



### Wisdom From Grasshoppers

➤ GO TO THE grasshopper, thou busybody, consider his ways, and be wise: such might well be the text of *The Grasshopper Book*, by Wilfrid S. Bronson, (Harcourt, Brace, \$1.75).

Mr. Bronson disagrees with Aesop in the latter's judgment of the worthlessness of grasshoppers, and with both Aesop and Solomon in their overweening opinion of the superlative virtues of the ant.

"As a boy I didn't really know just why I felt that Aesop's fable was unfair," he states. "But now I do. Whoever studies insects soon finds out that, though many kinds of ants work hard, other kinds are thieves, slave-makers, murderers, and cannibals, and do no work at all. Then, if he looks up the grasshopper's list of relatives, he discovers that it also has both good and bad, like everybody else.

"Hard work is well worth while, of course. But music is important, too. No ant can fiddle, but a grasshopper can."

The real crux of the matter, the author contends, is not how well any creature shows (or seems to show) qual-

ities which we human beings consider admirable, but how well it meets the problems of getting a living for itself and of propagating its species.

"Men, ants, and grasshoppers," he points out, "preserve their kind, each in its own special way. Since each succeeds age after age, why should one be praised more than the other?"

Mr. Bronson, who is an artist as well as a naturalist, has kept insects of the grasshopper tribe in cages in his house, so that he might study their structure and behavior intimately and exactly. He graphically shows how a grasshopper's long hind leg, for example, is a multi-purpose tool fit to delight the heart of the most ingenious Yankee tinkerer: it

is a combination catapult, landing gear, fiddlestick, pole climber and scratching apparatus.

In the more complex field of insect behavior, Mr. Bronson's observations and drawings are no less exact and entertaining. He tells of a male field cricket that displayed very evident jealousy when another male was introduced into the cage with him and his mate, yet was not above trying what looked a bit like a tentative flirtation with a completely exotic female, a red-legged locust. And the series of little sketches showing how this same insect cleans his legs, antennae and body remind one irresistibly of the grooming antics of a small dog.

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### VOLCANOLOGY

## Allies Gain Volcanoes

The Eolian Islands, recently mopped up by the Allied forces, are the home of two volcanoes which are unique among fire-mountains.

➤ IN PICKING UP the Eolian islands, that lie in the angle between Sicily and the toe of the Italian boot, United Nations forces have taken into custody two volcanoes with claims of their own to uniqueness among fire-mountains.

Vulcano, on the island of the same name, may be regarded as the "type specimen" of its class, for its particular name obviously is the general name for all volcanoes. Why this particular cone should have come to be par excellence "the" volcano, especially with the much more impressive peaks of Vesuvius and Etna not far away, it is hard to guess. The evolution of geographic names, through the often obscure course of history, is often anything but logical.

Stromboli, which has also given its name to its island, is famed for a different reason. Of all volcanoes, it comes

nearest to being incessantly in action. It booms and rumbles day and night, though seldom blowing off violently enough to cause harm. It used to be claimed that it never stopped, but it is now known that Stromboli has occasional periods of quiescence, sometimes several months in length.

Stromboli, with a height somewhat over 3,000 feet, compares fairly with Vesuvius, which is just under 4,000, but not at all with Etna's towering 10,000. Vulcano, with its highest point only a little more than 1,600 feet above sea level, is relatively a dwarf.

Volcanoes were regarded in ancient mythology as the chimneys of Vulcan's forge. By transfer, they became in medieval and early modern times the chimneys of hell. Something of this notion lingers still in the rather widespread impression that they are direct vents to the molten interior of the earth.

While it is true that the ultimate source of a volcano's heat is the interior heat of the earth, the connection is not so simple as this picture would make it. Modern geological research indicates that volcanoes are more or less localized affairs, and that molten rock that flows from them is produced on the spot by local causes.

The modern picture is something like this: Surface layers of rock are pushed into folds by the mountain-forming shifts and shrinkings of the earth. Deep

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terrestrial heat plays a part in setting these foldings in motion. The harder, firmer rocky strata bend, perhaps break, but do not crumble. The folding and bending cause severe local heating, just as a strip of sheet metal can be heated by rapid bending.

At some point beneath the fold, soft rock crumbles, is melted by the heat, and partly dissolves in the presence of intensely hot steam, sulfurous gases and other vapors. This becomes the magma or lava. It may flow quietly out through cracks in the rock, as at Etna and Kilauea, or the access of more water from the surface may cause the flash generation of more steam and a destructive boiler-like explosion, like the classic one of Vesuvius that destroyed Pompeii or the gigantic one in our own time that blew the top off Mt. Katmai in Alaska.

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#### GENERAL SCIENCE

### Research Grants Permit Important Work to Continue

➤ RESEARCH GRANTS to 11 scientists were announced by the Society of the Sigma Xi, national honorary fraternity for the promotion of research. Totalling \$2,240, the grants will allow the continuation or completion of important researches which otherwise might have to be abandoned; other projects of scientific importance will be reinforced by the grants.

Funds came from small contributions made by thousands of Sigma Xi members throughout the country.

Scientists receiving the grants were Dr. R. H. Alden of the University of Tennessee, Dr. T. T. Chen of the University of California, Dr. E. E. Dale of Union College, Dr. E. S. Deevey, Jr., of Rice Institute, Dr. R. R. Humphrey of the University of Buffalo, Dr. A. T. Miller, Jr., of the University of North Carolina Medical School, Dr. E. H. Myers of Stanford University, Dr. C. A. Neuberg of New York University, Dr. H. H. Nininger of the American Meteorite Laboratory in Denver, and Dr. R. A. Studhalter and Dr. W. S. Glock of Texas Technological College.

The committee making the awards consisted of Dr. Harlow Shapley of Harvard College Observatory, president of the Society of the Sigma Xi; Dr. Hugh S. Taylor of Princeton University; and Dr. L. C. Dunn of Columbia University.

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## • New Machines and Gadgets •

⚙️ **MEDICINE SPOONS** with tightly fitting covers may soon be available for the parent who must give medicine to an unwilling youngster. The loaded spoon is inverted, put into the mouth and a discharge valve opened by pulling a slide.

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⚙️ **AVIATOR PADS**, made of animal hair mixed with a small amount of reclaimed rubber, are used for pilot seats, parachute seats, and bombardier pads. Since the product costs only a fourth as much as the spongy rubber formerly used, economies are also expected by its use in post-war civilian products.

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⚙️ **SAFETY SIPHONS** for transferring acids and other dangerous liquids from large to small containers are now available made of flexible thermosetting plastic tubing. Free flow and easy control are claimed. The tubing is acid and corrosion resistant.

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⚙️ **PLASTIC PELLETS** for bullets, and compressed air instead of powder, are used in electric guns which produce all the ratchet and recoil vibrations of anti-aircraft weapons. These guns are used effectively in training soldiers at considerable saving in cost.

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⚙️ **ROBOT AIMING** devices, known as gyro-stabilizers, increase by several hundred per cent the shooting accuracy of new Army tanks while in motion, even if racing at full speed. The stabilizer keeps the gun barrel at a fixed elevation and the target within focus of the gunner's telescopic sight. The gunner can fire quickly and effectively, making only slight manual adjustments when necessary.

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⚙️ **SPIN-TEST** machines for inspecting shell fuses simulate the action of shells in flight, practically eliminating the possibility of "duds" reaching gunners. The testing machine looks like a table-size radio. It has a high-speed motor. By placing a fuse on an adapter attached to the motor shaft, it is possible to tell at a glance if the mechanism is properly adjusted. Millions of fuses are tested each month.

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⚙️ **SOUND FREQUENCY** analyzers, electrical instruments used to measure current frequencies, are now used experimentally by physicians. Combined with the electric cardiograph it shows what part of the heart cycle is responsible for an abnormal heart action. The device also has many industrial uses.

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If you want more information on the new things described here, send a three-cent stamp to SCIENCE NEWS LETTER, 1719 N St., N. W., Washington 6, D. C., and ask for Gadget Bulletin 172.

