

## ARCHAEOLOGY

# Secrets to Man's Past

► NEW INSTRUMENTS that were developed by engineers to unlock the secrets of the atom and to explore the far reaches of the heavens were used by a team of engineers and archaeologists to unveil deeply buried secrets of mankind's remote past.

How the modern instruments were used to study the contents of ancient tombs without turning over a single spadeful of earth—is reported by Carlo M. Leric of the Milan Engineering School and the Leric Foundation, Italy, in Expedition, 4:4, 1962, Bulletin of the University Museum of the University of Pennsylvania.

First important discovery made with the aid of the new instruments was of a great wall in Sybaris, almost legendary Greek City that was destroyed by the Crotoni in the sixth century B.C. Without digging below the surface, the scientists were able to locate and trace a great wall.

Of greatest usefulness was the proton-magnetometer that makes it possible to detect very slight changes in the magnetic field of the soil. The soil of Italy in this region is magnetic, the limestone used in the ancient wall is non-magnetic. The sci-

entists on the surface had only to note any abrupt changes in the magnetic intensity of the earth beneath their feet to trace the buried wall, which they did for a distance of nearly half a mile.

Electronic instruments were used to detect the presence of ancient Etruscan tombs in another area of Italy north of Rome. In ancient times the tombs were cut into the layer of limestone that makes up the soil. Entrances to the tombs were cut as steep ramps but these are now completely filled with earth and invisible from the surface. The engineers found that the electrical resistance of the earth-filled entrances contrasts with that of the surrounding limestone. Once the tombs were spotted, modern drills were used to make a hole into which a periscope was inserted. Some tombs were beautifully decorated, but only three or four out of a hundred contained paintings.

Working in cooperation with the Milan engineers were a party of American archaeologists from the University Museum, Philadelphia, under the direction of Dr. Froelich Rainey.

• Science News Letter, 82:20 July 14, 1962

## METEOROLOGY

## Public Likes Trained Meteorologists on TV

► PROFESSIONAL weathermen on TV draw a bigger audience than pretty girls, a survey on TV ratings has shown.

Trained meteorologists give out information that is more reliable and useful than non-professional weathercasters. And the public is more interested in good weather information than in being entertained by a weathercaster, the survey also showed.

Dr. D. Ray Booker of Pennsylvania State University made the survey comparing the television ratings of professional and non-professional weather programs. When given a choice, he found, the public "decidedly prefers" the professional weather program.

The rating information was taken for 34 different programs in which a meteorologist competes directly with a non-meteorologist. The results included:

1. The ratings of programs prior to the weather programs are nearly equal.

2. Ratings of professional weather programs increase while those of non-professional programs decrease from the previous 15-minute rating.

3. Ratings of professional programs are significantly greater.

4. Ratings of TV stations that use meteorologists for their weather program remain considerably greater after the weather program than do those of the competition.

The adult audience, Dr. Booker found, is 20% greater for professional programs than for non-professional ones.

Dr. Booker's report appeared in Bulletin of the American Meteorological Society, 43: 223, 1962.

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## BIOLOGY

## Heat Affects Appearance, Fish-Growth Study Shows

► ABNORMAL temperatures during early development of animals may affect the physical appearance of the adult, experiments on African fishes have shown.

Curvature of the spine and other physical deformation was so noticeable in the African Black Chinned Mouth Breeder after being chilled during the egg stage that observers classified the adult as another species during experiments by Dr. Sanford H. Vernick, biologist from Marymount College, Tarrytown, N. Y., and Fordham University, Bronx, N. Y.

X-rays of the adult fishes revealed that those subjected to colder-than-normal temperatures developed more sections of backbone than normal adults, causing an extreme bending of the backbone. Although the fishes were able to swim normally, the general shape was remarkably changed.

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The ancient city of *Gath*, which was one of the five main centers of Philistine culture, may have been located at Tell en-Najila, a rocky prominence in the southeastern corner of the Palestinian coastal plain.

In 1961, 15,000,000 fish were reported killed by water *pollution* in the United States.

*Vacuum* is being overcome in some space applications by sealing an instrument in a container of air or nitrogen.

The primary cause of infant deaths is fetal *anoxia* or lack of oxygen during birth.

## Do You Know?

*Materials* little used on earth are being found to have properties of lightness, heat transfer, electrical characteristics, and stability in vacuum which make them especially suited to spacecraft structures and equipment.

Head *injuries* account for nearly 80% of the deaths in aircraft accidents.

The temperature of the side of a *spacecraft* away from the sun may be hundreds of degrees below that of the side facing the sun.

A *seamount* is a beveled, circular or elliptical mountain rising 3,000 or more feet above the deep-sea floor.

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