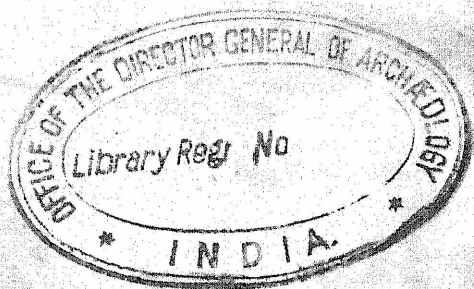


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BOYS PLAYING WITH CRICKETS (p. 10).

Scene from Chinese Painting of the Twelfth Century in Field Museum.

FIELD MUSEUM OF NATURAL HISTORY

DEPARTMENT OF ANTHROPOLOGY

CHICAGO, 1927

LEAFLET

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NUMBER 22

Insect-Musicians and Cricket Champions of China

Of the many insects that are capable of producing sound in various ways, the best known and the most expert musicians are the crickets, who during the latter part of summer and in the autumn fill the air with a continuous concert. They are well known on account of their abundance, their wide distribution, their characteristic chirping song and the habit many of them have for seeking shelter in human habitations.

Crickets belong, in the entomological system, to the order Orthoptera (from the Greek *orthos*, "straight," and *pteron*, "a wing"; referring to the longitudinal folding of the hind wings). In this order the two pairs of wings differ in structure. The fore wings are parchment-like, forming covers for the more delicate hind wings. The wing-covers have received the special name *tegmina*; they are furnished with a fine network of veins, and overlap at the tip at least. There are many species in which the wings are rudimentary, even in the adult state. The order Orthoptera includes six families,—the roaches, mantids, walking-sticks, locusts or short-horned grasshoppers, the long-horned grasshoppers including the katydids, and the crickets (*Gryllidae*). Of crickets there are three distinct groups,—known as mole-crickets, true crickets, and tree-crickets. The first-named are so called because they burrow in the ground like moles;

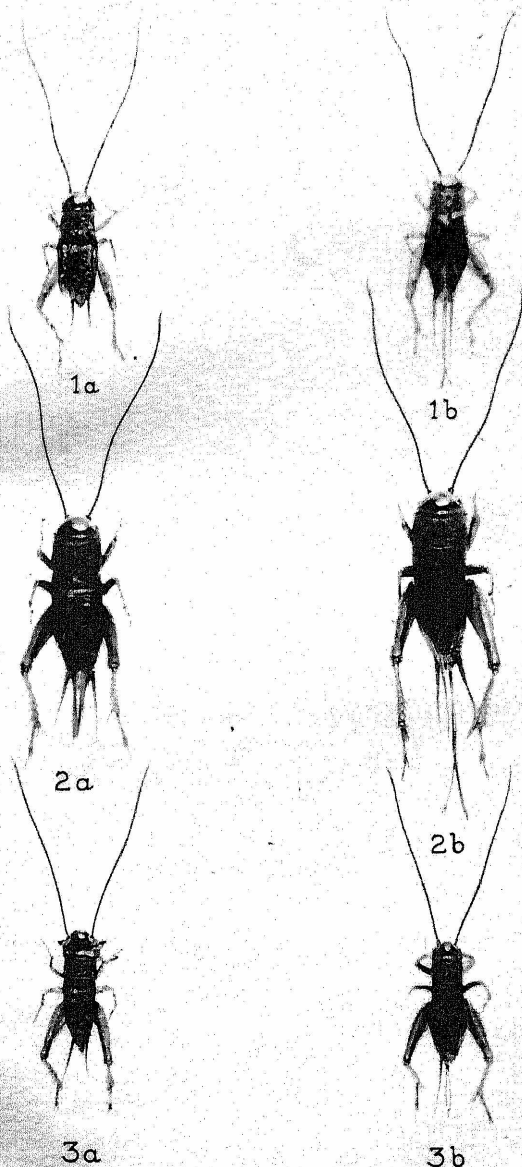
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they are pre-eminently burrowers. The form of the body is suited to this mode of life. The front tibiae, especially, are fitted for digging; they are greatly broadened, and shaped somewhat like hands or the feet of a mole. The mole-crickets feed upon the tender roots of various plants. The true crickets are common everywhere, living in fields, and some species even in our houses. They usually live on plants, but are not strictly vegetarians; sometimes they are predaceous and feed mercilessly upon other insects. The eggs are laid in the autumn, usually in the ground, and are hatched in the following summer. The greater number of the old insects die on the approach of winter; a few, however, survive the cold season. The tree-crickets principally inhabit trees, but they occur also on shrubs, or even on high herbs and tall grass.

Like their near relatives, crickets have biting mouth parts, and, like the grasshoppers and katydids, rather long hind legs which render them fit for jumping. Although many of them have wings when full grown, they move about mainly by jumping or hopping. When the young cricket emerges from the egg, it strongly resembles the adult, but it lacks wings and wing-covers, which gradually appear as the insect grows older and larger. The final development of wings and wing-covers furnishes the means whereby the male cricket can produce his familiar chirping sound. It is only the adult male that sings; the young and the females cannot chirp.

On examining the base of the fore wings or wing-covers of the male cricket, it will be noticed that the veins at the base are fewer, thicker, and more irregular than those on the hind or lower wings. On the under side of some of these thick veins will also be seen fine, transverse ridges like those on a file. The wing-covers of the female have uniform, parallel veins, without a trace of ridges. The male cricket produces



CRICKETS OF CHINA (a, male; b, female).

1. Besprinkled Cricket, *Gryllus conspersus* Schaum. 2. Mitred Cricket, *Gryllus mitratus* Burmeister. Chinese si-so or ts'u-chi, Peking Colloquial ch'ü-ch'ü. 3. Broad-faced Cricket, *Loxoblemmus taicoun* Saussure. Chinese pang-t'ou ("Watchman's Rattle").



his chirping sound by raising his wing-covers above his body and then rubbing their bases together, so that the file-like veins of the under surface of the one wing-cover scrape the upper surface of the lower.

Only the wings of the male cricket have sound-producing attachments, and the males have them only when their wings are fully developed at the age of maturity. The young cricket has no wings.

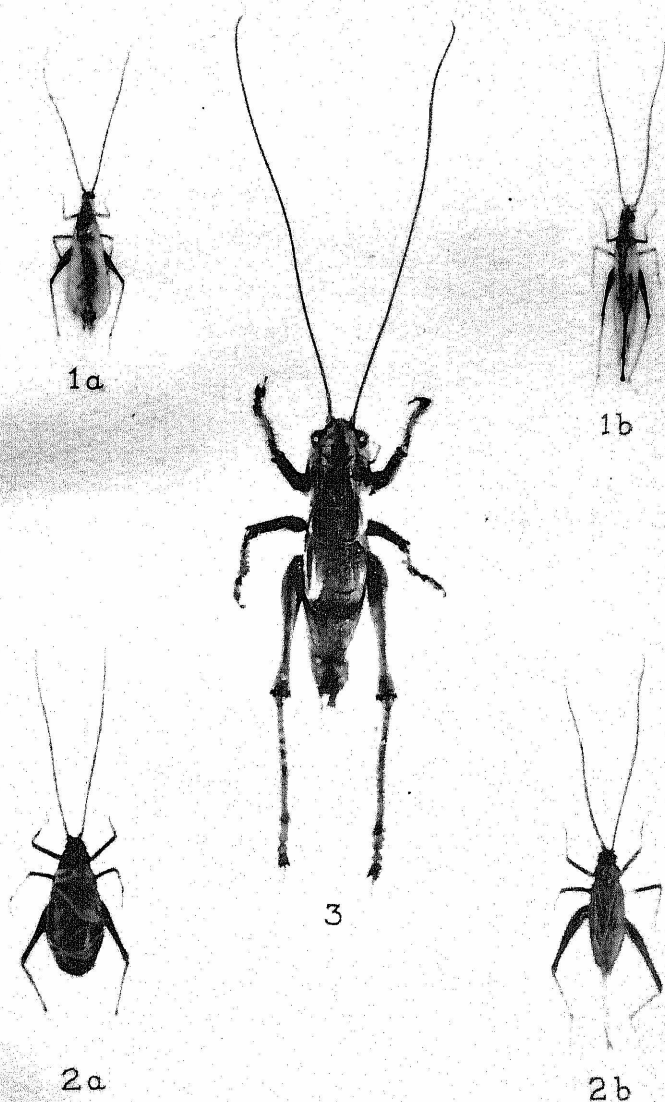
Since crickets produce a characteristic sound, it is natural to suppose that both males and females are able to hear it. On the lower part of the fore legs of both sexes is found a little drum-like surface, which serves as the tympanum of an ear. The sound-producing organ and the ear of the katydids, which rank next to the crickets in their singing ability, are somewhat similar in structure and location.

The sound made by crickets is, of course, not a true song, but a mechanical production, as are all of the sounds produced by insects. The object of the chirping or stridulating is somewhat conjectural. It may be a love-song, mating-call, or an expression of some other emotion. The fact that the crickets are able to sing only when they are full grown and capable of mating would seem to suggest that their chirping is a love-song.

This commonly held view, however, is contested by Frank E. Lutz in a recent article on "Insect Sounds" published in *Natural History* (1926, No. 2). Dr. Lutz starts from the opinion that not everything in nature has a practical or utilitarian purpose and that many striking characters and characteristics of animals and plants are of no use to their possessors or to any other creature; they seem to him to be much like the figures in a kaleidoscope, definite and doubtless due to some internal mechanism, but not serving any special purpose. This highly trained entomologist then proceeds to observe, "The most familiar example

of insect sounds made by friction is the chirping of crickets. Now, only the males do this. Chirping is distinctly a secondary sexual character, the stock explanation of which is that it is a mating-call developed by sexual selection. The adult life of a male cricket lasts a month or so, and he chirps most of the time, but he spends little of that time in mating. Why does he chirp when there is no female around? Possibly hoping that one will come; I do not know. When he has mated, his sexual life is done, but he keeps on chirping to his dying day. I do not know why; possibly to pass the time. I do not know this, however, and my knowledge is based on the breeding of literally thousands of crickets, while I was using them in a study of heredity: a female cricket pays but little attention to a chirping male. She may wave her antennae in his direction, but so will she when he is not chirping, and so will she at a stick or a stone." And the general conclusion Lutz arrives at is, "The significance of insect sounds is still an open subject and, while it is altogether probable that some of these sounds do have a biological significance, I firmly believe that many of them have none, being merely incidental to actions that are not intended to make a noise and to structures that have arisen for some totally different purpose or for no purpose at all."

The Chinese, perhaps, have made a not uninteresting contribution to this problem. Of the many species of crickets used by them, the females are kept only of one,—the black tree-cricket (*Homoeogryllus japonicus*: Plate III, Fig. 2), called by them *kin chung* ("Golden Bell," with reference to its sounds), as they assert that this is the only kind of cricket that requires the presence of the female to sing. The females of all other species are not kept by the Chinese. As soon as the insects are old enough that their sex can be determined, the females are fed to birds or sold to



CRICKETS OF CHINA (a, male; b, female).

1. Yellowish Tree Cricket, *Oecanthus rufescens* Serville. Chinese *kwo-lou*, Peking Colloquial *kwo-kwo*. 2. Black Tree Cricket, *Homoeogryllus japonicus* Haan. Chinese *kin chung* ("Golden Bell"). 3. Infuscated Shield-backed Katydid, *Gampsocleis gratiosa infuscata* Uvarov. Peking-Chinese *yu-hu-lu*.

bird-fanciers. Accordingly, the males of all species kept in captivity by the Chinese, with a single exception, sing without the presence of the female. But whether captive insects are instructive examples for the study of the origin and motives of their chirps is another question. Our canaries and other birds in confinement likewise sing without females. Whatever the biological origin of insect sounds may be (and it is not necessary to assume that the sounds of all species must have sprung from the same causes), it seems reasonable to infer that the endless repetition of such sounds has the tendency to develop into a purely mechanical practice in which the insect indulges as a pastime for its own diversion. It is conceivable that insect music has little or nothing to do with the sex impulse, but that it is rather prompted by the instinct to play which is immanent in all animals.

The relation of the Chinese to crickets and other insects presents one of their most striking characteristics and one of the most curious chapters of culture-historical development. In the primitive stages of life man took a keen interest in the animal world, and first of all, he closely observed and studied large mammals, and next to these, birds and fishes. A curious exception to this almost universal rule is presented by the ancient Chinese. In accordance with their training and the peculiar direction in which their imaginative and observational powers were led, they were more interested in the class of insects than in all other groups of animals combined; while mammals, least of all, attracted their attention. Their love of insects led them to observations and discoveries which still elicit our admiration. The curious life-history of the cicada was known to them in early times, and only a nation which had an innate sympathy with the smallest creatures of nature was able to penetrate

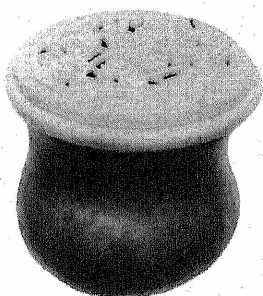
into the mysterious habits of the silkworm and present the world with the discovery of silk. The cicada as an emblem of resurrection, the praying-mantis as a symbol of bravery, and many other insects play a prominent role in early religious and poetical conceptions as well as in art, as shown by their effigies in jade.

In regard to mammals, birds, and fishes, Chinese terminology does not rise above the ordinary, but their nomenclature of insects is richer and more colorful than that of most languages. Not only do they have a distinct word or even several terms for every species found in their country, but also numerous poetic and local names for the many varieties of each species for which words are lacking in English and other tongues.

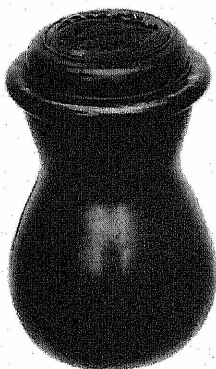
Corresponding to their fondness for crickets, the Chinese have developed a special literature on the subject. The first of these works is the *Tsu chi king* ("Book of Crickets") written by Kia Se-tao, a minister of state, who lived in the first part of the thirteenth century, under the Sung dynasty. His book, continued and provided with additional matter by Chou Li-tsing of the Ming period, is still in existence, and has remained the most important and authoritative treatise on the subject, which has been freely drawn upon by all subsequent writers. The author, a passionate cricket fancier himself, gives minute descriptions and subtle classifications of all species and varieties of crickets known to him and dwells at length on their treatment and care. Under the title *Tsu chi chi* ("Records of Crickets") a similar booklet was produced by Liu Tung under the Ming dynasty. During the Manchu period, Fang Hū wrote a *Tsu chi p'u* ("Treatise on Crickets"), and Ch'en Hao-tse, in his *Hua king* ("Mirror of Flowers") written in 1688, offers several interesting sections on crickets.



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CRICKET GOURDS.

The Winter Habitations of the Insects.

1-2. Covers of ivory carved in open work. 3. Cover of carved coconut-shell. 4. Cover of sandalwood decorated with eight auspicious Buddhistic emblems.



In their relations to crickets the Chinese have passed through three distinct periods: during the first period running from the times of early antiquity down to the T'ang dynasty, they merely appreciated the cricket's powerful tunes; under the T'ang (A.D. 618-906) they began to keep crickets as interned prisoners in cages to be able to enjoy their concert at any time; finally, under the Sung (A.D. 960-1278) they developed the sport of cricket-fights and a regular cult of the cricket.

The praise of the cricket is sung in the odes of the *Shi king*, the earliest collection of Chinese popular songs. People then enjoyed listening to its chirping sounds, while it moved about in their houses or under their beds. It was regarded as a creature of good omen, and wealth was predicted for the families which had many crickets on their hearths. When their voices were heard in the autumn, it was a signal for the weavers to commence their work.

The sounds produced by the mitred cricket (*Gryllus mitratus*: Plate II, Fig. 2) recall to the Chinese the click of a weaver's shuttle. One of its names therefore is *tsu-chi*, which means literally "one who stimulates spinning." "Chicken of the weaver's shuttle" is a term of endearment for it.

One of the songs in the *Shi king* consists of three stanzas each of which begins, "The cricket is in the hall." The time intended is the ninth month when the year entered on its last quarter. In another song of the same collection it is said, "The *se chung* [a kind of cricket] moves its legs; in the sixth month, the spinner [another species of cricket] sounds its wings; in the seventh month it is in the wilderness; in the eighth month it is under the eaves; in the ninth month it is around the doors; in the tenth month the cricket enters under our beds."

At this point the Chinese are not distinguished from other nations. Our word "cricket" is imitative of the sound of the insect (literally, "little creaker," derived from French *criquer*, "to creak"). In old England it was considered a sign of good fortune to have a cricket chirping by the hearth, and to kill one of these harmless little creatures was looked upon as a breach of hospitality. Their cheerful tunes suggested peace and comfort, the coziness of the homely fireside. They were harbingers of good luck and joy. Gower, in his *Pericles*, offers the verse:—

And crickets sing at the oven's mouth,
E'er the blither for their drouth.

Ben Jonson (*Bartholomew Fair*) alludes to the insect's tunes thus: "Walk as if thou hadst borrowed legs of a spinner and voice of a cricket." Shakespeare has several references to this lover of the fireside whose note is so suggestive of cozy comfort. Milton (*Il Penseroso*, 81) has the line:—

Far from all resort of mirth
Save the cricket on the hearth.

On the other hand, the tunes of the hidden melodist were regarded by many persons with superstition and awe, and were believed to be an omen of sorrow and evil; its voice even predicted the death of a member of the family (see J. Brand, *Observations on the Popular Antiquities of Great Britain*, 1888, Vol. III, p. 189).

No one, however, has depicted the cricket's chirping with more poetic insight and charm than Charles Dickens in his immortal story *The Cricket on the Hearth*, in describing the competition between the cricket and the boiling kettle.

"And here, if you like, the Cricket did chime in! with a Chirrup, Chirrup, Chirrup of such magnitude, by way of chorus; with a voice, so astoundingly disproportionate to its size, as compared with the Kettle; (size! you couldn't see it!) that if it had then and

there burst itself like an overcharged gun, if it had fallen a victim on the spot, and chirruped its little body into fifty pieces, it would have seemed a natural and inevitable consequence, for which it had expressly laboured.

"The Kettle had had the last of its solo performance. It persevered with undiminished ardour; but the Cricket took first fiddle and kept it. Good Heaven, how it chirped! Its shrill, sharp, piercing voice resounded through the house, and seemed to twinkle in the outer darkness like a Star. There was an indescribable little trill and tremble in it, at its loudest, which suggested its being carried off its legs, and made to leap again, by its own intense enthusiasm. Yet they went very well together, the Cricket and the Kettle. The burden of the song was still the same; and louder, louder, louder still, they sang it in their emulation.

"The cricket now began to chirp again, vehemently.

"'Heyday!' said John, in his slow way. 'It's merrier than ever, to-night, I think.'

"'And it's sure to bring us good fortune, John! It always has done so. To have a Cricket on the Hearth, is the luckiest thing in all the world!'

"John looked at her as if he had very nearly got the thought into his head, that she was his Cricket in chief, and he quite agreed with her. But it was probably one of his narrow escapes, for he said nothing.

"'The first time I heard its cheerful little note, John, was on that night when you brought me home—when you brought me to my new home here; its little mistress. Nearly a year ago. You recollect, John?'

"'Oh yes,' John remembered. 'I should think so!'

"'Its chirp was such a welcome to me! It seemed so full of promise and encouragement. It seemed to say, you would be kind and gentle with me, and would not expect (I had a fear of that, John, then) to find an old head on the shoulders of your foolish little wife.'

" 'It spoke the truth, John, when it seemed to say so; for you have ever been, I am sure, the best, the most considerate, the most affectionate of husbands to me. This has been a happy home, John; and I love the Cricket for its sake!'

" 'I love it for the many times I have heard it, and the many thoughts its harmless music has given me'."

The Chinese book *T'ien pao i shi* ("Affairs of the Period T'ien-pao," A.D. 742-756) contains the following notice:—

"Whenever the autumnal season arrives, the ladies of the palace catch crickets in small golden cages. These with the cricket enclosed in them they place near their pillows, and during the night hearken to the voices of the insects. This custom was imitated by all people."

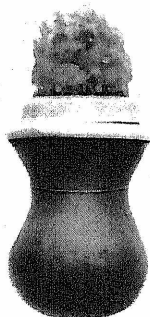
As it happened in China so frequently, a certain custom first originated in the palace, became fashionable, and then gradually spread among all classes of the populace. The women enshrined in the imperial seraglio evidently found solace and diversion in the company of crickets during their lonesome nights. Instead of golden cages, the people availed themselves of small bamboo or wooden cages which they carried in their bosom or suspended from their girdles.

The Museum owns a valuable painting in the form of a long roll depicting the games and pastimes of a hundred boys and attributed to Su Han-ch'en, a renowned artist of the twelfth century: one of the scenes shows six boys surrounded by cricket jars, one of them holding a tickler and letting a cricket out of a trap-box into a jar (see Plate I).

In Plates II and III the principal species of crickets kept by the Chinese in Peking are illustrated from actual specimens obtained, which will be found on exhibition in the case illustrating the cricket cult (West Gallery, second floor). The scientific identifications



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CRICKET GOURDS.

1. Cover of ivory. 2. Cover of white jade. 3. With moulded designs of dragons. 4. Coated with carved red lacquer in two layers. Cover of ivory with carving of three lions playing ball.



were kindly made by Dr. James A. G. Rehn of the Academy of Natural Sciences of Philadelphia. Most of the genera belong to the family Gryllidae, only two to the family Tettigoniidae: *Gampsocleis inflata* Uvarov and *G. gratiosa*, subspecies *infuscata* Uvarov, the latter illustrated in Plate III, Fig. 3. The besprinkled cricket (*Gryllus conspersus* Schaum, Chinese *si-so*), figured in Plate II, Fig. 1, is common all over China, and is also known from the Luchu Islands, Hawaii, and the East Indies. The mitred cricket (*Gryllus mitratus* Burmeister) in Plate II, Fig. 2, is known from most countries of Eastern Asia, particularly China, Korea, Japan, Tonking, and the Malay Archipelago. The broad-faced cricket (*Loxoblemmus taicoun* Saussure) in Plate II, Fig. 3, has also been described from Japan and Java.

The yellowish tree-cricket (*Oecanthus rufescens* Serville: Plate III, Fig. 1) is a favorite with the people of both Peking and Shanghai; it occurs also in the East Indies, but is quite distinct from *O. longicauda* Matsumura of Japan. The black tree-cricket (*Homoeogryllus japonicus* Haan: Plate III, Fig. 2), the "Golden Bell" (*kin chung*) of the Chinese because its sound is compared with that of a bell, is very popular in Peking; it is also known from Japan, Java, and northern India. It is evident that the large, glossy black insect in Plate III, Fig. 3, is quite different from the crickets and, as mentioned, is placed by us in a separate family. The Chinese also distinguish it from the cricket and bestow on it the peculiar name *yu-hu-lu* which is imitative of its sound; this word belongs to the colloquial language, there is no literary name for this insect.

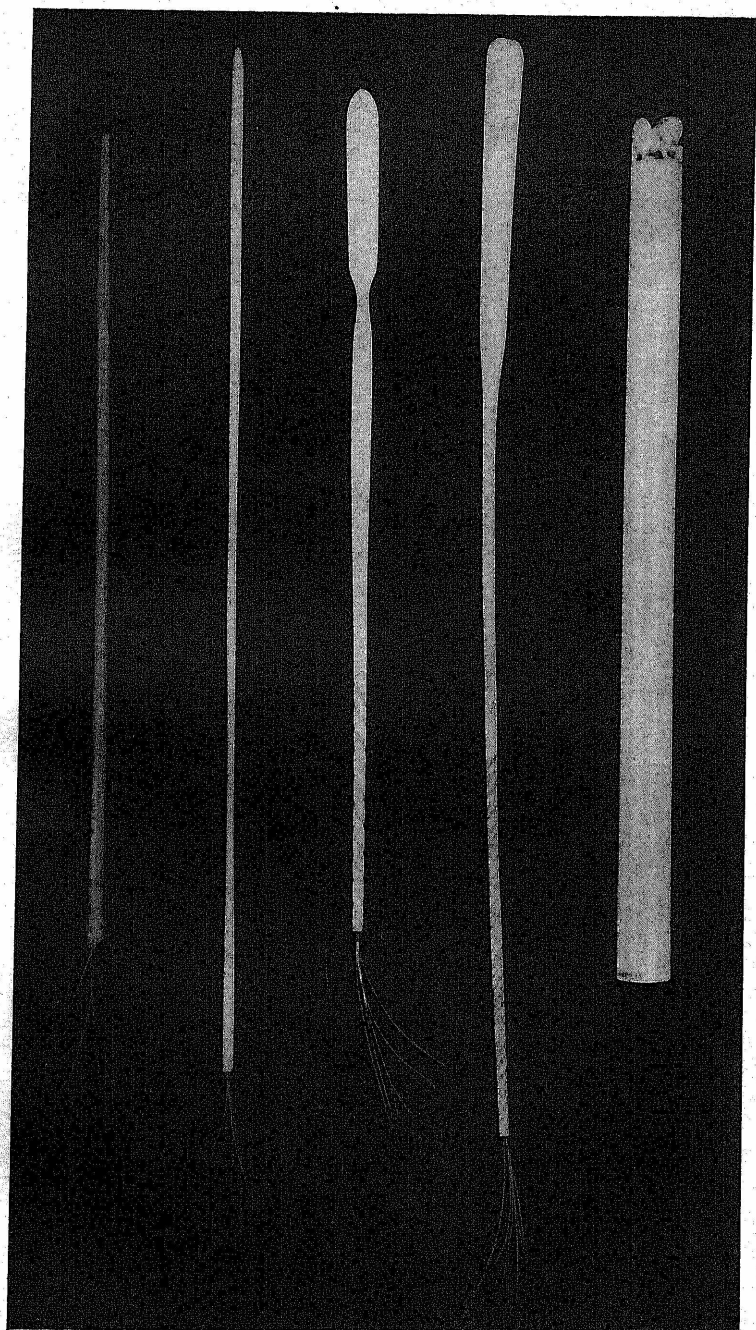
As to color, green, black, yellow, and purple crickets are distinguished by the Chinese, the green and black ones taking the first rank.

The notes of the Golden Bell are described as being like the tinkling of a small bell, and its stridulation is characterized with the words *teng ling ling*. The Japa-

nese designate this species "bell-insect" (*suzumushi*). Lafcadio Hearn, who in his essay "Insect-Musicians" describes the various kinds of crickets favored by the Japanese, says that the bell of which the sound is thus referred to is a very small bell, or a bunch of little bells, such as a Shinto priestess uses in the sacred dances. He writes, further, that this species is a great favorite with insect-fanciers in Japan, and is bred in great numbers for the market. In the wild state it is found in many parts of Japan. The Japanese compare it with a watermelon seed, as it is very small, has a black back, and a white or yellowish belly. This insect, according to the Chinese, stridulates only at night and stops at dawn; the concert produced by a chorus causes a deafening din which is characterized by Hearn as a sound like rapids, and by a Chinese author as the sound of drums and trumpets.

Chinese authors know correctly that the "voices" of crickets, as they say, are produced by the motion of their wings. The stridulatory sounds are described by them as *tsa-tsa* or *tsat-tsatsat*, also as *tsi-tsi*. The term *kwo-kwo* for the yellowish tree-cricket (Plate III, Fig. 1) also is onomatopoeitic. Terms of endearment for a cricket are "horse of the hearth, chick of the hearth, chick of the god of the hearth."

There are various methods of catching crickets. They are usually captured at evening. In the north of China a lighted candle is placed near the entrance of their hole, and a trap box is held in readiness. Attracted by the light, the insects hop out of their retreats, and are finally caught in the traps made of bamboo or ivory rods. Some of these ivory traps are veritable works of art: they are surmounted by carvings of dragons, and the trap doors shut very accurately (Plate XII, Figs. 1-2). The doors are shown open in the illustration.



CRICKET TICKLERS.

For inciting crickets to sing or fight. In Peking they are made from rat or hare whiskers inserted in a reed, bone, or ivory handle. On the right an ivory tube, with cover surmounted by the figure of a lion, for keeping ticklers.



The trap shown in Fig. 4 of the same Plate is an oblong, rectangular wooden box, as used in central China; the trap door at the end of the box is a plain wooden slip fitting into a groove, which may be lifted and lowered in a few seconds.

In the south, men avail themselves of what is called a fire-basket (*fo lam*) which is made of iron rods and in which a charcoal fire is kept burning. This fire drives the insects out of their dens. Sometimes the cricket-hunters reach their object by pouring water into the holes where the insects hide. Sometimes they endeavor to entice them from the nest by placing at its entrance the fruit of *Nephelium longana* (*lung yen*, "dragon's eyes").

In Shanghai and Hangchow grasshoppers are also held captives and enclosed in wooden cages, usually of the shape of a chair, stool, or table (Plate XI).

Cicadas were formerly also kept in small cages which were suspended at the eaves of houses or from the branches of trees, but this custom is no longer practised. The cicada is at present not offered for sale in the markets like the cricket. It may occasionally be caught by boys and caged by them for their amusement temporarily, but otherwise interest in this insect has waned. The same holds good for Japan, where cicadas are never caged. Japanese poets, as Lafcadio Hearn observes, are much more inclined to praise the voices of night-cricket than those of cicadas; there are countless poems about the latter, but very few which commend their singing.

Many people rear hundreds of crickets in their homes, and have several rooms stacked with the jars which shelter the insects. The rich employ experts to look after theirs. As soon as you enter a house like this, you are greeted by a deafening noise which a Chinese is able to stand for any length of time.

During the summer the insects are kept in circular pottery jars made of a common burnt clay and covered with a flat lid, which is sometimes perforated. Many potters made a special business of these cricket houses, and impressed on them a seal with their names; for instance, Chao Tse-yü, who lived in the first part of the nineteenth century and whose productions still enjoy a special reputation. There are old pots said to go back as far as the Ming dynasty (1368-1643), and these are highly prized. The crickets keep cool in these jars, which are often shaped in the form of a gourd, as the heat does not penetrate the thick clay walls. Tiny porcelain dishes decorated in blue and white or small bits of clay contain food and water for the insects, and they are also provided with beds or sleeping boxes of clay (Plates VIII and IX). Jars of somewhat larger size serve for holding the cricket-fights.

During the winter months the crickets change their home, and are transferred to specially prepared gourds which are provided with loose covers wrought in open work so as to admit fresh air into the gourd. This is said to be a special variety of the common gourd (*Lagenaria vulgaris*), the cultivation of which was known to a single family of Peking. A Chinese model of the plant,—the flowers of jade, the gourds of turquoise,—is placed on exhibition; likewise gourds in their natural shapes and others in the process of being worked. The gourds used as cricket habitations are all artificially shaped; they are raised in earthen moulds, the flowers are forced into the moulds, and as they grow will assume the shape of and the designs fashioned in the moulds. There is accordingly an infinite variety of forms: there are slender and graceful, round and double, cylindrical and jar-like ones. Those formerly made for the Palace, of which the Museum possesses a number, are decorated with figures and scenes in high relief fashioned in the clay mould. The

technique employed in these ancient pieces is now lost; at least they are no longer made, though there are poor modern imitations in which the surfaces are carved, not moulded.

The covers of the gourd, flat or tall, are made of jade, elephant or walrus ivory, coconut shell, and sandalwood, all elaborately decorated, partly in high relief, partly in open work, or in the two methods combined, with floral designs, dragons, lions and other animals. Gourd vines with flowers and fruits belong to the most favorite designs carved in the flat ivory covers; gourd and cricket appear to be inseparable companions. A kind of cement which is a mixture of lime and sandy loam is smeared over the bottom of the gourd to provide a comfortable resting-place for the tenant. The owner of the cricket may carry the gourd in his bosom wherever he goes, and in passing men in the street you may hear the shrill sound of the insect from its warm and safe place of refuge. The gourds keep the insects warm, and on a cold night they receive a cotton padding to sleep upon.

Plain gourds are illustrated in Plates IV and V, Figs. 1-2; decorated ones, in Plates V, Figs. 3-4, and X.

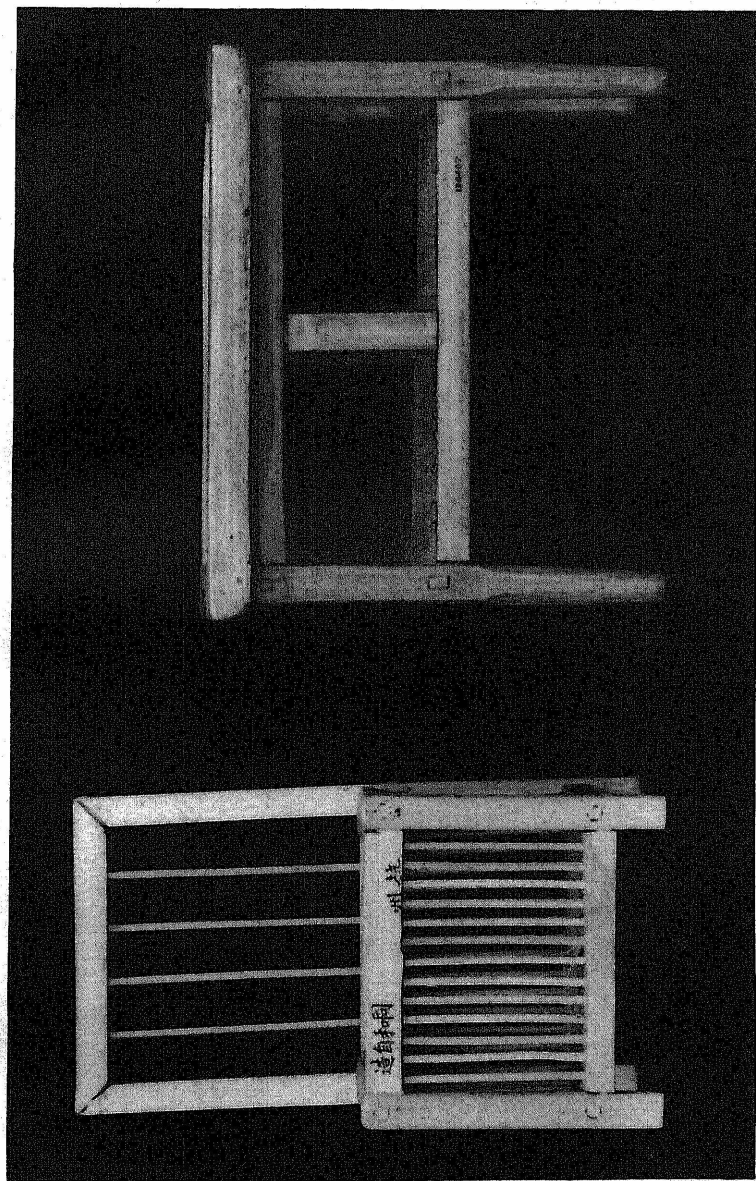
In the summer the insects are generally fed on fresh cucumber, lettuce, and other greens. During their confinement in autumn and winter masticated chestnuts and yellow beans are given them. In the south they are also fed on chopped fish and various kinds of insects, and even receive honey as a tonic. It is quite a common sight to see the idlers congregated in the tea-houses and laying their crickets out on the tables. Their masters wash the gourds with hot tea and chew chestnuts and beans to feed them. Then they listen to their songs and boast of their grinding powers. The Chinese cricket books give many elaborate rules for proper feeding which vary with the different species and with every month. The Golden Bell, for instance,

should be fed on wormwood (or southern-wood, *ts'ing hao*, *Artemisia apiacea*), while flowers of the "silk melon" (*Luffa cylindrica*) and melon pulp are prescribed for the Spinning Damsel.

The fighting crickets receive particular attention and nourishment, a dish consisting of a bit of rice mixed with fresh cucumbers, boiled chestnuts, lotus seeds, and mosquitoes. When the time for the fight draws near, they get a tonic in the form of a bouillon made from the root of a certain flower. Some fanciers allow themselves to be stung by mosquitoes, and when these are full of blood, they are given their favorite pupils. In order to stir their ferocity prior to a bout, they are sometimes also compelled to fast. As soon as they recognize from their slow movements that they are sick, they are fed on small red insects gathered in water.

A tickler is used for stirring the crickets to incite them to sing (Plate VI). In Peking fine hair from hare or rat whiskers inserted in a reed or bone handle is utilized for this purpose; in Shanghai, a fine blade of crab or finger grass (*Panicum syntherisma*). The ticklers are kept in bamboo or wooden tubes, and the rich indulge in the luxury of having an elegant ivory tube surmounted by the carving of a lion (Plate VI). A special brush serves for cleaning the gourds and jars (Plate XII, Fig. 6); and a pair of wooden nippers or tongs is used for handling the food and water dishes (Plate XII, Fig. 5). The insect is held under a wire screen, while its gourd is being cleaned or washed (Plate XII, Fig. 7). A hair net enclosed in a hoop is placed over the jar to watch the doings of the insects (Plate VIII, in upper right corner).

The tympanum of good singers is coated with a bit of wax to increase or strengthen the volume of sound. A small needle about three inches long with blunt end, about the size of a darning needle, is heated



CAGES FOR GRASSHOPPERS IN SHAPE OF WOODEN CHAIR AND TABLE.
Enclosed by glass. Hangchow, China.

over a candle and lightly dipped in the wax. The insect is held between the thumb and forefinger of the closed hand, and the wax is applied to the wing-covers. Specimens of the wax are shown in the case of cricket paraphernalia.

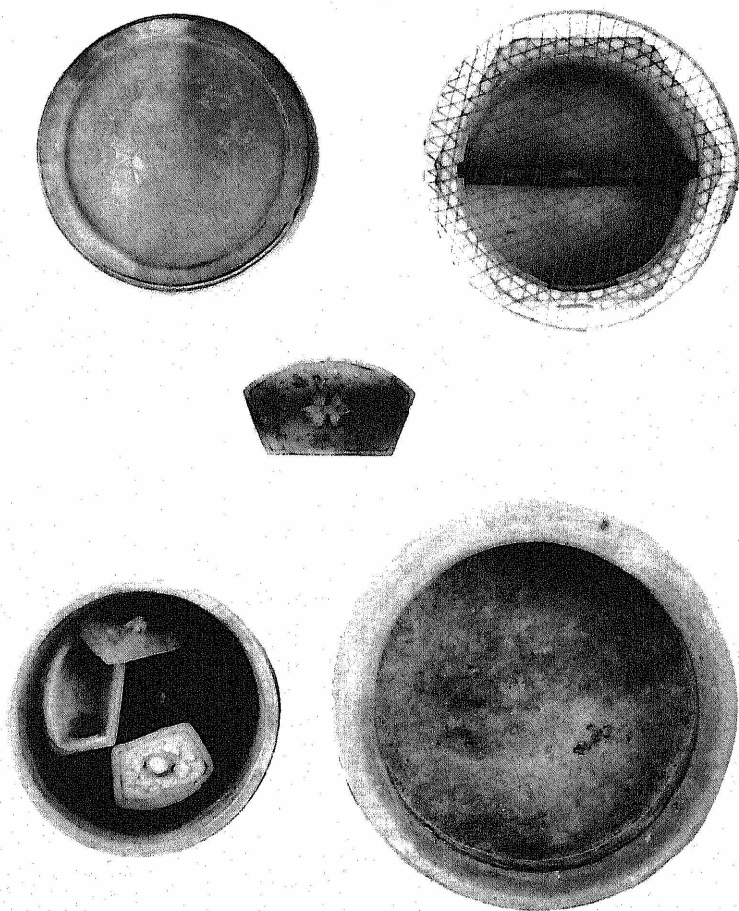
Cricketts are imbued with the natural instinct to fight. The Chinese offer the following explanation for this fact: the cricketts live in holes, and each hole is inhabited by a single individual; this manner of living gives rise to frictions and frequent combats, for the insects always prefer their old places of refuge, and when they encounter in them another inmate, they will not cede their rights voluntarily, but will at once start to fight over the housing problem. The two rivals will jump at each other's heads with furious bites, and the combat will usually end in the death of one of the fighters. It frequently happens that the victor devours the body of his adversary, just as primitive man did away with the body of his enemy whom he had slain in mortal strife. When driven by hunger, cricketts will feed upon other insects and even devour their own relations. When several are confined in a cage, they do not hesitate to eat one another. War and death is a law of nature.

In the course of many generations, the Chinese through long experience and practice, have accomplished what we may call a natural selection of fighting cricketts. The good fighters are believed to be incarnations of great heroes of the past, and are treated in every respect like soldiers. Kia Se-tao, the first author who wrote on the subject, says that "rearing cricketts is like rearing soldiers." The strongest and bravest of these who are most appreciated at Peking and Tientsin come from the southern province of Kwang-tung. These fighters are dubbed "generals" or "marshals," and

seven varieties of them are distinguished, each with a special name.

Those with black heads and gray hair in their bodies are considered best. Next in appreciation come those with yellow heads and gray hair, then those with white heads and gray hair, then those with golden wings covered with red hair, those of yellow color with blood-red hair who are said to have two tails in form of sheep's horns, finally those yellow in color with pointed head and long abdomen and those supposed to be dressed in embroidered silk, gray in color and covered with red spots like fish-scales. The good fighters, according to Chinese experts, are recognized by their loud chirping, their big heads and necks, long legs, and broad bodies and backs.

The "Generals," as stated, receive a special diet before the contest, and are attended to with utmost care and great competence. Observations made for many centuries have developed a set of standard rules which are conscientiously followed. The trainers, for instance, are aware of the fact that extremes of temperature are injurious to the crickets. When they observe that the insects droop their tiny mustaches, they know that they are too warm, and endeavor to maintain for them an even temperature and exclude all draughts from them. Smoke is supposed to be detrimental to their health, and the rooms in which they are kept must be perfectly free from it. The experts also have a thorough understanding of their diseases, and have prescriptions at hand for their treatment and cure. If the crickets are sick from overeating, they are fed on a kind of red insect. If sickness arises from cold, they get mosquitoes; if from heat, shoots of the green pea are given them. A kind of butterfly known as "bamboo butterfly" is administered for difficulty in breathing. In a word, they are cared for like pet babies.



CRICKET POTS.

The Summer Habitations of the Insects.

The one in the lower left contains two clay beds in which the crickets sleep.
Another clay bed in the centre.

The tournaments take place in an open space, on a public square, or in a special house termed Autumn Amusements. There are heavy-weight, middle and light-weight champions. The wranglers are always matched on equal terms according to size, weight, and color, and are carefully weighed on a pair of wee scales at the opening of each contest. A silk cover is spread over a table on which are placed the pottery jars containing the warring crickets. The jar is the arena in which the prize fight is staged. A specimen with two crickets in the act of fighting is shown in the exhibition case. 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 who is called "Army Commander" or "Director of the Battle" 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 described above, and first stirs their heads and the ends of their tails, finally their large hind legs. The two opponents thus excited stretch out their antennae which the Chinese not inaptly designate "tweezers," and jump at each other's heads. The antennae or tentacles are their chief weapons. One of the belligerents will soon lose one of its horns, while the other may retort by tearing off one of the enemy's legs. The two combatants become more and more exasperated and fight each other mercilessly. The struggle usually ends in the death of one of them, and it occurs not infrequently that the more agile or stronger one pounces with its whole weight upon the body of its opponent, severing its head completely.

Cricket-fights in China have developed into a veritable passion. Bets are concluded, and large sums are wagered on the prospective champions. The stakes are in some cases very large, and at single matches held in

Canton are said to have sometimes aggregated \$100,000. It happens quite frequently that too ardent amateurs are completely ruined in the game. Gambling is forbidden by law in China as elsewhere, but such laws are usually winked at, and the official theory in this case is that the stakes consist of presents of sweet cakes. Choice champions fetch prices up to \$100, the value of a good horse in China, and owners of famous crickets travel long distances to meet their competitors and congregate with them in order to match their champions. Some amateurs delight in raising them by the hundreds in the hope to produce the champion of the champions of the season, who is honored with the attribute of Grand Marshal. These men are by no means low-brows, but highly cultured men and those in responsible government positions are found in this class.

Two localities near Canton, Fa-ti and Cha-pi, not far from Whampoa, enjoy a special reputation for cricket-fighting. At these places extensive mat sheds are erected and divided into several compartments. In each section a contest goes on, the pot which forms the arena being placed on a table. In order to acquaint prospective betters with the merits of the crickets matched against each other, a placard is posted on the sides of the building, setting forth the various stakes previously won by each cricket. Great excitement is manifested at these matches, and considerable sums of money change hands. The sum of money staked on the contest is lodged with a committee who retain ten per cent to cover expenses and hand over the balance to the owner of the winning cricket. The lucky winner is also presented with a roast pig, a piece of silk, and a gilded ornament resembling a bouquet of flowers. This decoration is deposited by him either on the ancestral altar of his house to inform his ancestors of his good luck and to thank them for their protection, or on a shrine in honor of Kwan-ti, a deified hero, who is the personifi-

cation of all manly virtues and a model of gentlemanly conduct.

The names of the victorious champions are inscribed on an ivory tablet carved in the shape of a gourd (Plate VIII, centre), and these tablets like diplomas are religiously kept in the houses of the fortunate owners. Sometimes the characters of the inscription are laid out in gold. The victory is occasion for great rejoicing and jollification. Music is performed, gongs are clanged, flags displayed, flowers scattered, and the tablet of victory is triumphantly marched in front, the jubilant victor struts in the procession of his overjoyed compatriots, carrying his victorious cricket home. The sunshine of his glory falls on the whole community in which he lives, and his village will gain as much publicity and notoriety as an American town which has produced a golf or baseball champion.

In southern China, 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. The owner of the champion believes that the honorable interment will bring him good luck and that excellent fighting crickets will be found in the following year in the neighborhood of the place where his favorite cricket lies buried.

All these ideas emanate from the belief that able cricket champions are incarnations of great warriors and heroes of the past from whom they have inherited a soul imbued with prowess and fighting qualities. Dickens says, "For all the Cricket Tribe are potent Spirits, even though the people who hold converse with them do not know it (which is frequently the case)."

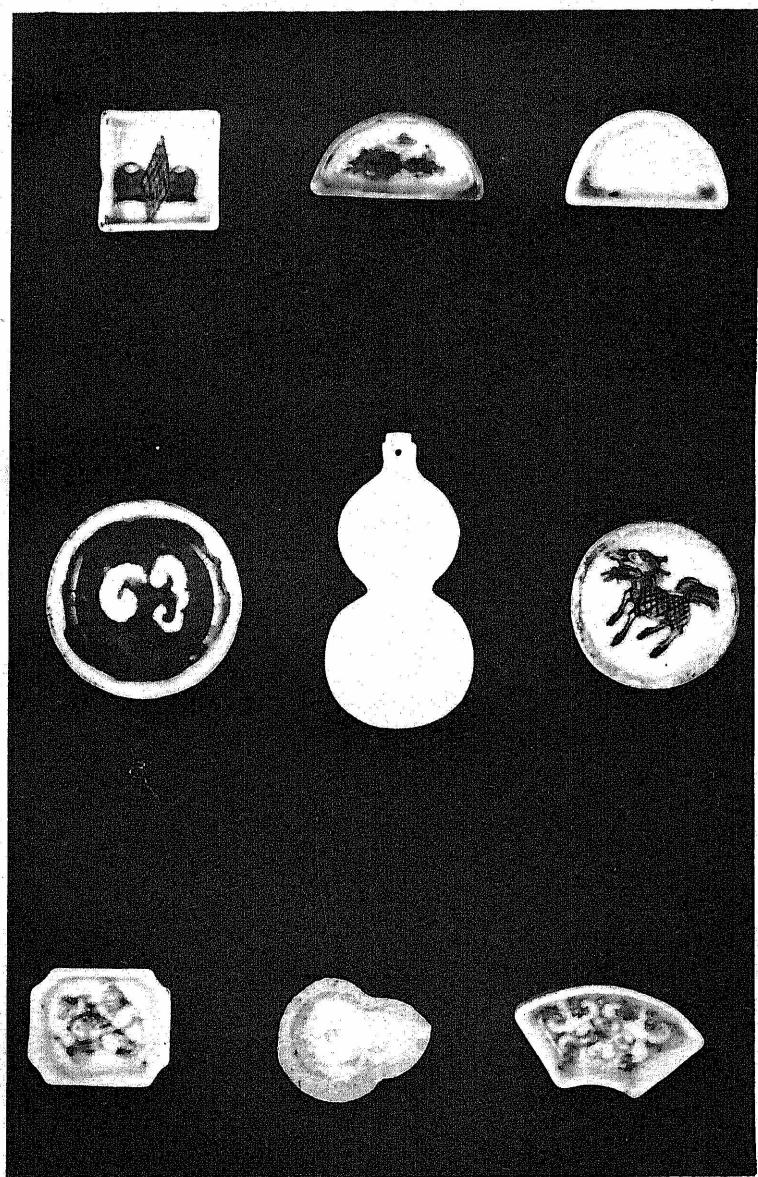
A proverbial saying with reference to a man who failed or has been defeated is, "A defeated cricket,—he gives up his mouth," which means as much as "throwing up the sponge."

The following Chinese stories may give an insight into the cricket rage.

Kia Se-tao, a minister of state and general who lived in the thirteenth century, and who wrote, as mentioned, an authoritative treatise on the subject, is one of the cricket fanciers famous in history. He was completely obsessed with an all-absorbing passion for the cricket cult. The story goes that one day, during a war of the Mongols against the imperial house of Sung, an important city fell into the hands of the foe. When Kia Se-tao received news of the disaster, he was found kneeling in the grass of a lawn and taking part in a cricket match. "In this manner you look out for the interests of the nation!" he was reprimanded. He was not in the least disturbed, however, and kept his attention concentrated on the game.

An anecdote of tragical character is told with reference to an official of Peking, who held the post of director of the rice-granaries of the capital. He once found a cricket of choice quality and exceptional value. In order to secure this treasure, he exchanged his best horse for it and resolved to present this fine specimen to the emperor. He placed it cautiously in a box and took it home. During his absence his prying wife craved to see the insect which had been bought so dearly. She opened the box, and fate ordained that the cricket made its escape. A rooster happened to be around and swallowed the cricket. The poor woman, frightened by the consequences of her act, strangled herself with a rope. At his return the husband learned of the double loss he had suffered and, seized by despair, committed suicide. The Chinese narrator of the story concludes, "Who would have imagined that the graceful singer of the fields might provoke a tragedy like this?"

The "Strange Stories from a Chinese Studio" written by P'u Sung-ling in 1679 (translated into Eng-



BLUE AND WHITE PORCELAIN DISHES FOR FEEDING CRICKETS.
In the centre an ivory tablet in shape of a gourd on which the names of the
victorious champions are inscribed.

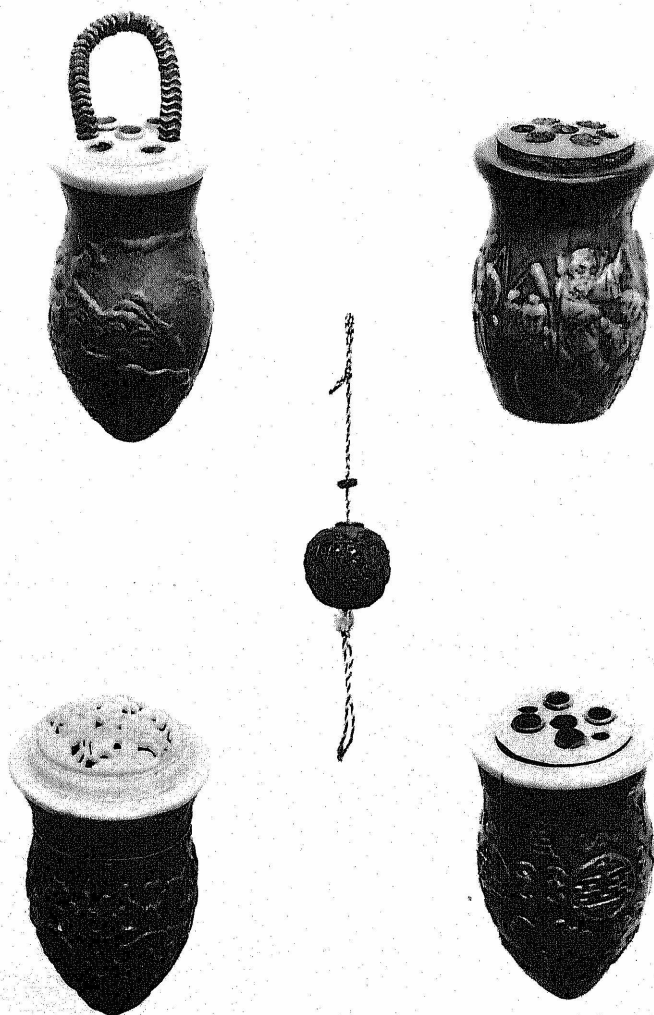
lish by H. A. Giles) contain the following story of a Fighting Cricket (No. 64):—

“During the period Sūan-te (1426-36) of the Ming dynasty, cricket-fighting was very much in vogue at court (levies of crickets being exacted from the people as a tax. On one occasion, the magistrate of Hua-yin, wishing to befriend the Governor, presented him with a cricket which, on being set to fight, displayed very remarkable powers; so much so that the Governor commanded the magistrate to supply him regularly with these insects. The latter, in his turn, ordered the beadle of his district to provide him with crickets; and then it became a practice for people who had nothing else to do to catch and rear them for this purpose. Thus the price of crickets rose very high; and when the beadle's runners came to exact even a single one, it was enough to ruin several families. In the said village there lived a man named Cheng, a student who had often failed for his bachelor's degree; and, being a stupid sort of fellow, his name was sent in for the post of beadle. He did all he could to get out of it, but without success; and by the end of the year his small patrimony was gone. Just then came a call for crickets. Cheng was in despair, but, encouraged by his wife, went out hunting for the insects. At first he was unsuccessful, but by means of a map supplied by a fortune-teller he at last discovered a magnificent specimen, strong and handsome, with a fine tail, green neck, and golden wings; and, putting it in a basket, he returned home in high glee to receive the congratulations of his family. He would not have taken anything for this cricket, and proceeded to feed it up carefully in a bowl. Its belly was the color of a crab's, its back that of a sweet chestnut; and Cheng tended it most lovingly, waiting for the time when the magistrate should call upon him for a cricket.

"Meanwhile, Cheng's nine year old son, while his father was out, opened the bowl. The cricket escaped instantaneously. The boy grabbed it, seized one of its legs which broke off, and the little creature soon died. Cheng's wife turned deadly pale when her son, with tears in his eyes, told her what had happened. The boy ran away, crying bitterly. Soon after Cheng came home, and when he heard his wife's story, he felt as if he had been turned to ice. He went in search of his son whose body he discovered at the bottom of a well. The parents' anger thus changed into grief, but when they prepared to bury the boy, they found that he was still breathing. Toward the middle of the night he came to, but his reason had fled.

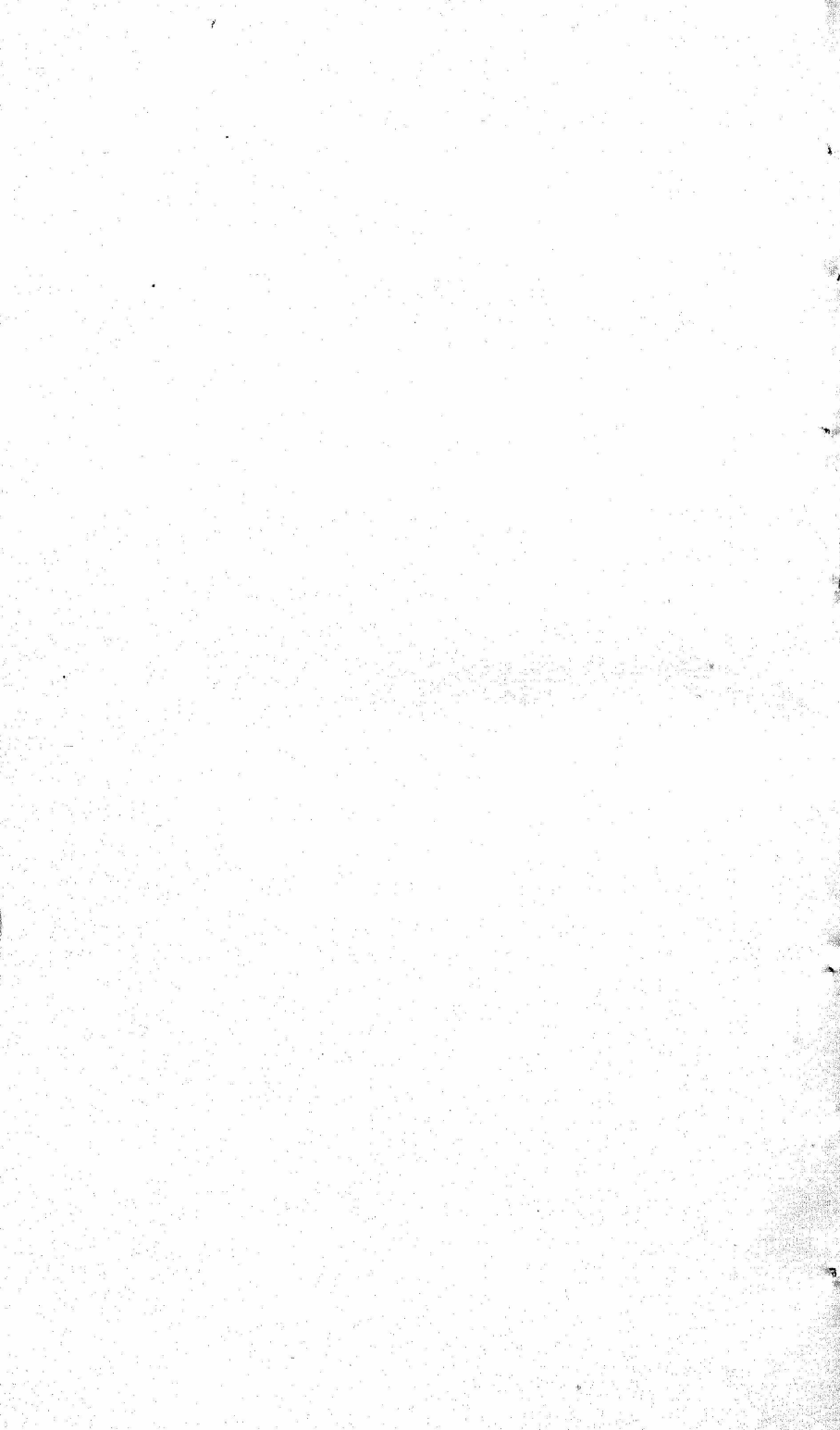
"His father caught sight of the empty bowl in which he had kept the cricket, and at daybreak he suddenly heard the chirping of a cricket outside the house-door. Jumping up hurriedly, there was his lost insect; but, on trying to catch it, away it hopped directly. He chased it up and down, until finally it jumped into a corner of the wall; and then, looking carefully about, he espied it once more, no longer the same in appearance, but small and of a dark red color. Cheng stood looking at it, without trying to catch such a worthless specimen, when all of a sudden the little creature hopped into his sleeve; and, on examining it more closely, he noticed that it really was a handsome insect, with well-formed head and neck, and forthwith took it indoors.

"He was now anxious to try its prowess; and it so happened that a young fellow of the village, who had a fine cricket which used to win every bout it fought, called on Cheng that very day. He laughed heartily at Cheng's champion, and producing his own, placed it side by side, to the great disadvantage of the former. Cheng's countenance fell, and he no longer wished to back his cricket. However, the young fellow urged him,



CRICKET GOURDS.

With moulded decorations; scenery, figures, and ornaments. The figure in the centre represents a carved walnut shell an enlargement of which is shown in Plate XI.



and he thought that there was no use in rearing a feeble insect, and that he had better sacrifice it for a laugh; so they put them together in a bowl. The little cricket lay quite still like a piece of wood, at which the young fellow roared again, and louder than ever when it did not even move though tickled with a pig's bristle. By dint of tickling it was roused at last, and then it fell upon its adversary with such fury, that in a moment the young fellow's cricket would have been killed outright had not its master interfered and stopped the fight. The little cricket then stood up and chirped to Cheng as a sign of victory; and Cheng, overjoyed, was just talking over the battle with the young fellow, when a cock caught sight of the insect and ran up to catch it. Cheng was alarmed, but the cock luckily missed its aim, and the cricket hopped away, its enemy pursuing at full speed. In the next moment Cheng saw his cricket seated on the cock's head, holding firmly on to its comb. He then placed it in a cage and sent it to the magistrate, who, seeing what a small one he had provided, was very angry indeed. The magistrate refused to believe the story of the cock, so Cheng set it to fight with other crickets all of whom it vanquished without exception. He then tried it with a cock, and as all turned out as Cheng had said, he gave him a present and sent the cricket on to the Governor. The latter forwarded it to the palace in a golden cage with some comments on its performances.

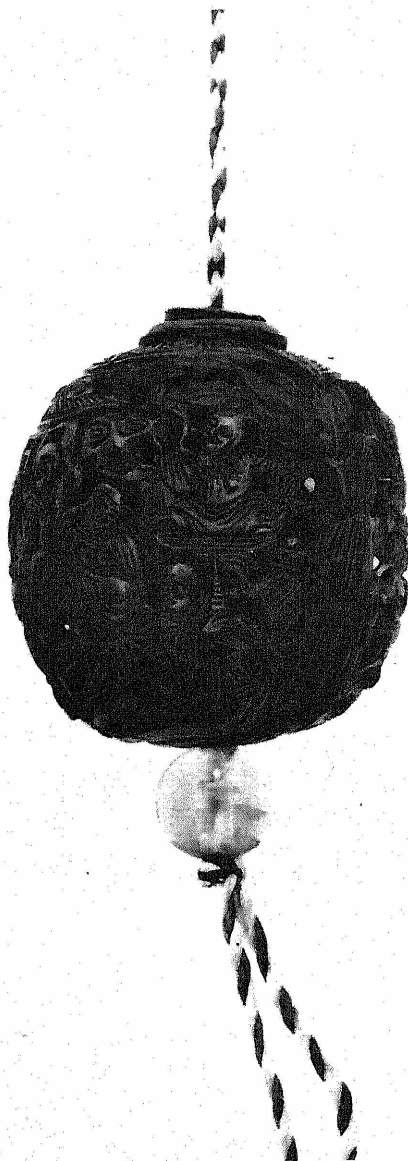
"It was found that in the splendid collection of his majesty there was not one worthy of being matched with this one. It would dance in time to music and became a great favorite at court. The emperor in return bestowed magnificent gifts of horses and silks upon the Governor. The latter rewarded the magistrate, and the magistrate recompensated Cheng by excusing him from the duties of beadle and by instructing the Literary Chancellor to pass him for the first degree. A few

months afterwards Cheng's son recovered his intellect and said that he had been a cricket and had proved himself a very skilful fighter. The Governor also rewarded Cheng handsomely, and in a few years he was a rich man, with flocks, herds, houses and acres, quite one of the wealthiest of mankind."

The interesting point of this story is that the boy's spirit, during his period of temporary mental aberration, had entered into the body of the cricket which had allowed itself to be caught by his father. He animated it to fight with such extraordinary vigor that he might amend the loss caused by his curiosity in letting the other cricket escape.

Cricket-fights are not so cruel as cock and quail fights in which the Chinese also indulge, but the three combined are not so revolting as the bull-fights of Spain and Latin America. The Chinese reveal their sentimental qualities in their fondness of the insect-musicians, in the loving care they bestow on their pets and in lavishing on them the most delicate and exquisite productions their miniature art is able to create. They know how to carve a walnut-shell with the figures of the eighteen Arhat and elaborate ornamental detail (Plates X and XI). A lens is required to appreciate this whole apparatus of intricate design. A walnut like this is suspended at the girdle, and a cricket is enclosed in it just for the purpose of enjoying its musical efforts. Surely people who go to all this trouble must have sentiments and a deep sense of the joy of life and nature.

As far as I know, the Chinese are the only nation that has developed cricket-fights. The Japanese, though fond of chirping insects which they keep as pets in little cages, do not use them for fighting purposes. Kipling writes in his *Jungle-book*, "The herd-children of India sleep and wake and sleep again, and weave



CARVED WALNUT SHELL (ENLARGED).

Decorated with the figures of the Eighteen Arhat, a pavilion, trees, and the sun emerging from clouds. For keeping singing crickets and carried about in the girdle.
China, K'ien-lung Period (1736-95).

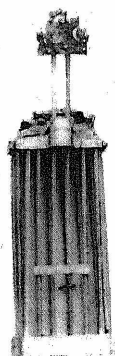
little baskets of dried grass and put grasshoppers in them; or catch two praying-mantises and make them fight." This may be an occasional occurrence in India, but it has not developed into a sport or a national pastime. In regard to Japan the reader may be referred to Lafcadio Hearn's essays "Insect-Musicians," inserted in his "Exotics and Retrospectives," and "Semi" [Cicada] in his "Shadowings."

Field Museum owns a very extensive collection illustrating the Chinese cricket cult and consisting of numerous moulded gourds (many from the Palace and the possession of ancient families of Peking), pottery jars, and all the paraphernalia (altogether about 240 pieces). This collection was brought together by me on the Captain Marshall Field Expedition to China in 1923. A careful selection of this material is placed on exhibit in a case on the West Gallery.

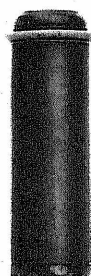
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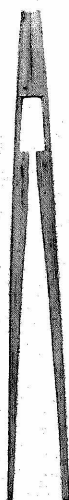
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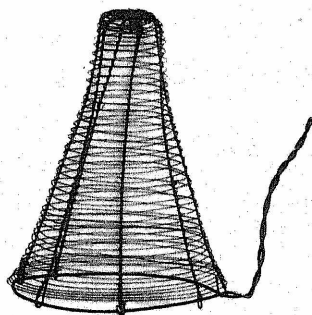
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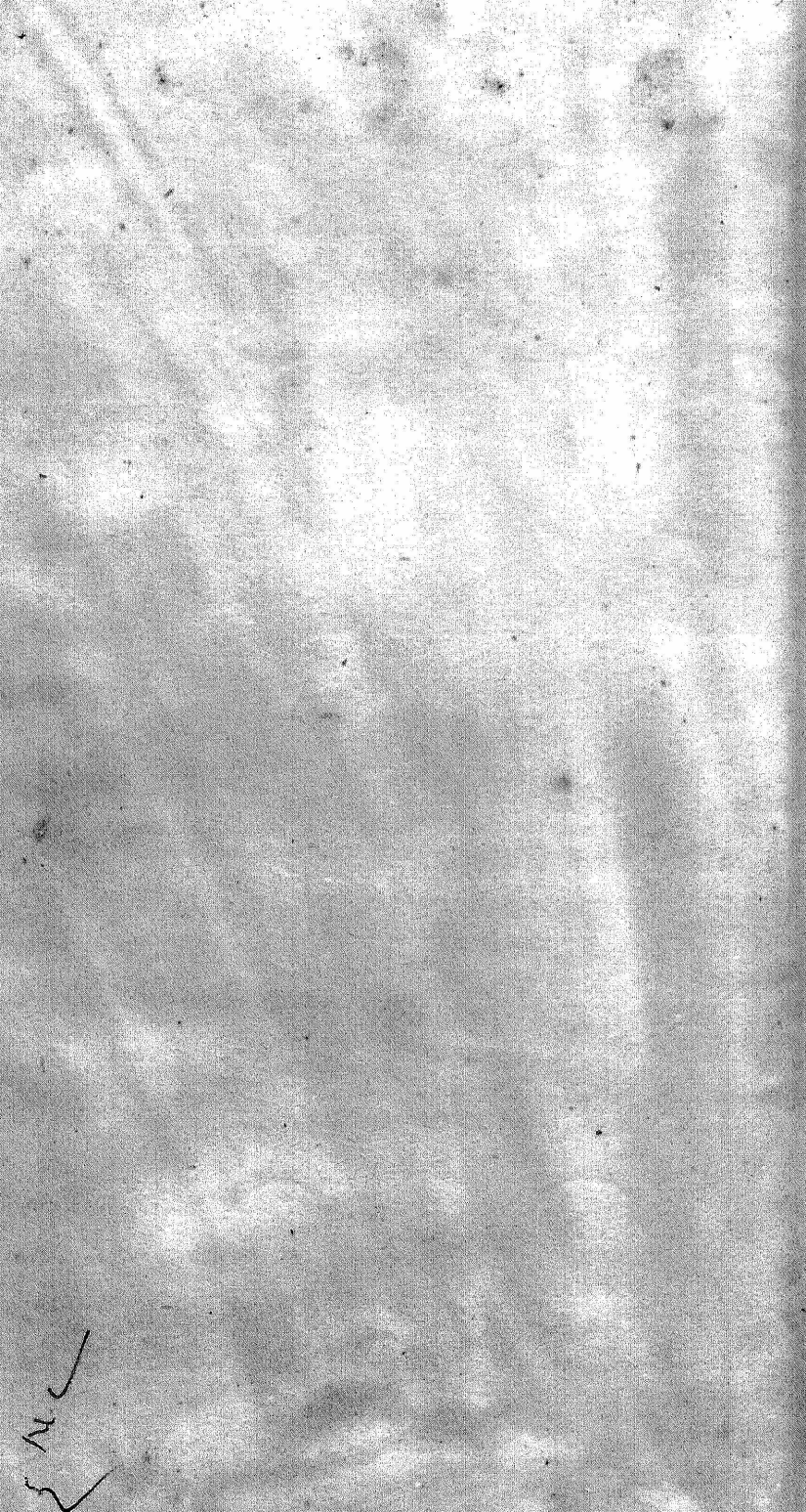
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7

ACCESSORIES.

1, 2, 4. Traps for catching insects, 1 and 4 of bamboo, 2 of ivory. 3. Gourd of cylindrical shape for keeping female crickets to secure eggs. 5. Pair of nippers for taking feeding-dishes out or in. 6. Brush for cleaning cricket-pots and gourds. 7. Wire frame under which crickets are held while their cages are being cleaned.



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