insects also. Indeed, one of the earliest known illustrations of an insect, and certainly the earliest yet known that is clearly identifiable, is of a grig. It is a representation of a cave-dwelling species of Troglophilus (Rhaphidophoridae) scratched on a piece of bison bone found in the cave of the Three Brothers at Montesquieu-Avantes, Ariege, in the south of France, and executed during the Middle Magdalenian (Upper Palaeolithic) Culture of some 20,000 years ago (give or take a millennium or two!) (Begouen et Begouen, 1928; Kuhn, 1956; Kevan, 1974b, 1978; Schimitsched, 1977). The significance of this work of art to the modern biologist goes far beyond its interest as a mere curiosity, for the genus depicted no longer occurs in the caves of the region where the drawing was found, but is now restricted (in

Europe) to the caves of the eastern Mediterranean region (Chopard, 1928). Just what role this insect played in the culture of the early Cro-Magnon people is unknown. Perhaps they ate them and the drawing had some symbolic or magical significance, such as is ascribed to the pictures of large mammals which were hunted, but this seems rather improbable. It is quite likely that, with the highly developed aesthetic sense of these people, the artist may simply have been "doodling", using as a model a creature that shared his abode with him. (The bone had a number of other things scratched on it also).

Be that as it may, the prehistorically primitive Bushmen of more contemporary southern Africa, have, from time immemorial, revered the praying mantis as the chief manifestation on earth of their supreme deity, Kagen, and have depicted this insect in ancient rock paintings. But they also portrayed grasshoppers or locusts, perhaps, in this case, in a magical context, for locusts were an important article of diet, when they were available. Examples from the literature of these Bushman paintings are given by Schimitschek (1977). From another "modern stone-age" culture, we can also cite an excellent example (now in the South Australian Museum, Adelaide) of a grasshopper engraved (about 1900 A.D.) on a piece of meerschaum by an Aboriginal artist called Ingarumpa (alias Tom Kile) of the Ananda tribe of central Australia (see figure). So far as is known there is no particular magical significance to this work. Prehistoric Amerindians in Nevada, United States, also used grasshoppers in their art (Jones et al., 1967), as I have noted elsewhere (Kevan, in press).



Down through the ages, and in almost every culture to a greater or lesser degree, grasshoppers, locusts, crickets and other grigs appear, if not with great frequency, yet in endless succession, in graphic and plastic arts of both great and small dimensions, and with different purposes and significance. These vary from the quasi-religious to the ridiculous, from objects of exquisite workmanship to crude imitations and mass-productions: as statues,, ornaments and elaborate containers; as jewelery, seals, coins and medallions; as mascots, toys, novelties, etc.; on bas-reliefs, painted murals, canvasses, engravings, prints and published illustrations (from magnificent book plates to drawings for and by children, comic-strips, political and other cartoons and visual jokes); on greeting-cards and post-cards (both serious and comic), on wrapping paper and virtually every kind of stationery; on postage stamps and adhesive decorations, including scrap-book pictures; in art photographs, commercial designs and advertisements. They appear also as heraldic insignia, on badges of institutions and societies, as trade-marks and as personal emblems. The kinds of materials used to portray them are legion: paint, ink, chalk, crayon and pencil on every conceivable kind of surface; in stone, concrete, precious and base metals; bone and ivory; wood, cane and basket-work; ceramics of all kinds (including tiles, inlays and mosaics) and even tarazzo floors; glass (natural, stained, painted), leather, and man-made plastics; and fibres and textiles of almost every descrition, including costumes. Even this list is not ocmplete. There is scarcely a graphic or plastic art-form, including the cinematograph, both naturalistic and in animated cartoons - and I am not referring to natural history or biological material - which has not been

exploited to portray grigs. I believe one would be very hard put to suggest an art form which could not be illustrated with at least one example - though I admit I have still to see a grig made entirely of shells, cork or coal!

All cultures have not embraced the grig in art with equal ardour, and, as in literature, there are cultures which rarely or never refer to them. Such are usually associated with regions where few grigs occur. The Inuit (or so-called Eskimo), who have among their number very fine artists, would not be expected to portray grasshoppers or crickets very frequently in their work, though the distribution of the two does overlap in places. Perhaps some enterprising Inuit sculptor will one day produce a soapstone or caribou-antler Melanoplus frigidus! Icelanders and Scandinavians, similarly, have little or no tradition of grigs in art (though in their lands there are more for the latter - though not the former - than for the Inuit to observe). It is more surprising that India, with a very large orthopteroid fauna and a wonderful and ancient art tradition, has almost completely ignored grigs and most other insects. (Even the literary heritage has rather little to offer.). China and Japan, on the other hand, have produced some of the finest of graphic and ceramic examples from ancient times until the present day. What finer, livelier and more varied representation of grigs is to be found anywhere than in the 13th Century picture, known as "Early Autumn," by Chien HsUan (see Kevan, 1974a).

Europe, except for the north, has a very diverse orthopteroid fauna, yet, until the Renaissance, grigs in art were virtually the perogative of the Mediteranaean region, except for the occasional portrayal of locusts, and then usually allegorical or legendary (including biblical), rather than actual. (There was,

however, one peculiar form of symbolism that I shall note later). Africa north of the Sahara, and particularly Egypt, almost until the advent of Islam (which tends to frown upon the representation of living creatures), and even thereafter, has a long tradition of using grigs (especially locusts) in its art, but south of the Sahara, with some notable local exceptions (such as the Bushmen, already mentioned, and in the Ashanti-Volta region), seems to have afforded them little favour. In the warmer parts of the New World, grigs feature quite largely, as I have already indicated elsewhere (Kevan, in press).

That people who live in climates in which grigs are more abundant tend to portray these in their art more than do those who live in places with less abundant orthopteroid faunas, is (as in the case of India) not a very hard-and-fast distinction, for the locations of cultures shift with Man's migrations from one place to another, and he may leave behind him the basis of a tradition whilst still carrying with him the tradition itself. (There is no end to examples of this in North America to-day). One may, nevertheless, make two dangerously broad generalizations. Grigs will be represented in art more frequently (1) where they are (or were) of "economic" significance, either positive or negative, or (2) where there is developed a high degree of civilization, combined with an aesthetic sense that particularly appreciates the sounds produced by grigs and/or the delicacy of structure of small creatures. On the one hand, for example, the primitive Bushmen of southern Africa (who may be dependent upon them for food) and the sophisticated ancient Egyptians and early Central Americans (whose crops were threatened by locusts) had an "economic" interest in these insects, which led to a certain degree of "magical" ritual, thence to the production of

protective amulets and talismans, and thus to a traditional acceptance of grigs as a normal motif in design. On the other hand, we have the aesthetic appreciation of the early Chinese, passed on to the Koreans and Japanese, whose representations of grigs are most commonly of stridulating species (understandable, as often as not, distinctly male rather than female). Although parts of China were indeed subject to devastating locust plagues throughout the centuries, Chinese art was, for some basic philosophical reason, not greatly influenced by this.

The ancient Hellenic peoples seem to have been influenced both "economically" and "aesthetically," though most of their true grig representations were of Acrididae and probably derived from an ancient Middle-Eastern and Egyptian crop-protection tradition. Both Herakles (Hercules) and Apollon (Apollo) were, among other things, anti-pest deities, and statues to them were erected in many places specifically for the purpose of crop protection, particularly against locusts (both had soubriquets derived from different words for locust). This was taken much further by Peisistratos (Pisistratus), a tyrant of Athens, who in the middle 6th Century B.C., caused to be erected an enormous locust made of metal (variously reported as bronze, brass, gold or iron, though the first is the most likely) "before" (or atop?) the temple of Apollo on the Acropolis in Athens. Its purpose was to lessen the effects of the powers of evil, thus extending the significance of locust images from the particular to the more general. This famous locust statue has long since disappeared, but from about the same period, the British Museum, London, has a brass grasshopper or locust about 10 cm long, found on the island of Rhodos. It

presumably had a similar purpose, and Schimitschek (1977) notes that another (size not stated) was found quite recently in the ruins of Didymaion, the place of the sacred oracle of Apollo Philesios near Miletos in Crete. Much later, Virgil (Publius Vergilium Maro), the Roman poet of the 1st Century B.C. reportedly nailed a large iron locust to a tree near Naples in order to ward off attacks by these insects.

One should not, however, confuse reports of ancient representations of locusts and grasshoppers with those of the Tettix, or cicada, which, amongst other things, symbolized music, and which was also sacred to Apollo in an altogether different way. Mistranslations have often led to such confusion, almost in perpetuity. Whilst the ancient Greeks revered cicadas for various reasons which we cannot discuss here, but which included their "music," they also much appreciated the songs of crickets (and certain other grigs), as do most Mediterranean (and many other) peoples to-day. Nevertheless, in their art, grigs that cannot be interpreted as injurious grasshoppers or locusts (even if they were not supposed to portray these) have survived rather rarely, though they are often mentioned in poetry (Kevan, 1978).

The general lack of grigs in early (and later) Indian art might be explained in several ways, but one may assume that the sounds produced and the small size of insects had no great appeal to Indian aesthetic senses, and that, although severe damage was often caused to crops by Acrididae of various kinds (sometimes including locusts), the Indian way of meeting such disaster was, like that of the early Chinese (and the majority of Europeans), more fatalistic, not involving the use of images, talismans, and amulets. They did, however, in early times (at least among the Sanskrit-speaking invaders),

have, as did the European Christians at a later date, incantations aimed at warding off locust attacks.

Various kinds of insects have their different symbolic significance in various cultures. Thus butterflies usually stand for beauty (and, in China, for love); bees are symbolic of industry and, in ancient Egypt, stood for royalty. In Egypt, too, scarab beetles, as is well known, symbolized Kheper, one of the manifestations of the Sun God, Re; flies in many regions meant pestilence, and the god of the flies in the ancient Middle East was Baal, or Beelzebub, and hence Satan; and cicadas symbolized, not only music, but also purity and (in China) resurrection. The symbolism attached to grigs, however, has been much more versatile, differing from one kind of grig to another and from culture to culture.

Locusts have long been symbols of destruction and annihilation (both actual and figurative), but non-swarming Acrididae have been regarded as being synonymous with insignificance. In the former context, we have it on the authority of Book IV of the great Sanskrit epic, the Hahabarata, that the mythical sacred bow, Gandiva, belonging to the hero Arjuna, was adorned with images of powerful animals, including elephants and Salabhah, or locusts. In Book III of the same epic, the hero attempted to overcome the embodiment of evil by means of various powerful weapons with which he had been provided; these included Varuna (torrential rain), Salabhah (locusts) and other natural disasters (Kevan, 1978). From even earlier times, dating from about 2000 B.C., we actually still have preserved, on an ancient Sumerian weapon (a golden dagger), a symbol that at the same time stood for anihilation and the word "no" or "nothing" (Unger, 1940; Schimitschek, 1977;

Kevan, 1978). From approximately the same period in ancient Crete, Evans (1921: fig. 537) illustrates a sword-scabbard from the Minoan-Egyptian tomb of Ah-Hotep, the ornamentation of which incorporates a number of locusts. The mighty warrior kings of Assyria, in the 7th Century B.C., Sennacherib and Assutbanipal, also extolled the power of their hosts, likening them to locusts, and there are Hebrew biblical references of similar nature (Kevan, 1978).

In early Christian mythology, devils and tormentors were represented as being locust-like, the prime example being in the Apocalypsos, or Revelation, in which we find the "locust" King, Abadon, or Apolyon, the Destroyer, the Angel of the Bottomless Pit, who treated evil-doers to ghastly torments. A curious volte-face occurred however, in Christian symbolism. In the old Hebrew scriptures (and in the Islamic Qu'ran), the destructiveness of locusts, with special reference to the Eighth Plague of Egypt, is stressed. It is perhaps a little naively implied that locusts helped to convert the Egyptian pharaoh to better ways. Somehow locusts became associated with conversion and thus pictures of the Christ-Child may incorporate a locust or grasshopper, signifying conversion to Christianity (there may also be some transference of the "power" symbol and of the "anti-evil-eye" concept of Peisistratos, above). Furthermore, locusts have no king (or so it says in the Book of Proverbs, although the Apocalypsos states that Abadon was king of his locust host!), so that Christ is King and leads those who have no king or leader! As an example of the insertion of the insect into a Christian religious work of art, one can see a grasshopper or locust (though, as its hind wings are partly open, it looks more like a butterfly, except for its hind legs) in

the bottom right-hand corner of Albrecht Durer's famous work, "The Holy Family," executed in 1495 A.D. A similar motif is also found in contemporary secular works, as, for example (and definitely a grasshopper), in the bottom right-hand corner of Piero de Cosimo's painting, "Vulcan and Aeolus," of about 1490 A.D. (in the National Art Gallery, Ottawa). It is sometimes stated, also, that the locust is a Christian symbol of the Resurrection, but, if it has been accepted as such, this is a confusion with cicada symbolism that seems to have passed from ancient China to the Mediterranean region, or with some ancient Egyptian association which is now very obscure (see quotation from the Sixth Dynasty tomb at the end of this paper).

Returning again to the destructive aspect of locust symbolism, we should refer to the attitude adopted from Mediaeval times onwards by both Christians and Muslims. This was that locusts were a sign of the Wrath of God and that they were sent to punish Man for his transgressions. The Power of the Lord, or of Allah, must never be forgotten - and they struck medallions in Germany in the 16th to 18th centuries to make sure that the lesson was learnt. Independently, the Maya of Central America seem to have adopted a similar attitude, as I have mentioned elsewhere (Kevan, in press). In modern (19th Century) times, both in North America and South Africa, some sections of the community made virtually no effort to do anything about locust invasions, except to pray, as much because of religious conviction that they had sinned and deserved all they got as from dismay at the prospect of any disaster that afflicted or threatened them.

A modern locust symbolism was invented by the great Spanish painter Salvador Dali. In several of his surrealist paintings there appear one or more locusts, which I believe to be an assertion

of the artist's own peculiar philosophy of "megalomaniacal cannibalism," i.e., like locusts, eating everything. "Beauty," he says, "should be edible or not at all!"

That non-injurious Acrididae are often taken as a symbol of weakness or of insignificance has already been mentioned, and perhaps one biblical example (although there are others) will suffice. In the Book of Isaiah, XL, vs. 22, it is asked, "Do you not know ... that God sits throned on the vaulted roof of the earth, whose inhabitants are like grasshoppers?" (New English Bible translation of 1970). By complete contrast, we may mention the North American expression "knee-high to a grasshopper," which is also indicative of diminutiveness.

It should also be noted again that grasshoppers have been adopted as symbols in place of cicadas in several instances, owing to faulty translation. We cannot discuss this fully here, but the words for locust, grasshopper and cicada have become hopelessly confused in many languages, and what originally applied to cicadas ended up by referring to acridid (or tettigonioid) grasshoppers. We have already mentioned the symbolism for the Resurrection, but the Ancient Attic Greek tettix symbol of aboriginal rights, the cicada, has, in New England, become replaced by an acridid grasshopper, owing to mistranslation through the word "locust," as at Old Sturbridge Village, Massachusetts.

From being a symbol of insignificance to being one of frivolity is not a large step, but most of the traditional western symbolism in this respect that relates to grasshoppers actually stems again from cicada lore, more specifically from the so-called Aesopian fable, "The Grasshopper and the Ant." This story clearly dates from times much earlier than those of

Aisopos (Aesop), and almost certainly came from the Orient, but, in its earliest known written forms, the Greek word tettix is used. This means "cicada," though, in the best known versions, the insect had graminivorous tendencies (which cicadas do not!). Eventually the tale was retold by the 17th-Century French fabulist Jean de Lafontaine in a manner that had special appeal, and it became very popular. He used the word "cigale" which means a cicada, or tettix, in the south of France, but a tettigoniid orthopteroid (in particular Tettigonia viridissima) in the north, where he lived. To confuse matters further, the illustration in the first edition of Lafontaine's work (and this particular fable was the very first in Book I) showed the ant in conversation with neither kind of insect, but with a diminutive cricket (Gryllus campestris)! In later editions, a tettigoniid of one sort or another was substituted, but the damage was done, and some translations into other languages called the insect "cricket" (or the equivalent); others later, including English ones, made it an acridid grasshopper. In Anglo-Saxon tradition, at least, and among those to whom this has been passed on, for example in North America, the symbol of frivolous profligacy or indolence is an acridid. This is true even among francophones, who confuse sauterelle, criquet, and grillon, not to mention cigale! The story, in one form or another, has been going the rounds for thousands of years, but it is considerably less than two centuries since the metamorphosis of the central character into a veritable short-horned grasshopper took place.

Having mentioned crickets, we may note that Grylloidea, too, have a symbolism of their own. Nowadays, in western cultures we tend to think of Gryllidae, particularly House crickets (Acheta domesticus), as symbols of good cheer (though it is considered bad luck to kill one). It was not

always so, however, and crickets, particularly field crickets (Gryllus campestris), have long been regarded in parts of northwestern Europe as harbingers of disaster, if not of doom or death. Shakespeare refers to crickets several times in his work, but their significance is quite ambivalent, differing according to the mood of the play. Certain field crickets have always been associated with melancholy and nostalgia among the Chinese, and to some extent the Japanese. Their plaintive songs in autumn symbolized the dying year and the end of pleasant times. Independently many North American poets and other writers have adopted a similar attitude toward field crickets, and also toward the true Katydid, Pterophylla camellifolia. In ancient China, however, crickets occurring in graveyards had a special significance, as they were believed by some to embody the spirits of the dead. Much (though by no means all) of the basis for the present treatment of House crickets as symbols of cheerfulness is due to quite recent English authors, such as Oliver Goldsmith, John Keats, Leigh Hunt, Robert Browning, and, above all, Charles Dickens, who, however, borrowed the title of his famous story, "The Cricket on the Hearth," from a line by John Milton written a couple of centuries earlier.

Time and space preclude adequate discussion of the roles of grigs in folklore, story, superstitution and custom. Suffice it to say that these range all the way from magical divination and the casting of spells to dirty jokes, and from the excommunication of locusts by the Roman Church to the ejaculation of expletives such as "Jiminy Cricket!" (Note the substitution here of a grig for "Jesus Christ"; is there an analogue to the substitution of the locust for Apollo, or to the association between locusts and the Christ-Child, as already discussed?) The

role of grasshoppers and crickets in Amerindian cultures has already been discussed by me (Kevan, in press), and many of the same kinds of associations as are referred to in that context will be found to be applicable to other parts of the world. One custom that is of very wide occurrence is that of keeping grigs (especially crickets) in cages for their song, but the cult of cricket fighting is virtually peculiar to the Orient, and mainly to China, or countries to which Chinese have emigrated. A great deal has been written on these two aspects of grigs and human culture.

We must omit, for want of space, virtually all reference to grigs and the performing arts, but they have important places in them all: in music, and song, in ritual dance, ballet, drama, pageant and the cinema. Also, many things, from inns, ships, tanks and aircraft to cigarette lighters, shoes, cocktails and roses have "grig" names, either individually or generically.

In literature, grigs feature in every known form. Most frequently they merely play a subsidiary role in a narration, and relate to some curious fact or incident, or they are introduced to set a mood. Particularly in children's literature, however, they may take a prominent, or even a central place in a story, as in Dicken's "The Cricket on the Hearth" (1846), George Seldon's [Thompson's] "A Cricket in Times Square" (1960), Felice Holman's "The Cricket Winter" (1967) or Arnold Lobel's recent "Grasshopper on the Road" (1978), to quote just a few English-language examples. In work intended for adult readers, grigs may also play a prominent role, as in the fantasy by William Kotzwinkle, "Herr Nightingale and the Satin Woman" (1978) or the philosophical work by Bernard Suits, "The Grasshopper, Games, Life and Utopia" (1978). Locust control operations have

also set the scene for both biographies like Frank Bailey's "Harry the Locust" (1957) and novels, like Denys Rhodes "The Eighth Plague" (1956) or Simon Gandolfi's "Even with the Shutters Closed" (1965). A recent Brazilian children's farm-adventure story-book for schools, Francisco Marin's "Gafanhotos em Taquara-Poca" (12th ed., 1977) also uses locust swarms as its central theme.

When one comes to consider the place of grigs in verse, even if one were to include only poetry that is directed solely toward extolling their virtues, vices and vicissitudes, there is a great deal more in existance than one might imagine. If verse of all kinds that makes incidental reference to grigs is reviewed, the volume involved is quite staggering. World literature of this nature rivals in quantity that for almost any other group of animals, except birds, and perhaps butterflies, and it undoubtedly surpasses these in diversity. Can one find for the birds, the beasts, the butterflies or the bees, a spectrum of expression of human emotion and experience of comparable breadth to that in verse referring to grigs? What other group of animals runs the whole poetic gamut: from the superb accounts of devastating swarms of locusts portrayed by the Prophet Joel, by John Milton or by Robert Southey to the sheer nonsense and fun of Edward Lear or F. Ogden Nash; from the tender sentiments of Idzumi-Shikibu or Li Ching-Tsao to the fables of Jean de Lafontaine and the children's stories of Kornei Chukovskii; from the lyrics of Theokritos or John Keats to the near-incomprehensibility of e. e. Cummings or doggerel rhymes that are, or should be, anonymous; from history, mythology, allegory, philosophy, mystery, religion, sociology, politics, and even pornography, to proverbs, catches, folk ballads and nursery rhymes; from

more than four thousand years ago until the day after yesterday, and in a hundred tongues from Ancient Akkadian to modern Zuni? Yet examples of all these for grigs could be quoted (Kevan, 1974b, 1978)! "Insect" verse is world-wide and spans almost the whole history of literate Mankind, from early in the Third Millennium B.C. onwards, and this is so even when grigs alone are considered. In a spirit of "Alpha and Omega," we may perhaps take examples from the first and the last of these that are known to me. (The ancient Sumerian epic poem, Galgamesh, almost equally as old as the first, does not seem to mention grigs, although, at one point, it refers to dragonflies and their nymphs).

In an inscription on the tomb of the Egyptian king Meryre Pepi (Pepi I), ca. 2826 B.C., there is a corrupted version of an even older "spell" that originally referred to a locust (sanehem), as we know from more or less restored versions on the tombs of two or his Sixth Dynasty successors, Merenre Atyemsaf (Atyemsaf I), ca. 2272 B.C., and Neferkare Pepi (Pepi II), ca. 2180 B.C. The hieroglyphic texts are given by Kevan (1974b) and are also discussed by Kevan (1978). The latest of these texts is the most legible and, transliterated into the Roman alphabet, the appropriate line reads:

Pah en (Neferkare) pet em sanehem ny re

i.e.: I(Neferkare) came forth to the Heavens as a locust annulling the sun.

By contrast, here is a "grigogram" for tomorrow that has (perhaps mercifully) hitherto remained unpublished:

Nursery Crimes No. 4[1] - Grig Tig[2]

A cricket and a katydid
were sitting on a tree.
A grasshopper said, "Let's play tig;
I'll bet you can't catch me!"
The cricket stole into his hole
and said, "Just wait and see!"

Quick Katydid then downard slid
and sprang amongst the grass,
But Cricket in his hole stayed hid
and let Grasshopper pass;
Then jumped right out with fearsome shout
and kicked him in the abdominal
terminalia!

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[1] This is the first one of series of two (written in 1975), but it is surely more impressive to suggest that there were three previous ones.

[2] Americans usually say "tag" (though not "grag"), but "tig" is the normal English name of the game (or, to be consistent, should that be "nime of the gime"?).

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Editor's Note:

Metaleptea is honored and privileged to have Professor McE. Kevan as a contributor to this issue. The breadth, and depth of his article upholds the excellent standard of lead articles established by previous authors.

DESERT LOCUST INVASION IN PAKISTAN

by
Fariduddin Ahmed and M. Karimuddin Ahmed

Department of Plant Protection, Jinnah Avenue, Malir Halt, Karachi-27, Pakistan

The desert and cultivated areas of southeastern Pakistan that border India were severly invaded by Desert Locusts during June-October, 1978. This alarming situation was observed after a long "recession" of some 16 years. The main factor contributing to the widespread Locust invasion appeared to be the occurrance of inhospitable conditions in the countries of the African Horn.

The Desert Locust (Schistocerca gregaria Forsk.) occurs in nearly sixty Afro-Asian countries, and due to its migratory habits has been a constant threat to the agricultural economy of Pakistan. Formidable damage is inflicted on numerous species of plants by both immature and adult locusts. There are two mainbreeding seasons of Desert Locusts in Pakistan, i.e. Spring (March-June) and, Summer (August-September), and as explained below, during hopper plagues, Pakistan is affected by both eastern and western migrating swarms.

The major spring breeding regions lie in the Province of Baluchistan (Quetta, Kalat, Panjgur, Turbat, etc.), N. W. F. P. (Dera, Ismail, Khan) and the areas bordering Iran and Afghanistan. In these localities, locusts breed during the winter/spring rains that commence in December and last until March. In contrast, summer breeding generally occurs in the Provinces of Punjab (Bahawalpur, Rahim Yar Khan, etc.) and Sind (Khairpur, Tharparkar, Hyerabad, etc.) and areas bordering India. In these localities, locusts breed predominantly after the South-west

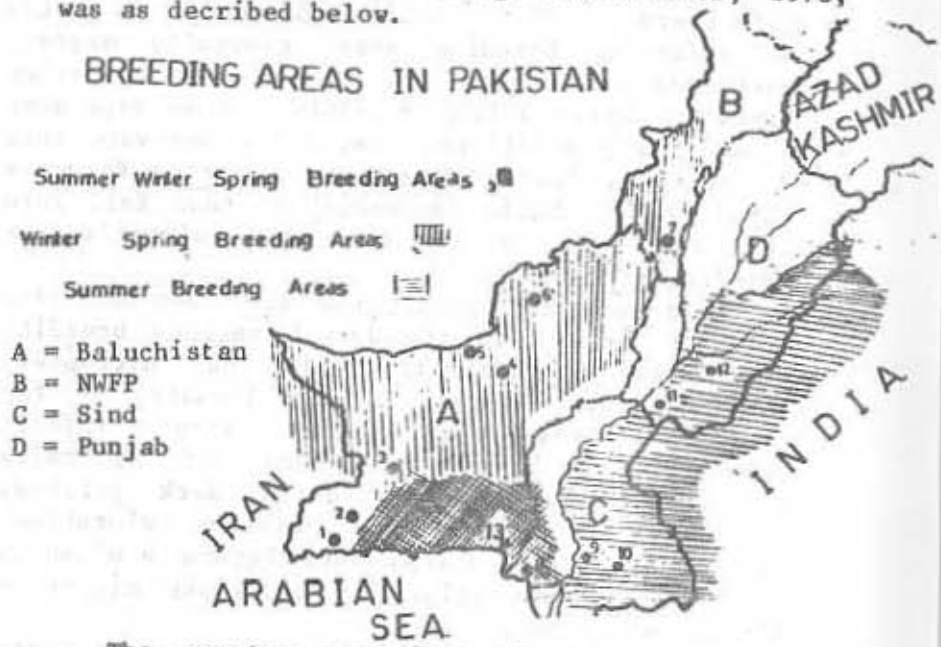
monsoons (June-September). The total breeding area of Pakistan approximates 400,000 square kilometers. The swarms produced in the winter/spring breeding areas generally migrate eastwards into Sind, Punjab, and the bordering areas of India during May-July. From September onward, many additional swarms fly westward into Baluchistan, Iran, Eastern Arabia, etc. Karachis (Sind) and Lasbella (Baluchistan) thus fall into the cross paths of the summer and winter/spring breeding areas (Fig. 1).

When moisture conditions are favorable for solitary locusts in the desert regions breeding gives rise to marching bands that ultimately coalesce into swarms. Adult locusts of the gregarious phase are large stout insects characterized by the presence of ventrally straight blunt pegs devoid of dark patches. Immatures are predominatly pink in coloration, after reaching maturity, they become dominantly bright yellow in color and undertake migratory flights as swarms.

Locust swarms descend to the ground where mating and egg deposition occurs. Female locusts lay between 50 and 1000 long, cylindrical eggs (in masses) in moist soil at a depth of 3-6 inches. The eggs hatch in about 10 days in the summer and after some 3-4 weeks in spring, with the resulting hoppers passing through five instars. Color patterns of hopper stages vary from solid black to a yellow interlaced with black patterns. The duration of the hopper stages varies from 4-5 weeks for summer hatchlings and 6-8 weeks for those from the spring broods. The adult locusts live 3-4 months depending upon the weather conditions with 2-3 generations annually.

The Department of Plant Protection is a Federal agency that coordinates locust control activities with provincial governments, locust

affected countries of the Afro-Asian region and FAO. The locust situation as observed in Pakistan by the DPP during June-October, 1978, was as decribed below.



The country was free from any gregarious locust activity until the end of May, 1978, at which time locust swarms originating in the African Horn and Saudi Arabia invaded Gujrat (India) on approximately June 8th. Their subsequent northern march infiltrated into the Tahrparkar (Sind) desert of Pakistan on June 17th. Ultimately, as many as 30 swarms entered Tahrparkar and their activity was confined to the desert regions of Umerkot, Chachro and Khipro. The entire area infested during the invasion comprised some 5,500 Sq Km. Dense egg-laying was reported from all infested regions and then large-scale hatching was observed in July, in the aforesaid desert locals. The resultant 15,000 hopper bands were controlled by air and ground operations by the end of July.

As a result of the effective control measures, the country was free of locust activities until mid-August when mature swarms started infiltrating from India. This time the locust invasion was more widely spread into the desert regions of Bahawalpur (Punjab) and Tharparkar (Sind) with as many as 91 mature swarms confirmed. These swarms deposited eggs in desert regions covering an area of 17,000 Sq Km by August 21st. Greatly intensified aerial and ground control operations were employed to combat this rapidly deteriorating situation. As a result of these intensified operations, the 2,000 hopper bands and incoming swarms which entered into the desert and cultivated regions in September and October were successfully thwarted and further deterioration of the locust situation was prevented.

This report is extracted from "Ann. Rep. 1978 Survey of Grasshoppers in Arid and Semiarid Regions of Pakistan."

PL-480 Project No. PK ARS-20, Grant No. FG-Pa 212.

REPORT FROM THE PRESIDENT'S DESK

PAAS, a young society created through the initiative of a group of scientists interested in promoting New World acridology, has completed four years of life full of accomplishment. Now, with the addition to our ranks of more than a hundred scientists interested in the promotion of the American acridofauna, scientists not only from the Americas but also from the entire world, we face new horizons. We have initiated a movement which, if sustained, will work toward

PRESENTATION CEREMONY

Ceremony on August 14, 1979, at the Dr. Oliver S. Flint residence in Arlington, Virginia, USA, during which Dr. Ashley B. Gurney (left) received the PAAS Commendation tendered by President R. A. Ronderos (center). Dr. Gurney is shown receiving the commendation from Dr. Lloyd Knutson (right), who is Head, USDA Systematic Entomology Laboratory, c/o U. S. National Museum, Washington, D. C., USA. Dr. Ronald W. Hodges, Laboratory Chief, Systematic Entomology Laboratory, and other dignitaries and guests of USDA and the Smithsonian were present but are not here pictured. The commendation reads:

--- Greetings Ashley Buell Gurney ---

The Pan American Acridological Society, La Sociedad Panamericana de Acridiologia, having met in Plenary Session at Bozeman, Montana, U. S. A., on this 26th day of July, 1979, hereby commends you for your numerous, invaluable contributions to Orthopterology and wishes you well.

SECOND TRIENNIAL MEETING OF PAAS, BOZEMAN, MONTANA, U.S.A., July, 1979

Left to Right, 1st Row: Cohn, Pener, Guerra, La Fuente, Baker, Amedegnato, Luna, Sanchez, Steinberg, Taylor, Hewitt, Vickery, Anderson, Ferreira, Villalobos, Cella; 2nd Row: Cantrall, Gangwere, Ronderos, Tyrkus, Henry, Schultz, Kevan; 3rd Row: Mesa, Nickle, Cordo, Onsager, Mukerji, Whellan, Cerda, Carbonell, Schroeter, Joern, Mulkern, Jago, Zamorano, Harvey, Tinkhan; Back Row: Rees, Willey, Bland, Knutson, Raina, Roberts, Hopkins, Monne, Taylor, Dajnowicz, Lietzau, Otte, Pfadt, Hilliard.

the common good of acridology and the acridological community as a whole. Our movement will surely permit great advances and strengthening of the field in the not too distant future.

During the initial period one task had to be emphasized. This task, that of organization, was realized by Ex President Gangwere who, with characteristic enthusiasm and energy, took all the initial steps as he carried forward the mandate he received from the founding members meeting at San Martin, Argentina. Through his own initiatives, and with the help of the Governing Board, he promoted and brought about all of the advances made up to the present moment.

In the second period that we are now beginning, and with the inestimable collaboration of Stanley, who has kindly agreed to continue serving the society, this time as Executive Secretary, we shall move forward along the past lines that prove necessary at the same time as we accept and carry forward the new charge given us by the members assembled at Bozeman, Montana.

Our main preoccupation from today will be even greater emphasis on bringing together acridologists interested in New World problems and facilitating their active participation in cooperative research. Inevitably this will lead to the infusion of new blood from among the young investigators working in this entomological field, pure as well as applied, and make possible for them attainment of a proper training and experience through helping them locate funding and opportunities for professional development.

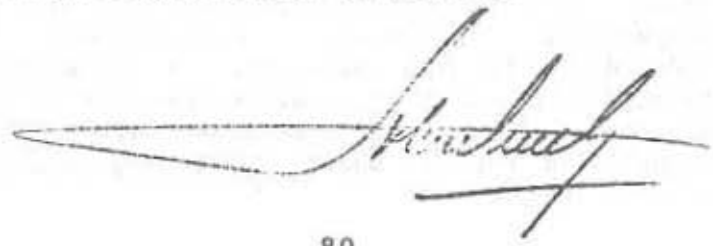
We are cognizant that the above is a difficult task, but we are confident that, with the continuing support of the members of PAAS, and with the increased recognition we have earned

from among the granting agencies and New World governments, our task will be made easier and will be completed sucessfully.

The 2nd Triennial Meeting of PAAS that took place at Bozeman, Montana, was a great success owing largely to the efficient organizational efforts of our President Elect, John Henry, and his staff.

We have no doubt that the 3rd Meeting, which will take place in Maracay, Venezuela, in July, 1981, will also be a success and hopefully enable us to recreate and relive the excellence of the experiences gained at Bozeman. It is our intention at Maracay to hold discussion groups, or seminars, on acridological topics of current interest under the direction of discussants of established reputation. And again we intend, based on the experiences we had at Bozeman, to invite young acridologists who will take part in a formal program of study, research, and visits to various acridological centers in North America.

I can assure you that our interests coincide with those of the members as a whole and that these interests alone will guide us as we attempt to improve our society as an established entity that, through its activities, promotes and helps in the development of New World acridology. It is toward this end that I issue a call to form ranks. I issue this call to all who sincerely wish our society to function at higher and higher scientific levels such as will make a truly meaningful contribution to mankind.



REPORT FROM THE SECRETARY'S DESK

In this Secretary's Report, dated November 1st, 1979, I shall restrict myself to a few items of general interest.

The transition from the Gangwere presidency to that of Ricardo Ronderos has proceeded smoothly inasmuch as the Secretariat remains at Wayne State University and because, to date, Ricardo has asked for relatively few changes in policy. Most changes we have had to implement involve modifications in written forms and altered procedures. I am pleased to report that the job is mostly completed as of this writing.

The new Board of Governors announced by President Ronderos at the recent Triennial Meeting at Bozeman, Montana, and the new appointive committees he has not yet announced have already begun to dispatch their respective functions coordinated through the Secretariat.

The Society has made significant progress toward completion of the long-planned membership flier, or pamphlet, to be sent to educational and research institutions throughout the New World. Examples of this attractive, folded document will hopefully be made available to the membership during the next mailing.

The PAAS Training Project terminated in October with the departure from the United States of the last several grantees. It is too early to comment in detail on the results of this exciting project inasmuch as the drafting of the final report to the Tinker Foundation and the other cooperating agencies, institutions, and individuals is just underway. It is sufficient to note that the PAAS committee members in charge of the project regard it as having been an unqualified success worth undertaking again some time in the future.

An official letter of condolence has been sent by the Society to the family of Dr. Max Beier, Naturhistorisches Museum, Vienna, Austria. The Society notes with deep regret the passing of this eminent orthopterist.

The PAAS commendation tendered to Dr. Ashley B. Gurney, recently retired from the USDA Systematic Entomology Laboratory, Washington, D. C., was executed as directed by the membership at Bozeman and given to Ashley in late July by President Ronderos. A photograph of the presentation ceremony at Dr. Oliver Flint's house in Arlington, Virginia, is shown elsewhere in this number of Metaleptea.

The 1979 paid membership included 92 persons. The current (1980) mailing list, which appears elsewhere in this number of Metaleptea, includes 134 persons, of whom 42 express Spanish-language preference and 92 English-language preference. Five persons on the 1980 list are new members, and 21 names have been dropped from the previous (1979) list owing to death, to personal request, or to failure to pay dues as directed by the PAAS Constitution and By-Laws. A total of 13 Honorary or Emeritus Members and cooperating agencies or institutions are carried on the 1980 list as dues exempt.

Current receipts in the Society bank account amount to $586.18. I have spent a total of $173.95 since August 7, 1979, the date on which Professor Irving J. Cantrall retired as Executive Secretary and I took over. I shall give a detailed financial statement in the next number of Metaleptea after the accounts have been reviewed by the Audit Committee at year end.

S. K. Gangwere
Executive Secretary

EDITORIAL

When a scientific gathering is as well organized as the recent 2nd Triennial Meeting of PAAS, the true purpose and value of such a session is easily realized. The corridor discussions and late evening exchanges of information - and their subsequent impact on the scientific community - that are a vital part of all scientific meetings are greatly enhanced when the logistics are under control. The editorial staff would like to take this opportunity to thank and congratulate John Henry and the capable members of the Bozeman group for a job admirably done.

As Editor-In-Chief, I would like to heartily welcome Drs. Carbonell and Cantrall to the editorial staff. Their experience and considerable expertise are welcomed and badly needed additions to our efforts. Their presence adds a dimension previously lacking.

The members present at the Bozeman business meeting concurred that the circulation and structure of Metaleptea are such that valuable reports of original data would not be readily available to the scientific community if they appeared within its covers. Such a "loss" of important data would be tragic to say the least.

The editorial policy to this point has been in a state of flux, with changes appearing in every issue. However, in the aftermath of Bozeman, and specifically the business meeting held at that time, the following is now the formal delineation of the publication format to be utilized with Metaleptea:

Metaleptea is a semiannual newsletter appearing in the winter and summer of each year. It is intended to be of informational value to the membership of PAAS, and not as a vehicle for the publication of original reports. Metaleptea

is to include items of a generalized nature that will serve to facilitate and encourage exchanges and cooperation between members, as well as to inform the membership of the activities of PAAS as an entity and the current directional emphasis of the endeavors of colleagues. Also to be included, when applicable, are informational articles obtained from outside sources that inform the membership of situations and items of an acridological nature from around the world (e.g. grasshopper outbreaks), though with a Pan American emphasis.

The informal "LEAD" articles of each issue will continue as a series of papers dealing with generalized topics of a review, historical or "state of the art" format.

The elimination (or failure to evolve) of Metaleptea as an avenue for the publications of acridological data will result in a void in the literature that ultimately PAAS will attempt to fill.

At some point after the appearance of the Bozeman Proceedings (the preparation of which is now occupying a considerable portion of the staffs' time) the PAAS hopes (subject, of course, to membership approval) to initiate an occasional paper series, and subsequently to add a regularly appearing research journal to its list of publications. At the moment, Metaleptea and the Proceedings remain the only official publications of the society.

Elsewhere in this issue is a short update on the progress of the Bozeman Proceedings, so I shall not discuss them to any length here, though I must once again stress that the immediate return of proofs and other items will facilitate the early appearance of the volume as well as "ensure" the sanity of the editorial staff.

A series of letters is being sent by the Editorial Office to selected members, sollicting

contributions suitable for use as the lead article in upcoming issues of Metaleptea. The Editorial Office emphatically requests that, when contacted, the membership respond quickly and affirmatively. Once again, we stress that Metaleptea will be only as good and complete as the contributions and efforts of the membership. To these ends, we request the return of the Members' News and Activities form included in this mailing, and encourage the submission of any other appropriate items.

LETTER TO THE EDITOR

August 15, 1979

Sirs:

As you may know, Ricardo Ronderos is in Washington now, though he leaves soon for Philadelphia. I saw him at Oliver Flints' house last evening, and I am delighted to report that he gave us a very up-beat report on the Bozeman meeting just concluded. I am indeed sorry not to have been there and participating, sorry too that Hub (Dr. T. H. Hubbell, Ann Arbor, MI) did not make it. He always has so much potential input for any meeting such as this one.

Meanwhile, I want especially to tell you about the wonderful commendation scroll which Ricardo brought me from PAAS. It is most kind, thoughtful, and considerate of the Society to offer such a fine testimonial to me, one of the "cripples" of the group. If I can get over being a cripple, perhaps I can get to the Venezuela Meeting, about which Ricardo told me.

The excursions from the meeting sound wonderful. I would certainly have enjoyed them, but am probably not quite "up to it" for now. John Henry seems to have done beautifully with the Bozeman program. I'm glad PAAS is flourishing so well.

Dave Nickle is expected here in the City in early September, and I am anxious to see him in my old office and help him with ideas of sharing office space and showing him where things are.

Ashley B. Gurney

NEW MEMBERS AND ADDRESS CHANGES

Metaleptea is pleased to welcome the following to membership in PAAS.

Andrew W. Harvey
Centre for Overseas Pest Research
College House, Wright's Lane
London V8 U. K.

David B. Weissman
SCVMC, Housestaff Mail Room
751 S. Bascom Ave.
San Jose, CA 95128

1st TRIENNIAL MEETING GROUP PICTURE

In the summer of 1979 issue of Metaleptea, there appeared a group picture of those members in attendance at the San Martin meeting. The names of a number of the individuals in that photograph were unknown to the editorial office, and designated as UTE in the legend. Thanks to Dr. I. J. Cantrall we can now identify the majority of those persons, and respectfully submit the following updated legend.

Left to Right, 1st Row: Dr. H. R. Roberts, Dr. T. J. Cohn, Mrs. J. Cohn, Mrs. G. B. Mulkern, Mrs. I. J. Cantrall, Dr. I. J. Cantrall, Mrs. M. Horton, Srta. R. L. Guerra, Dr. A. N. La Fuente Indo, Mrs. M. Vickery, Ing. R. H. Santoro, Dr. A. Ferreira, Sr. O. de Ferrariis;
2nd Row: Dr. Herbert Knutson, Dr. S. K. Gangwere, Dr. G. B. Mulkern, Ing. C. S. Carbonell, Dr. A. B. Gurney, Dr. R. Quintanilla, U. T. E., Sr. A. Leonor de Villalobos, Sr. R. A. Aravena, Dr. Santoros' son (name un-verified), Sr. Mario O. Gentili;
3rd Row: Dr. R. A. Ronderos, Dr. D. Otte, Dr. J. E. Henry, Dr. N. D. Jago, Ing. A. S. Paravano, Ing. L. Esquivel, Dr. V. R. Vickery.

IN MEMORIUM

PAAS has been deeply saddened by the passing of two of our most distinguished colleagues.

Professor Max Beier, of the Natural History Museum of Vienna, died on July 4, 1979. Dr. Beier was one of, if not the world's foremost experts on Mantidae and Pseudophyllidae. His worthwhile accomplishments and contributions are lengthy and require no further demarcation since they are known to us all.

Dr. J. S. Gill, of Rome, Italy, passed away on April 22, 1979. His distinguished career and personality could not be better remembered than as eulogized by Dr. Jeremy Roffey.

Dr. Jarnail Singh Gill was born on 17 October 1927 in the Punjab, India. He studied at the Punjab Agricultural College and Punjab University specializing in Entomology. In 1969 he gained the Diploma of the Imperial College, London, in Plant Nematology and in 1972 under an FAO Fellowship obtained his Ph.D. in Entomology

(Studies in Insect Feeding Deterrents also, from the Imperial College). He worked from 1962, as Assistant Plant Protection Officer, Ludhiana, for the Government of Punjab and from 1965 as Assistant Director (Locust Control) for the Government of India in Faridabad. In 1974 he joined the Locust and Emergency Operations Group of FAO's Plant Protection Service as Agricultural Officer (Desert Locust) and gave devoted service up to the time of his hospitalization in December 1978. His presence and his kindness, modesty and unfailing humanity will be greatly missed by his colleagues.

The untimely passing of our two esteemed colleagues is a loss that Orthopterology will only find possible to temper with time.

MEMBERS NEWS & ACTIVITIES

D. Keith McE. Kevan, Lyman Entomological Museum, Montreal, Canada, addressed the Entomological Society of Quebec on "The Orthopteroid Insects of Quebec." The 1979-80 academic year promises to be a busy one for Prof. Kevan as he tackles a full teaching load as well as the duties of curator and Director of the Lyman Museum during V. R. Vickery's sabbatical leave. His most recent publications include several sections on Orthopteroid insects and other Arthropod taxa in "Canada and its Insect Fauna," edited by H. V. Dauks (Mem. Ent. Soc. Can. 108), 1979. Immediately after the Bozeman meeting Dr. and Mrs. Kevan spent a considerable period collecting in the high Mountain ranges of Colorado.

David Nickle is now working as Research Entomologist (Orthopteroid Orders) at the Systematic Entomology Laboratory, located at the

Smithsonian Institute, Washington, D. C., USA. He has assumed the position vacated by the retirement of Ashley Gurney, and hopes to work in collaboration on some research projects. Dr. Nickle's current research interest involves revisionary studies on the gryllotalpids and tettigoniids of the New World. He has obtained a great deal of sound recording equipment for research in the field. Work is necessary to update the institute's Orthoptera collection, and, consequently, he is working in a curatorial capacity as well.

Paul M. Pener, of the Hebrew University, Jerusalem, Israel, is continuing his research on the effects of "Anti-juvenile hormones" (=precocenes) in locusts and on the reversibility of reproductive diapause in grasshoppers. His recent reports include, "Precocene II causes atrophy of corpora allata in "Locusta migratoria" (Nature, 272: 350) and "Termination and reinduction of reproductive diapause by photoperiod and temperature in males of the grasshopper Oedipoda miniata" (Physio-Entomol. 4:55). Dr. Pener's work has recently taken him to Palo Alto, California, USA. as a "guest senior scientist" where he is concentrating on the effects of precocene on Acridids. Funding is in part due to a research grant awarded by the U. S./Israel Binahouse Science Foundation.

David B. Weissman, California Academy of Sciences, is continuing his studies on Baja California Orthoptera (sensu lato), Western North American Gryllus, and acridid Cytogenetics (especially Trimerotropis and related genera).

Robert B. Willey, of the Department of Biological Sciences, University of Illinois, was reelected to a second term as President of the Rocky

Mountain Biological Laboratory (Crested Butte, Colorado). His recent publications include a collaborative work with Dr. W. E. Schennum entitled "A geographical analysis of quantitative morphological variation in the grasshopper, Arphia conspersa (Evolution 33: 64)". Reprints are available, as is a transparency of the physiographic map (Fig. 3 of that publication). This may be used as an overlay for the computer-generated maps that are a vital part of the report.

ANNOUNCEMENTS

It gives me great pleasure to inform you that the Systematic Entomology Laboratory has been able to hire a new systematist to work on the Orthoptera and Isoptera. Dr. David A. Nickle, who received his PhD. at the University of Florida, Gainesville, will join our staff on 27 August. I anticipate that he will continue the fine work accomplished by earlier USDA systematists in this area, namely, A. N. Caudell and Ashley B. Gurney. Dr. Nickle participated in the recent meeting of the Pan American Acirdological Society at Bozeman, Montana, and you may have had the opportunity to meet him at that time. Judging from his past performance and his interest in the field, I anticipate that he will produce sound systematic work and handle the important aspects of making competent research identifications of insects important to agriculture, and fielding the numerous inquiries for information about these insects.

Ronald W. Hodges

PROCEEDINGS UPDATE

Preparations of the Proceedings of the Bozeman Meetings are proceeding at a somewhat slower pace than was originally hoped for, but are none the less progressing. Sometime during late February, or early March, the Editorial office hopes to send galley proof to the authors. Prompt evaluation and resubmission of the galleys will be totally invaluable to the project. Publication should be sometime within six to eight months of the return of all manuscripts to the editorial office. With a little bit of luck, and a lot of cooperation we should be able to name a tentative date of publication in the next issue of Metaleptea (V3,NI).

MEETING ANNOUNCEMENT

The 3rd Triennial Meeting of the Pan American Acridological Society will be held during the first week of July, 1981, at Maracay, Venezuela, in conjunction with the IVth Latin American Congress of Entomology, the VIth Venezuelan Congress of Entomology, and the Ist Symposium on Neotropical Lepidoptera. PAAS decided to join with the above three groups in hopes that, by so doing, it will stimulate discussion and awareness of the current and potential entomological exchange between the two Americas.

All PAAS sessions will be held at the Maracay Hotel which, in addition to possessing the requisite meeting facilities, features a theater, a large swimming pool, a golf course, other recreational facilities, and adjacent flat hills for collecting and hiking. The PAAS program will include three basic symposia, each with three principal speakers and six discussants. There

will also be open paper sessions, open discussion periods, and scheduled field trips. Incidentally, July is the best time for collecting grasshoppers as well as other insects in Venezuela.

We encourage everyone to begin making arrangements to attend. The PAAS Secretariat with the help of various members is already engaged in locating funds toward the travel support of participants. Naturally, such funds cannot be expected to become available to all and perhaps even to many members, so we encourage each of you to begin now to secure your own funds.

Dr. Eduardo Osuna, Instituto de Zoología Agricola, Facultad de Agronomia, Apartado 4579, Maracay, Aragua, Venezuela, is General Chairman of the overall Congress. Professor Francisco Cerdá, of the same address, will coordinate the local arrangements for PAAS. Dr. Ricardo Ronderos, PAAS President, c/o of the Facultad de Ciencias Naturales y Museo, Paseo del Bosque, 1900 La Plata, Argentina, will coordinate the overall meeting arrangements and travel for the South American participants. Dr. Stan Gangwere, PAAS Executive Secretary, c/o the Department of Biological Sciences, Wayne State University, Detroit, Michigan 48202, USA, will dispatch the same function for the North American and other participants. Anyone interested in attending the Maracay Meetings ---and we hope all will---is advised to make his/her intentions known to one or the other, Ronderos or Gangwere, whichever person is appropriate.

PROGRESS REPORT ON PAAS T-SHIRT & JACKET ORDERS

The society ran into unexpected difficulty in supplying the official T-shirts and jackets the delivery of which was promised for the recent Triennial Meeting at Bozeman, Montana. Unfortunately, the original parcel-post shipment to Bozeman was lost in transit, so the supplier promised to mail a second shipment on an individual basis at an early date. He complied in most cases, but in a few instances recently drawn to our attention he did not. Then he went out of business, so PAAS had the added complication of having to obtain a new supplier. That has been done, and, according to the society's records, all orders have been shipped. Consequently, if you have not yet received your order, if this order was incorrectly filled, or if the item mailed you was defective in any way, kindly let the Secretariat know (PAAS, c/o Department of Biological Sciences, Wayne State University, Detroit, Michigan 48202, USA) so that appropriate replacement may be made at the earliest possible date.

PAAS is grateful for the many orders placed, and it regrets any inconvenience caused by these unfortunate delays not of the society's making.

WELCOME

PAAS is happy to welcome Ms. Valerie Pfluke and Ms. Nancy Szymanski to the secretarial staff. Without their secretarial skills this issue of Metaleptea would not have been completed.

1980 - PAAS MAILING LIST

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