

# Questions

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## VETERINARY MEDICINE

### DDT Sprays Do Not Harm Beef Cattle

➤ CONTINUED SPRAYING of beef cattle with DDT insecticide apparently does not have any poisonous effect on the animals and does not interfere with weight gains. Studies showing this have been made by two Texas veterinarians, the American Veterinary Medical Association reported in Chicago.

Less than 90 parts per million of the DDT were absorbed by the cattle tested and these minute amounts were largely stored in the fat.

Science News Letter, September 6, 1952

### GOOD BIOLOGICAL TEACHING MATERIAL CAN HELP PRODUCE "THE GOOD MAN"

Quintilian, a literary critic during the First Century, held that education, from the cradle upwards, is something which acts on the whole intellectual and moral nature, and whose object is the production of "the good man." Most people will accept this. Therefore, since biological science plays such an important part in modern life, it is rational to expect that everybody study a great deal of biology, particularly anatomy, botany, physiology, and zoology. And, since the modern microscope has done more than any other instrument of its size to enhance the better life, it is important that more and more people study the minute structures of animals and of man. Otherwise, a normal outlook on life is impossible.

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## PHYSICS

# Cosmic Ray Mystery

Origin of cosmic rays and how they attain their near light-speed velocities are problems being attacked through use of high-flying balloons carrying photographic plates.

➤ ONE OF the deepest mysteries of the sky about us is the nature and origin of cosmic rays. What they are, where they come from and what they do is currently puzzling scientists.

Cosmic rays are particles that are accelerated in space to velocities near the speed of light. They include positrons, mesons, protons and the so-called "heavy nuclei."

Positrons are positively charged electrons. Mesons are particles with a mass greater than electrons but less than the positively charged nuclear proton. Heavy nuclei are atoms that have been stripped of their outer electrons.

The cosmic particles bombard the earth constantly at energies millions of times greater than scientists can obtain with modern accelerations. It is not known how these energies are reached.

Most of the cosmic rays that shoot in from outer space do not penetrate the earth's atmosphere to sea level. Called primary radiation, the rays frequently strike atoms of gases that make up the air. When they do, the atom usually is smashed and its particles race off in many directions. Those particles are detected on earth as secondary cosmic rays.

Scientists studying cosmic rays under a broad Navy program say it is a frustrating task. To study the primary rays, the "laboratory" should be about 23 miles above the earth where the original particles can be found.

Laboratory instruments and equipment, of course, can be carried to such heights by present-day rockets, but the rocket flight is a short-time proposition. Cosmic ray apparatus should be kept at the high altitudes for hours.

Balloons currently are being used by the Navy scientists to carry instruments high into the air and to hold them there while the mysterious particles shoot into the equipment and leave tell-tale tracks on photographic plates. Other equipment radios information to the ground as soon as a cosmic ray is detected.

So tiny are the photographic traces of cosmic rays, they must be found under a microscope. Two dozen plates of film, properly exposed, are sufficient to keep scientists busy for two or three years.

The Navy scientists say their research program is a basic one as contrasted to an applied research program. They explain that no definite goal is sought, such as harnessing cosmic rays.

Basic research always is needed and usually pays off. The scientists believe the

bits of cosmic-ray knowledge gathered by researchers eventually will be tied together by science into another advancement for mankind.

Science News Letter, September 6, 1952

## PHYSICS

### New Device Measures Drag of Air on Ground

➤ A SHEAR meter, so sensitive that it can measure a drag force of only 1/100,000th of a pound per square foot, has been developed by John E. Vehrencamp of the University of California at Los Angeles.

It was designed for a study of the drag effect of air currents on the earth's surface and its influence on wind velocities and transfer of heat into the air. Such factors are related to problems in orchard heating and the laying of smoke screens.

Its data should be more accurate than those from earlier models.

The device consists of a round container in which the immediate terrain under study is duplicated. This container is suspended in a liquid silicone. Drag forces on the duplicated surface are measured by an electronic device underneath the container.

Science News Letter, September 6, 1952

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