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ENTERTAINMENT WITH INSECTS: SINGING AND FIGHTING INSECTS AROUND THE WORLD. A BRIEF REVIEW

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ABSTRACT

The interaction between humans and insects is briefly presented by viewing the cultural practices related to the keeping of singing Orthopterans and fighting crickets, which take place in some parts of the world, especially in Asian countries.

Key words: ethnoentomology, cricket-fighting, singing insects, Orthoptera, folklore.

RESUMEN

La interacción ser humano/insectos es brevemente presentada a través de las prácticas culturales relacionadas con el mantenimiento de Ortópteros cantantes y grillos de pelea, las cuales se realizan en algunos rincones de la tierra, especialmente en los países de Asia.

Palabras clave: etnoentomología, grillos de pelea, insectos cantantes, Orthoptera, folklore.

Introduction

Prior to the arrival of modern humans in the evolutionary set, insects had already been playing important ecological roles by providing a range of services in order to maintain the structure of the most terrestrial ecosystems (Morris *et al*. 1991). In view of their abundance and the range of their impact on the lives of our early ancestors, it is not surprising that insects have become thoroughly integrated into human culture (Meyer 1999). Thus, insects have influenced humans' lives in quite different ways as they are used as food, medicine, cosmetics, etc. They were taken as symbols and are usually the main performers of traditional myths, legends and folk stories. They also were and will continue to be the inspiration for art, music, philosophy, literature and ritual dances (Kevan 1981, Keiser 1966, Costa-Neto 1998, Coelho 2000).

Unfortunately, many people (especially Westerners) demonstrate attitudes and feelings of disdain, fear and aversion towards insects and other invertebrates (Kellert 1993). That's why these organisms are commonly killed without hesitation. As Ramos-Elorduy (1998) says, the promotion of negative stereotypes towards insects is due to the prejudiced attitudes that associate insects with aboriginal people. In contrast, Eastern Asian cultures have a more balanced perspective regarding insects than in the West, where most insects are related to filth or are dangerous (DeFoliart 1999, Pemberton 1999). According to these authors, Asians consider insects to be aesthetically pleasing, good to eat, interesting pets, subjects of sport, enjoyable to listen to and useful in medicine. Chinese people, for instance, have a general reverence and appreciation for nature that allows them to understand insects as an important part of nature.

This understanding has led to an extensive incorporation of insects within Chinese philosophy and aesthetic symbolism (Ju 1993). Among the innumerable Chinese deities, there is one, Chung-Wang, which is linked to the Taoist sect and is the ruler of all insects. Two divine entities with antagonistic powers are subordinated to this god: one protects the crops against plagues; the other intends to devastate the cultivated fields by sending upon them the most pernicious insects (Carrera 1991).

Orthopterans stand out from the myriad of living insects due to their cultural meaning.

Locusts have special recognition due to their destructive force as plagues (Hogue 1987). The representatives of the order Orthoptera are commonly known as grasshoppers, katydids, crickets, mole crickets and jumping sticks. These arthropods are characterized by presenting the following general morphological traits: an ovoid head with mandibulate mouthparts; leathery fore wings and membranous hind ones, with a complex, reticulate vein pattern and the last pair of legs are generally used for jumping. Another feature is their ability to produce sounds, especially at night. Most of the Orthopterans are vegetarian and some species are important plagues of cultivated plants (Borror and DeLong 1969).

According to Hogue (1993), these insects present a wide range of cultural meanings. Chinese people, in particular, have a high regard for crickets and other musical Orthoptera (Hogue 1993). There are several explanations to the importance of insects in human culture, but their meaning often rests in their symbolic value (Kellert 1993). For example, local names of katydids both in Spanish and Portuguese mean "hope" in reference to the green color of so many species of the family Tettigoniidae, the symbolic color of this emotion (Hogue 1993).

As an attempt to briefly discuss the use of insects as objects of entertainment, this article aims to gather information on singing insects and fighting crickets as they were recorded in the literature until now.

Fighting insects

Cricket-fighting is an ancient and very popular form of entertainment carrying the same household recognition that bull-fighting has in Spain (Ju 1993). The persistent use of singing insects and fighting crickets has deep cultural roots in China (Jin 1994). Laufer (1927) has written a fascinating essay related to the use of crickets both as vocalists and pugilists in China. Crickets are also caught and trained for fighting in traditional Vietnam (Coyaud 2000). These insects have truly earned the attention they receive from Chinese people due to their sounds, intelligence and competitiveness (Jin 1994). There were three main periods when insects were an important part of the Chinese culture (New 1995). From times prior to the Tang dynasty (500 b. C. - 618 a. C.), people only appreciated the cricket's powerful tunes. From about 618-906 a. C., crickets were kept in cages for enjoyment of their songs. The sport of cricket fighting was developed strongly under the Song dynasty (906-1278 a. C.). The earliest publication teaching how to use crickets for fighting appeared in this dynasty. According to Wu Jichuan, president of the Chinese Cricket Lovers Association, these fights became popular with people of all social classes, including royal family members, high-ranking officials, wealthy merchants and the poor (Tianxin 2002). The decline of the South Song dynasty (1213-1275) was attributed in part to the passion of the premier Jia Shi-Dao (1213-1275) for cricket fighting and his consequent neglect of affairs of the state. China also yielded the Cricket Emperor, Ming Xuan-Zhong (ca. 1427-1464).

Once the emperor favored cricket fighting, these orthopterans became the primary tribute for the palace. Each year, thousands of carefully selected crickets were sent to the capital where many people's financial fate was placed in the mandibles of these insects (Jin 1994). Cricket fighting was then taken very seriously and knowledge about crickets was in high demand.

In the Ming (1368-1644) and Qing (1644-1911) dynasties, cricket-fighting was all the rage in Beijing. Most cricket fights took place in Beijing's largest cricket markets two months after the Autumnal Equinox (September 23 or 24). Those areas were located in Beixinqiao Residential Area, Dongsi Decorated Archway, Xisi Decorated Archway, and Tianqiao Market. However, the number of Beijing's cricket breeders and cricket fighting lovers has decreased in interest due to the amusement provided by the multi-media and its effects on people's life styles (Tianxin 2002). On the other hand, due to the migration of Chinese to other parts of the world, cricket fighting is now found in Western large cities such as New York and Philadelphia. In this latter, the species used probably is *Gryllus pennsylvanicus* Burmeister. In Table 1, are mentioned the fighting and singing Orthoptera of the world

recorded nowadays, with their common names and country where they are employed.

Numerous tragedies and comedies linked to this traditional practice are recorded in the ancient Chinese literature (Jin 1994). In the XIIIth century, Kia-Se-Tau wrote the book "Cu Zhi Jin". It gathered related philosophy, literature and science into one volume that probably represents one of a very small number of books to treat any organism in such broad interest. Criteria for good fighting crickets detailed ecological habitats and specific characteristics of the body, head, pronotum, wings, legs and color pattern, although some of these seem unreasonable. The book went on to diagnose various cricket diseases, cures, ways to use females, food, medicine, tickling brushes and addressed many other subjects in great detail. By default, this book became the classic cricket bible for cricket fans. Several similar books were published, such as "Histories of Crickets" of Lin-Tung and "Book of the Crickets" of Fang-Hu (Carrera 1991).

As soon as immature crickets are old enough to be sexed, males are caged in elaborate houses and receive special food consisting of rice mixed with fresh cucumbers, boiled chestnuts, fruits, chopped fish and lettuce (Berenbaum 1995). (The voiceless females are unceremoniously sold to bird-fanciers as pet food.) Chinese veterinary medicine had evolved to a point that curative diets and remedies were used to treat ailing crickets: they are fed mosquitoes (Posey 1986).

According to Huang (2000), the practice became rare after the 1949 revolution, and was banned during the cultural revolution, due to its "bourgeois nature". Although it is discouraged in the Peoples' Republic of China, where any form of gambling or wagering is strongly prohibited, cricket-fighting has undergone a considerable resurgence during the 1980s and 1990s. Actually, cricket fighting is found mainly in the large cities of Shanghai, Beijing, Tianjin, Guangzhou and Hong Kong. Many people are so obsessed by this kind of gambling as those who are by horse-racing (Kevan and Hsiung 1976). Yen (apud New 1995) estimates that 100.000 crickets are now sold every day in Shanghai alone. There are even cricket fighting clubs and societies catering to the interest of members at all levels of intensity. People use to say that the specimens coming from mainland China (Chin-Yuan, Tsong-Hua and Hua-Shian) are the best fighters (Kevan and Hsiung 1976). In a footnote these authors stated that the fighting crickets belong to several species, most commonly *Teleogryllus mitratus* (Burmeister 1838). They also pointed out that crickets are caught and sold specially in summer and autumn, but people in Hong Kong continue to gamble on them in the winter.

Gamblers have two ways of bettings on cricket fights: (a) usual, in which the individual cricket owners (and their supporters) wager $10 or $20 (per fight) against each other; and (b) gambling organized by certain clubs. In the latter case, people assemble at what are called "cricket hunting meets". Those participating use the words *pin* ("cake") and *chu* ("pig") to indicate the size of their stakes. The former means $5; the latter, $200. With the exception of the owners of the contestants wagering against each other, all the gamblers under this system may bet on either side (Kevan and Hsiung 1976). Wealthy people usually bet high amounts of money on the outcome of the fights. Winners could garner larger sums of money, houses or plots of lands. Poor people also bet on cricket fights but usually delicate cricket containers, instead of money, were the prizes (Tianxin 2002).

The Association for Cricket Fighting in Beijing now sponsors national tournaments at Panjiayuan Flea Market (Chaoyang District), Guanyuan Wholesale Market and Taoranting Park (Xicheng District), and Logshuncheng Market (Chongwen District). Modern equipment such as video cameras are used to zoom in and project the fighting onto many television sets, which enable many viewers to see the fighting simultaneously (Huang 2000). Matches are even televised in Shanghai (Berenbaum 1995). Prior to a tournament the fighting crickets are either fed a tonic (e.g., honey) or else starved in order to get in a ferocious mood. Before a fight, great care is exercised to match crickets so that they are of the same size and weight, because there are heavy, middleweight and lightweight classes. A pair of extremely small scales is used to weigh in the contestants before each bout begins and

this "weighing in" is done in front of the spectators (Clausen 1971). The losing insect in such a contest pays the supreme penalty: it fights to the death (Figure 1). It is stated that the backers of a famous fighting cricket of Canton, named Ghengis Khan, won as much as $ 90,000 on a single bout (Clausen 1971). A cricket which has won many victories is honored with the title "conquering or victorious cricket" (*shou lip*); on its death it is placed in a small silver coffin and is solemnly buried. Laufer (1927) describes a cricket fight as follows:

> "The tournaments take place in an open space, on a public square, or in a special house termed Autumn Amusements [...]. The wranglers are always matched on equal terms according to size, color and weight [...]. As a rule, the two adversaries facing each other will first endeavor to flee, but the thick walls of the bowl or jar are set up as an invincible barrier to this attempt at desertion. Now the referee [...] intercedes, announcing the contestants and reciting the history of their past performances and spurs the two parties on to combat. For this purpose he avails himself of the tickler [a special instrument consisting of rat whiskers inserted in a bone or ivory handle, providing an obvious substitute for antennae lashing] and first stirs their heads and the ends of their tails [...]. The two opponents thus excited stretch out their antennae [...] and jump at each other's head [...]. One of the belligerents will soon lose one of its (antennae), while the other may retort by tearing off one of the enemy's legs. The two combatents become more and more exasperated and fight each other mercilessly. The struggle usually ends in the death of one of them [...]."

According to Chinese folklore, when two male crickets engage in combat, the loser will refuse to fight again unless he is shaken and tossed in the air by his trainer (Shwartz 2002). Researchers have discovered that the act of flying causes a neurotransmitter or some other chemical signal from the thorax to direct the brain to "reset" the cricket's aggressiveness. Laboratory results showed that nearly 57% of the losing crickets regained their aggressiveness after being shaken and tossed. The discovery of a link between bodily movement and behavior in crickets might have applications for research on humans. "Maybe we'll find a motor pattern that people can perform that will decrease their depression", neurobiologist Hans Hofmann says (Anonymous 2000). Studies have shown that people who suffer depression often become euphoric after undergoing sleep deprivation.

Besides crickets, other insects have been used to entertain people of all ages in Asian countries. In South Korea, the water beetle *Cybister tripunctatus* (Olivier 1795) (Coleoptera: Dytiscidae) is used in a roulette-like game, locally known as *mul bang gae nori* (Pemberton 1990b).

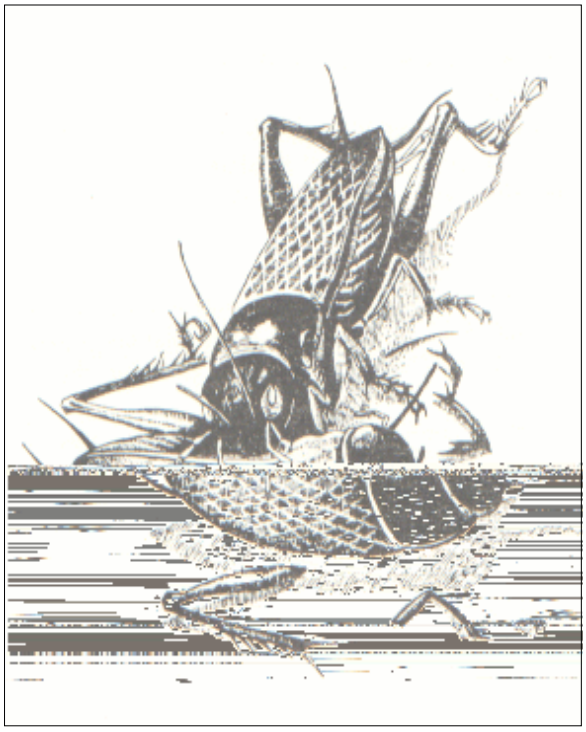

Figure 1. Two males fighting to the death. (Picture extracted from Santos 1982).

In parts of Thailand fights between lucanid beetles are done on a competitive basis. Sometimes, considerable amounts and property is at stake during these competitions (Meyer-Rochow 1978/1979). The behavior of mantids has inspired an entire style of kung fu martial

arts in which many of the postures and movements mimic the hunting behavior of the praying mantis (Berenbaum 1995).

Singing insects

Since ancient times, human beings have added cultural significance to the sounds produced by some species of insects, which are considered to be both musically and aesthetically pleasing. Biologically, only male crickets chirp. Their most common songs are the calling song, which attracts the female; the courtship, or mating, song, which induces the female to copulate; and the fighting chirp, which repels other males (Hogue 1993). There is a direct relationship between the rate of cricket chirps and temperature. The rate tends to increase with increasing temperature. One can easily compute the temperature when the number of chirpings per minute is known. According to Dolbear (1897), the expression between temperature and the chirp rate is: T = 50 + N-40/4, where T is the temperature and N is the rate per minute.

Many people, including famous poets, painters, musicians and Buddhist monks, were enthusiastic about keeping singing insects (Jin 1994). Among the sound-producer insects, crickets and katydids stand out due to the value of their songs (Kevan 1975). Even Greek poets and poetess wrote about singing insects and insect cages. In the romance of "Daphnis and Chloe", which was written by the Greek poet Longos (second century a. D.), a cricket is associated with delicate singing favorable for sleeping, while the cicadas' loud chirps are associated with disturbance (Weidner 1994). Crickets were the inspiration for "El Grillo", a popular song written by Josquin des Pres (16??) for one of Leonardo da Vinci's garden parties. This song was the first musical score to be printed on John Guttenburg's moveable-type press (Meyer 1999). As Kevan (*op. cit.*) pointed out, the trade on katydids of the genus *Tettigonia* and crickets of several species once flourished in the city of Hamburg, Germany. In the eighteenth century, these insects were kept in cages for the pleasure of their captors. The containers were normally made of cardboard having transparent windows open to permit the insertion of the insect and its food. Caged crickets were also used as "watch-dogs in reverse": their sudden silence, initiated by an intruder, causing the householder to awaken (Kevan *ibid*.). According to Fabre (1998), the small boys of Provence had the same tastes. Fabre stated that when the singing cricket died the whole household was thrown into a sort of morning. In parts of Africa, crickets are also cherished and their songs are believed to have magic powers (Huis 1996). It is said that when the island of Jamaica was discovered, many of the Indians were seen to be carrying baskets of crickets (Lenko and Papavero 1996). The natives who inhabit the drier forests of Guiana keep an Orthopteran locally known as "tananá" (*Chlorocoelus tanana*, Locustidae) in a small wickerwork cage for hearing its song (Bates 1862).

In general, crickets are equated with good fortune and intelligence; harming one of them brings misfortune. Jin (1994) stresses that the Chinese appreciation for singing insects extends beyond the appeal of their beautiful tunes to include their powerful vitality and interesting life-cycles. Singing crickets and katydids are taken as pets, educational toys, as well as are considered as symbols of life, prosperity, death and resurrection (Pemberton 1990a). During the Qing dynasty the palace had professionals to look after the singing insects in order to present these musicians whenever the emperor or other high officers had some special occasions (Jin 1994). As a symbol of autumn, they have become associated with loneliness, sadness, pity for the fate of mankind and are thus used prolifically in Chinese poems (Jin *op. cit*.). Its presence in a house was thought to bring happiness among ancient Mediterranean civilizations. In many parts of France, for example, crickets are known as "good God's horse" or "good God's small horse" in dialectal French. In the city of Béarn people used to say "Where crickets are, God inhabits" (Ronecker 1997).

Pemberton (1994) witnessed the selling of singing insects in the streets of Beijing in 1987. He found a seller of singing crickets with several hundred woven, split bamboo cages of seven centimeters diameter tied to the back of his bicycle. Each cage contained a large green or tan male *Gampsocleis gratiosa* (Brunner 1862) which produced loud ringing "cries" with their

brachypterous wings. At that time, each insect was 30 fen (US $0.10, Aug 1987 exchange rates). Wealthy people often go to the expense of employing a cricket expert to do nothing else but look after their crickets (Clausen 1971). Jin (1994) says that the materials used to make those cages range from gold, jade, ivory, buffalo horn, animal bone and brass to sandalwood, coconut shell, gourd, bamboo, reed, clay, pottery, porcelain and plastics. Depending on their age and the quality of care, singing insects will live from several weeks to months in captivity.

The Japanese people have a long tradition of enjoying the calls of various Orthoptera, both in the wild and as caged pets (Coyaud 2000). Although many of these customs have been lost or simplified with Japan's modernization, there remains a fondness for the 'cries' of certain species of crickets (Gryllidae) and long-horned grasshoppers (Tettigoniidae). Singing insects are raised in special terrariums and this practice is a very popular past-time in Japan (Pemberton 2000). As pets, they are inexpensive, clean and musical (Evans 1993). There is even public displaying of singing insects. For example, Tama Zoo's annual Autumn shows on singing Orthoptera has started in 1958 and takes place in Tama Zoo's Insectarium located in the Tokyo suburbs (Pemberton 1994). The commercially reared bell crickets or *Suzumushi* (*Homoeogryllus japonicus* [De Hann 1842]) continues to be popular in Japan, although there are now many artificial singing "crickets" implanted with electronic sound chips (Pemberton 2000). Recordings of singing Orthoptera are sold in record stores and can be heard in subway stations and other public places.

Other examples of insects as objects of entertainment

Having fun with animated and unanimated objects is part of the human's biological nature. In many parts of the world, children play with locusts, antlions, butterflies, grasshoppers, beetles, dragonflies, among others (Seignobos *et al*. 1996, Costa-Neto 2000). In Burkina Faso, for example, children press a butterfly between papers to get an image of the butterfly's wing made by its scales (Huis 1996). In the state of Alagoas, northeastern Brazil, children play with crickets (*Gryllus* sp.) by putting them inside glass or plastic containers in order to hear them (Costa-Neto 1998). Among the Onabasulu of Papua New Guinea, large weevils locally known as *hugu* (*Rhynchophorus ferrugineus* [Olivier 1790]) are used as musical instruments by letting the human mouth serve as a variable resonance chamber for the wing vibrations of the beetle (Meyer-Rochow 1978/1979). Camargo and Posey (1990) record the keeping of stingless bees by the Kayapó Indians simply because of their fascination with social insects.

Other ways to have fun with insects include Mexican jumping beans and flea circuses, which were once widely attended (Hogue 1987). Folk dances such as the dance of the tocandira ant (*Paraponera* sp., Formicidae) performed by the Sateré-Maué Indians from Amazon and insect hunting (Posey 1986) are pleasant countryside activities. Lenko and Papavero (1996) give several examples of the keeping of *Pyrophorus* beetles for entertainment, as well as for their light.

Final consideration

I do believe that an intimacy with the world of crickets and their kind can be salutary, not for what they are likely to teach us about ourselves, but because they remind us, if we will let them, that there are other voices, other rhythms, other strivings and fulfillments than ours [. . .]. What was it that Nathaniel Hawthorne said about the tree cricket? "If moonlight could be heard, it would sound like that" (Evans 1993).

Literature cited

Anonymous. 2000. What bugs crickets? *Stanford magazine: Farm Report*, May/June.

Bates, H. W. 1862. Description of a remarkable species of singing cricket (Locustariae) from the Amazons, supposed to be new to science. *Journal of Entomology* 1: 474-477.

Berenbaum, M. R. 1995. Bugs in the system: insects and their impact on human affairs. Perseus Books, Massachusetts.

Borror, J. D. y D. M. DeLong. 1969. Introdução ao estudo dos insetos. Programa de Publicações Didáticas, USAID.

Camargo, J. M. F. y D. A. Posey. 1990. O conhecimento dos Kayapó sobre as abelhas

sociais sem ferrão (Meliponidae, Apidae, Hymenoptera): notas adicionais. *Boletim do Museu Paraense Emílio Göeldi, Série Zoologia* 6 (1): 17-42.

Carrera, M. 1991. Insetos, lendas e história. Thesaurus, Brasília.

Clausen, L. W. 1971. Insect fact and folklore. The Macmillan Company, New York.

Coelho, J. 2000. Insects in rock & roll music. *American Entomologist* 46 (3): 186-200.

Costa-Neto, E. M. 1998. O significado dos Orthoptera (Arthropoda, Insecta) no estado de Alagoas. *Sitientibus* 18: 9-17.

Costa-Neto, E. M. 2000. Introdução à etnoentomologia: considerações metodológicas e estudo de casos. UEFS, Feira de Santana.

Coyaud, M. 2000. Pleasure insects in Far East (Vietnam, and particularly Japan). *In*: International Symposium "Insects" in Oral Literature and Traditions. *Abstracts*. LACITO/CNRS, Paris.

DeFoliart, G. R. 1999. Insects as food: why the Western attitude is important. *Annual Review of Entomology* 44: 21-50.

Dolbear, A. E. 1897. The cricket as a thermometer. *The American Naturalist* 31 (371): 970-971.

Evans, H. E. 1993. Life on a little known planet. The Lyons Press, New York.

Fabre, J-H. 1998. Fabre´s book of insects. Dover Publications, New York.

Hogue, C. L. 1987. Cultural entomology. *Annual Review of Entomology* 32: 181-199.

Hogue, C. L. 1993. Latin American and entomology. University of California Press, Berkeley.

Huis, A. van. 1996. The traditional use of arthropods in sub-Saharan Africa. *Proceedings of Experimental & Applied Entomology of the Netherlands Entomological Society (N.E. V.)* 7: 3-20.

Keiser, I. 1966. Insects and related arthropods in heraldry. *Bull. Entomol. Soc. Am*. 12: 314-318.

Kellert, S. R. 1993. Values and perceptions of invertebrates. *Conservation Biology* 7 (4): 845-853.

Kevan, D. K. McE. 1975. The hopper house of Hamburg. *Insect World Digest* 2 (6): 2-9.

Kevan, D. K. McE. 1980. Insect fiction. *Antenna* 6 (4): 281.

Kevan, D. K. McE. 1981. Remarks on insects and the humanities, or some human sides of entomology. *Bull. Entomol. Soc. Canada* 13: 112-117.

Kevan, D. K. McE y C. C. Hsiung. 1976. Cricket-fighting in Hong Kong. *Bull. Entomol. Soc. Canada* 8 (3): 11-12.

Laufer, B. 1927. Insect-musicians and cricket champions of China. Field Museum of Natural History. Anthropology Leaflet 22, Chicago.

Lenko, K. y N. Papavero. 1996. Insetos no folclore. Plêiade/FAPESP, São Paulo.

Meyer-Rochow, V. B. 1978/1979. The diverse uses of insects in traditional societies. *Ethnomed*. 5 (3/4): 287-300.

Morris, M. G., N. M. Collins, R. I. Vane-Wright y J. Waage. 1991. The utilization and value of non-domesticated insects. *In*: Collins, N. M. y J. A. Thomas (eds.). The conservation of insects and their habitats. Academic Press Limited, Londres.

New, T. R. 1995. Introduction to invertebrate conservation biology. Oxford University Press, Oxford.

Pemberton, R. W. 1990a. The selling of *Gampsocleis gratiosa* Brunner (Orthoptera: Tettigoniidae) as singing pets in Chine. *The Pan-Pacific Entomologist* 66 (1): 93-95.

Pemberton, R. W. 1990b.The Korean water beetle game. *The Pan-Pacific Entomologist* 66 (2): 173-174.

Pemberton, R. W. 1994. Singing Orthoptera in Japanese culture. *Cultural Entomology Digest* 3: 16-17.

Pemberton, R. W. 1999. Insects and other arthropods as drugs in Korean traditional medicine. *Journal of Ethnopharmacology* 65: 207-216.

Pemberton, R. W. 2000. Ethnoentomological trends in contemporary East Asian cultures. *In*: International Symposium "Insects" in Oral Literature and Traditions. *Abstracts*. LACITO/CNRS, Paris.

Posey, D. A. 1986. Topics and issues in ethnoentomology with some suggestions for the development of hypothesis-generation and testing in ethnobiology. *Journal of Ethnobiology* 6 (1): 99-120.

Ramos-Elorduy, J. 1998. Creepy crawly cuisine. Park Street Press, Vermont.

Ronecker, J.-P. 1997. O simbolismo animal: mitos, crenças, lendas, arquétipos, floclore, imaginário. Paulus, São Paulo.

Santos, E. 1982. Os insetos (vida e costumes). Itatiaia, Belo Horizonte.

Seignobos, C., J.-P. Deguine y H.-P. Aberlenc. 1996. Lês Mofu et leurs insectes. *Journal d'Agric. Trad. et de la Bota. Appl*. 38 (2): 125-187.

Shwarts, M. 2002. Studying cricket fights, researchers may learn more about human depression. 30, april, 2002.

Literature on line

Huang, Z. 2000. Insects in Chinese culture. Available at http://cyberbee.net/~huang/pub/insect.html.

Jin, X. B. 1994. Chinese cricket culture: an introduction to cultural entomology in China. *Cultural Entomology Digest IO Vision* 3. Available at http://www.insects.org/ced3/chinese_crcul.html

Ju, H. 1993. Spirit and enlightenment. *Cultural Entomology Digest IO Vision* 1. Available at http://www.insects.org/ced1/spir_enl.html

Meyer, J. R. 1999. A class of distinction. Available at URL:http://www.cals.ncsu.edu.8050/course/ent425/text01/impact2.html

Tianxin, Z. 2002. Just not cricket! *China Daily*, 23-03-2002. Available at http://www.chinadaily.net/nk/2002-03-23/62244.html

Weidner, H. 1994. Greek cricket cage. *Cultural Entomology Digest IO Vision* 3. Available at http://insects.org/ced3/greek_crcages.html

Table 1. Common fighting and singing Orthoptera of the world.

Taxonomy	Vernacular names	Country
Grylloidea		
Anaxipha pallidula Matsumura	Xiao Huang Ling	China
A. sp. nov.	Da Huang Ling	China
Dianemobius fascipes Walker	Ban Ling	China
D. flavoantennalis Shiraki	Hua Ling	China
Gryllodes sigillatus Walker	Zhao Ji	China
Gryllus bimaculatus De Hann	Hua Jing	China
G. campestris Linnaeus	Field Cricket	Germany
G. minor Shiraki	Kuma-Koorogi	Japan
G. yemma Ohmachi	Emma-Koorogi	Japan
Homoeogryllus japonicus De Hann	Ma Ling	China, Japan
Homeoxipha lycoides Walker	Mo Ling	China
Loxoblemmus doenitzi Stein	Guan Cai Tou	China
L. equestris Saussure	Guan Tou Xi	China
Oecanthus longicaudus Matsumura	Zhu Ling	China
Ornebius kanetataki Matsumura	Shi Ling	China
Scleropterus punctatus Brunner	Pan Ling	China
Svistella bifasciatata Shiraki	Jin Ling Zi	China
Tarbinskiellus portentosus Lichtenstein	Da Xi Shuai	China
Teleogryllus emma Ohmachi et Matsumura	You Hu Lu	China
T. nitratus Burmeister		China
Truljalia forceps Saussure	Jin Zhong	China
T. hibinonis Matsumura	Jin Zhong	China
Turanogryllus eous Bey-Bienko	Qing Ling	China
Velarifictorus aspersus Walker	Cu Zhi	China
V. micato Saussure	Cu Zhi	China
Xenogryllus marmoratus De Hann	Bao Ta Ling	China
Tettigonioidea		
Conocephalus maculatus Le Gouillou	Cao Zhong	China
C. melas De Haan	Cao Zhong	China
Ducetia japonica Thunberg	Lu Zhong	China
Gampsocleis buergeri De Haan	Kirigirisu	Japan
G. gratiosa Brunner	Jiao Ge-Ge	China
G. sadakovii obscura Walker	Jiao Ge-Ge	China
Hexacentrus unicolor Serville	Xiao Fang Zhi Niang	China
Mecopoda elongata Linnaeus	Fang Zhi Niang	China
M. nipponensis De Haan	Kutsuwa-Mushi	Japan
Ruspolia lineosa Walker	Cao Zhong	China
Tettigonia cantans Fuessly		Germany
T. viridissima Linnaeus		Germany
Uvarovites inflatus Uvarov	Jie Er	China