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ZOOLOGY

Lip-Smacking Grasshopper

A GRASSHOPPER with a talent for lip-smacking has turned out to be quite an unusual insect. *Paratylotropidia brunneri* Scudder is the first insect known to communicate over fairly long distances by producing an audible sound from the mouth—literally smacking its lips.

Dr. Richard D. Alexander of the University of Michigan's Museum of Zoology, Ann Arbor, while collecting insects in a prairie south of Valmeyer, Ill., had bagged several of these large grasshoppers before he realized that soft ticking sounds were coming from this species.

Dr. Alexander noticed that the mandibles, or mouth parts, were moving in time with the sound. When one hopper ran down, another would begin ticking a second later from just a few feet away.

The hoppers responded not only to each other but to Dr. Alexander as well. After ignoring various artificial noises, a nearby

male answered the call of a metal thermometer case striking a brass belt buckle.

Produced at the rate of six or seven per second, usually in groups of four, the grasshopper ticks resemble a shorter, softer version of the ticking song of a katydid. The call can be heard several yards away.

Dr. Alexander reports in *Science*, 132:152, 1960, that other insects often produce long distance sounds by rubbing their hind legs together. Mouth sounds are produced by other insects, but not for the purpose of long-range communication.

It may be, the Michigan collector says, that the grasshopper's lip-smacking signal evolved through a stage in which feeding noises were significant. At present it may be effective as a long-range signal only in areas where there are few other sound-producing insects.

• *Science News Letter*, 78:78 July 30, 1960

GEOPHYSICS

Earth's Steam Released

VOLCANIC ERUPTIONS, such as the recent explosions of Mount Etna in Sicily, is one way the earth has of letting off steam from internal geophysical tensions and pressures.

The awesome destructive force of these natural blast furnaces far exceeds that of man-made atomic explosions. However, volcanic fallout, unlike atomic fallout, can be beneficial. If the lava that falls out or flows over the crater of an erupting volcano is accompanied by dust or ash, the benefits to the soil are extensive and readily available.

The farms and vineyards on the slopes of the 10,758-foot-high Etna, the giant of European volcanoes, are among the most fertile in all of Sicily. This is in no small measure due to its high volcanic activity which, although frequent, fortunately has stopped short of killing and destruction in the vast majority of its eruptions.

The current eruptions of Etna are its largest in this century, but so far give no evidence of being a prelude to the tragic consequences that followed the blast of Mt. Pelee, Martinique, in 1902. That eruption killed all but one of the 28,000 inhabitants in St. Pierre, a seaport several miles from the 4,000-foot volcano. Most deaths were from the steam and gases that poured forth from the mouth of the volcano in tremendous volume. Little lava accompanies this type of volcanic explosion.

Perhaps the most potentially dangerous volcanic eruption of this century was that of Mt. Katmai in Alaska in 1912. Dr. Robert F. Griggs, who led five expeditions to Katmai following the explosion, reported that had the eruption occurred near New York City, the entire city and its millions of inhabitants would have been destroyed and the gaseous sulfur fumes would have polluted the air of the territory east of the Rocky Mountains. No lives were lost from the Katmai eruption because it is so remote.

Paradoxically, the vast amount of heat released by volcanic eruptions does not have a warming effect on the atmosphere. The volcanic dust that accompanies most eruptions creates a vast invisible sunshade that cuts off a significant amount of radiation from the solar system.

Weather records note 1816 as the "Year Without a Summer," when cold weather prevailed all over the temperate zone. It followed the eruption of Tomboro in the East Indies, one of the greatest on record, occurring the previous year. Lowered temperatures throughout the earth followed the explosions of Mt. Pelee in 1902 and Mt. Katmai in 1912.

• *Science News Letter*, 78:78 July 30, 1960