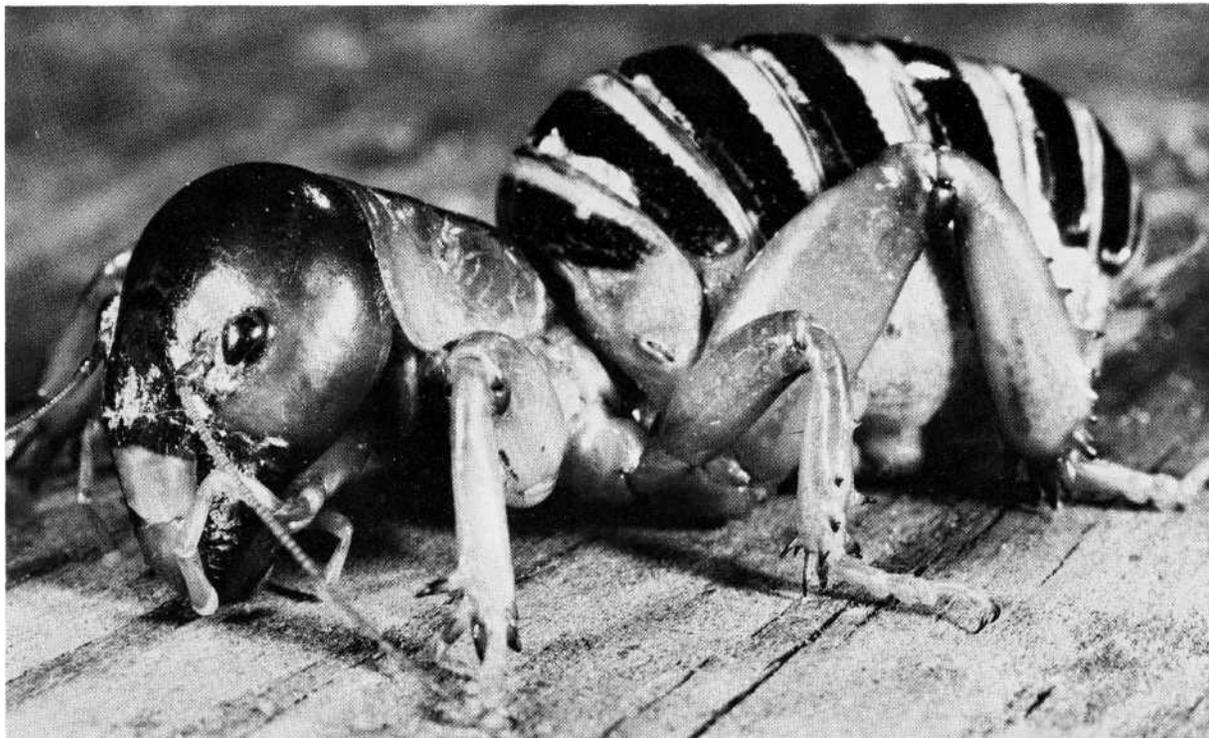


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JERUSALEM CRICKETS

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WORKING in the garden one day, you may have dumped a spadeful of dirt on the hard ground; as it broke up, suddenly, like some miniature monster out of science fiction, a startling creature was revealed. About two inches long, robust, the swollen abdomen laterally banded in ochre and black, the naked head with its two beadlike black eyes strangely suggestive of a bald human skull, the thorax and stout legs heavily armored, the creature stands quietly for a moment, then bursts into scrambling activity and quickly digs itself out of sight. Again uncovered, it may turn on its back, waving its six legs and opening and closing its large dark-tipped mandibles viciously. Its whole attitude spells "Danger! Look out! I am poisonous, deadly!"; but, while it can inflict a painful bite, and perhaps draw blood with the sharp spines on its legs, it is certainly not poisonous, and is actually doing an expert job of bluffing.

What you have discovered is a Jerusalem cricket, *Stenopelmatus longispina* Brunner, a member of the Order Orthoptera (Straightwings—the Grasshoppers, Crickets, and Katydid). Its scientific name describes it, literally, as a narrow-footed, long-spined sand cricket. It is subterranean and nocturnal in habit, remaining underground, or, at least, away from light during the day, and sometimes prowling at night. It might be termed omnivorous, since it feeds on roots and plant fibers, and decaying and living animal matter. In captivity it will devour practically anything that is placed in its confines.

While working with the United States Department of Entomology, I was assigned, along with other workers in the Department, to investigate the failure of an immense planting of potatoes near El Monte, California. It was far past the time when the shoots should have appeared above ground, and yet the field was barren of any green. We plotted the field with strategically-placed ten-foot taped-off squares, and each square was worked with a trowel and coarse earth sifter. Needless to say, only dried remnants of the planting were found—but each hill uncovered contained several scrambling Jerusalem crickets! This is probably the reason for the erroneous common name, "Potato Bug." Such an infestation is not a frequent occurrence, but it does place the insect in the category of agricultural pests.

Jerusalem crickets can be found in winter, spring, and early summer. The male, which can be differentiated by its larger, more massive head and thorax and smaller abdomen, prepares for mating by manufacturing a sperm sac. This is torn off by the vulva of the female and is carried with her for some time, presumably until the sperm has been absorbed. Unless the male is agile and on his guard, he may be devoured by the female after mating. The eggs are deposited in masses in rounded nests underground, and may sometimes be turned up when spading. These nests are often lined with a paper-like substance. The eggs are oval, whitish in color, and about the size of the phosphorous head of a kitchen match. The young, tiny images of the adult, begin at once

Photographs by Jack Drafahl, Jr.

to fend for themselves, nibbling on almost anything they find.

The Jerusalem cricket is one of the clowns of the insect world. Many specimens, kept alive in the laboratory have shown great variance in "personality"; some were pugnacious, some shy, some apparently highly "nervous" and excitable, reacting vigorously at the slightest tap on the glass; others were more phlegmatic, taking things calmly and as they came. None refused to eat, and ingested everything from raw or cooked meat and vegetables to living and dead insects. One devoured a large scorpion, leaving only a sad pile of legs, pincers, and the sting.

In nature they have many enemies; among the most deadly are fungi and endoparasites. Birds, snakes, toads, large lizards and small mammals also will prey on them. In many parts of the West they constitute the principal food of the pallid bat. No captive "tarantula" in my laboratory has ever been observed to attack this large armored insect; but the black widow spider will unhesitatingly ensnare even the largest Jerusalem cricket, and a few nips in vulnerable areas will soon quiet this giant.

Southwest Indians feared the Jerusalem cricket, calling it "child of the desert," and Mexicans gave it the name "niña de la tierra," child of the earth. No manner of research has disclosed the reason for calling it the Jerusalem cricket; but may I present a theory, for what it is worth: when the cricket is in normal resting position, with all six legs spread, it resembles a Jerusalem Cross—an angled cross with short bars across the ends, these short bars represented in the cricket by the long spines above the tarsi.

The Jerusalem cricket is plentiful in the southwest and is found everywhere in California, except in the actual desert and higher mountains. In the dry season they go into aestivation. According to Essig, there are several Western species: the banded sand cricket, *S. jasciatus* Thomas, the red sand cricket, *S. fuscus* Haldeman, and the pictured sand cricket, *S. pictus* Scudder, the smallest of the group. These are segregated mainly by the number of spines on the tibia, and the region where they are found.

Since *Stenopelmatus* is a nocturnal wanderer, it may enter a house through any adequate crevice, a slightly open door, or be brought inside on potted plants or other materials that have been left outdoors. On warm nights, his interesting trail may be seen in soft dirt—a snake-like continuous track made by the dragged abdomen, with a series of cleat-like tracks on either side made by the legs. If followed with a flashlight, these may lead to the clownish rascal himself, poking here and there for a food morsel, his long antennae waving ahead of him. If touched, he may turn to face the intruder, and emit a scraping sound like two pieces of sandpaper rubbed together, by moving the hind legs up and down

against the rough plates on the sides of the abdomen, or by moving the abdomen up and down against the legs. This sound is not considered a true stridulation, such as produced by specific sound-making organs found in the winged crickets. The two short, antennae-like projections standing erect on the posterior end of the abdomen (cerci) are sense organs similar to the antennae, which warn of danger from the rear. If these are touched, a variety of reactions are stimulated—freezing, a sudden about-face, kicking back of the hind legs to throw dirt in the face of an attacker, turning on its back and kicking, or a fast retreat.

It will be noticed that the body of the Jerusalem cricket is sleek and shining, and that, even though it is subterranean in habit, no dry dirt will cling to its body. It is built somewhat like a bulldozer, and uses the mandibles, head and stout legs for digging, butting the heavily-plated head against dirt and pushing it into the desired position or upward out of its tunnel. The heavy mandibles, when closed, are used like a hoe. The Jerusalem cricket is an excellent example of adaptation to environment. ❀

When seen close up on its own level, far left, the Jerusalem cricket presents a formidable appearance. The underside of the head is shown below. At bottom, as usually seen by people, from above.

