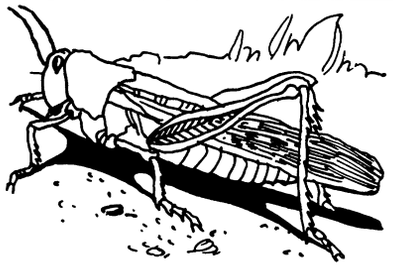
ENTOMOLOGY

NATURE RAMBLINGS by Frank Thone



The Years of the Locust

NEXT SUMMER the grasshoppers are going to be bad in the Northwest, as they were last summer, and the summer before, and the summer before that. The Years of the Locust are upon us again.

The Bureau of Entomology of the U. S. Department of Agriculture has had its field men out looking over the ground, and they report that there are formidable numbers of eggs in the soil, left there by last year's 'hoppers to hatch out this spring, first as tiny creeping insects that move over the ground in crowds, then as full-grown, winged and devouring terrors that may fill the air with their clouds. No old settler who lived on the Great Plains in the early days doubts the literal accuracy of the tenth chapter of Exodus.

For our western grasshoppers are real locusts, not the same exactly as the Biblical ones, but close cousins nevertheless. There are four species of them, that make most of the trouble in the wheat belt. And by a curious inadvertence of popular naming, we have given the locust's ill repute and terror to two relatively harmless insects, for the dog-day "locust" and the seventeen-year "locust" are not locusts at all but cicadas.

Scientists long ago learned how to fight our grasshopper-locusts with considerable effectiveness, by scattering baits of arsenic-poisoned bran in the way of the creeping hordes of young insects, before they take to their wings. The state of Minnesota has reduced the depredations of the pest to minor proportions during the present locust cycle by using this method of warfare, but the less wealthy states to the west, the Dakotas and Montana, have not had the money for bran or arsenic or man-hire, so they have been caught in a vicious and ever-widening spiral of the devouring pests. If they cannot find money to carry on the war, only a cold, wet spring or some other combination of natural factors unfavorable to the locusts can save them.

The Bureau of Entomology has been cooperating with the states as far as its funds have permitted. But their already severely retrenched locust-fighting funds are threatened with still further retrenchments.

At the same time, the mild winter weather that has lain over all the West seems to be favoring these insect enemies of man. It has been somewhat droughty, to be sure, but there seems to have been enough moisture to keep the eggs from being killed. There has been some blowing of soil, but probably not deep enough to expose the eggs in most places. And if the mild winter passes into an unusually early, warm spring, there is grave danger that the locusts will hatch and begin crawling before the poison-spreading armies can take the field against them. If that happens, no one can even guess at the consequences.

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PHYSICS

Prof. Compton Interprets Stratosphere Results

THE RECORDING cosmic-ray meter taken to an altitude of 61,243 feet on the Settle-Fordney stratosphere flight brought back a message that Prof. A. H. Compton and Dr. R. J. Stephenson of the University of Chicago interpret as meaning that cosmic rays are charged particles, not radiation like super gamma rays or X-rays.

To the American Physical Society in New York recently Dr. Compton announced this interpretation. The relationship between the ionization shown by the meter and the altitude is such that Prof. Compton does not believe that it can be explained by radiations of the gamma ray type, but it does fit in with the effects produced by alpha rays or ionizing particles with a definite range.

Science News Letter, March 3, 1934

Three species of oyster are cultivated in the United States.

AERONAUTICS—PHYSICS

Infrared Lights Declared Impractical for Fog Flying

HOPES that flying in foggy weather could be made safer by the use of infrared radiation were blasted by scientists and engineers gathered in Washington at the request of the Bureau of Aeronautics of the U. S. Department of Commerce for a conference on the problem of overcoming the hazard of fog.

There is no known source for obtaining infrared radiation of the wavelengths necessary for penetrating fog in energies of more than a few millionths of a millionth of a volt, it was pointed out by Dr. Irving Langmuir of the General Electric Research Laboratory and others in the discussion. No one knows how to produce this type of radiation in useful amounts. The discovery of a way to produce such radiation would be a stroke of genius and is not likely to occur during routine experimentation.

The scientists also discouraged Governmental experimentation with proposed schemes for dissipation of fog by use of the Tesla coil and other means. Such plans have been tested for many years, but it is well known to physicists that it is theoretically impossible for them to work well enough to be of practical use, Dr. W. J. Humphreys told the gathering. Those that are based on sound scientific principles are too expensive for use in aviation.

Two possible solutions to the problem of fog landings were, however, given sanction by the meeting, and intensive research along these lines was urged. The first aid to the fog-bound flyers will be the radio, it was suggested. It is known positively that radio will penetrate fog. And radio signals can indicate to the flyer, by the use of instruments, his location with reference to the flying field. It is true that they do not

give distances shorter than the length of the radio wavelength used, but it is now possible to use wavelengths as short as 10 meters (10.9 yards) for this purpose. These are very good; it is not necessary to wait until one centimeter or ten centimeter wavelengths are made available.

Another aid which further research may adapt for the use of the flyer is the device used by vessels to determine the depth of the water beneath the hull by measuring the time required for a sound to return as an echo. A similar device has already been tried on airplanes but at present it is necessary for the flyer to judge from the loudness of the sound how far he is above the earth. It would be quite possible to have an instrument pick up the echo and show on a dial the height of the plane in feet above the landing field.

Science News Letter, March 3, 1934

ARCHAEOLOGY

One Child in Three Died In Ancient Indian Village

ONE BABY out of every three—this high proportion claimed by death is revealed by excavations at one prehistoric Indian village.

Excavation of the cemetery of this village, Un Shagi, is reported by Dr. George Woodbury to the American Association for the Advancement of Science. The village, which was apparently inhabited only about a hundred years in prehistoric times, lies in the Jemez Canyon, in New Mexico.

The ruins have been the scene of excavations since 1926, under direction of the School of American Research and the University of New Mexico. One-third of the cemetery has been unearthed, most of the burials being found in the refuse heap. A few infants were buried in the floors of still inhabited rooms, Dr. Woodbury said.

From his study of the 85 burials that have been found, Dr. Woodbury concluded that 36 per cent. of the village inhabitants died in infancy. He also found evidence that not more than four generations were buried in the cemetery, which means that Un Shagi had a brief career as a settlement.

Finding about twice as many female as male burials at the ruin is explained by Dr. Woodbury on the grounds that a good many of the men doubtless died while off hunting or at war and were buried elsewhere.

Science News Letter, March 3, 1934

•First Glances at New Books

Chemistry

OUT OF THE TEST TUBE—Harry N. Holmes—*Long and Smith,* 373 p., $3. The author, who is professor of chemistry at Oberlin College, has command of a literary style marked by much of Van Loon's breezy rush and impatience of detail; yet he is a real chemist after all, so that he gets his main facts on straight and even manages to present structural formulae of organic compounds in palatable form. The book is baited with many chemical wonder-facts of the "oh, my!" variety, yet each such bait pulls the reader straight into a "here's why" of fundamental scientific explanation.

Science News Letter, March 3, 1934

Physics—Industry

INDUSTRIAL RADIOGRAPHY — Ancel St. John and Herbert R. Isenburger—*Wiley,* 232 p., $3.50. X-rays have rendered such important service in medicine and to experimental physics that we are likely to forget they can be useful to industry. With much practical detail and scientific background, this treatise should prove valuable to those who wish to apply radiography by X-rays or gamma rays to industrial problems. An excellent 20-page bibliography completes the volume.

Science News Letter, March 3, 1934

Physics

COLLISION PROCESSES IN GASES—F. L. Arnot—*E. P. Dutton,* 104 p., $1.20. Written to assist those who are about to begin experimental research on problems involving the collision of electrons, photons and positive ions with atoms and molecules of a gas at low pressures, this latest addition to a useful series of monographs is divided into two parts. The first part is devoted to collisions between electrons and atoms and the other to other types of collisions.

Science News Letter, March 3, 1934

Education

A STUDY OF LIBRARY READING IN THE PRIMARY GRADES—C. DeWitt Boney—*Teachers College, Columbia Univ.,* 70 p., $1.50. One of the "Contributions to Education, No. 578."

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Horticulture

MODERN GUIDE TO SUCCESSFUL GARDENING—M. G. Kains—*Greenberg,* xiv+370 p., $2.50. The world is full of books about gardening, but most of them are not intended to be read, only to be "consulted," like a cyclopedia or a collection of formulas or recipes, when you want some specific bit of information or direct instruction how to accomplish a given job. Mr. Kains' book is different. It does give plenty of information, and tells how to do things, but it goes about its business in such an engagingly chatty, breezy fashion that it tempts you to sit and read it "just for fun." Which undoubtedly make its contents "slip down" easier, and sit better on the mental digestion.

Science News Letter, March 3, 1934

Botany

CACTUS — Laura Adams Armer—*Stokes,* 101 p., $1.50. The present vogue for rock gardens and desert gardens has caused a great upswing in popular interest in cacti, most characteristic of American dry-land plants, yet among the strangest of all vegetables. The present book is one of the most attractive of all recent cactus literature, presenting in chatty yet accurate form the principal facts about the most outstanding species, and illustrating each with an excellent full-page pen drawing by Sidney Armer.

Science News Letter, March 3, 1934

Nature Study

STORIES OF OUTDOOR SCIENCE—Lewis M. Dougan—*Lyons and Carnahan,* xi+357 p., 80c. A well planned, well written, well illustrated textbook of general outdoor science, particularly as seen and experienced in the Mississippi valley.

Science News Letter, March 3, 1934

Psychology

EDUCATIONAL PSYCHOLOGY — William A. Kelly—*Bruce,* 501 p., $2.40. A text intended for use in Catholic schools and colleges. Chapters on the "Soul," the "Will," and "Character Formation" emphasize the spiritual and moral training of the child.

Science News Letter, March 3, 1934