

## ANTHROPOLOGY

# Trace Man's Progress

Radiocarbon dating of specimens dug from the soil of the Near East has given anthropologists evidence of mankind's progress from cave to city dweller.

► THE STORY of mankind's development from a primitive cave-dwelling creature to a city-dwelling builder is pieced together from radiocarbon dates of specimens dug from the soil of the Near East.

The story is sketched and the many important gaps in it pointed out by Prof. Robert J. Braidwood of Oriental Institute and the University of Chicago in *Science* (June 20).

The Near East may have been the cradle of Modern Man, Dr. Braidwood says, and even before modern man made his appearance, tools, a knife made of flint, were in use there.

More than 10,000 years ago man began to emerge from his caves and live in the open air. This was an era of "incipient cultivation" that prefaced the swing from food-gathering to a food-producing stage. People in that long-ago time had flint sickles for reaping, crude milling stones for grinding seeds and a tool that may have been used as an axe or a hoe or as both. At that time, too, there is some suggestion of animal domestication, probably the first domesticated animal being the dog.

A radiocarbon date for such an open-air site is reported in the same issue of *Science* by Dr. Ralph S. Solecki of the Smithsonian Institution, Washington, and Dr. Meyer Rubin of the U. S. Geological Survey. The village site, called Zawi Chemi Shanidar and situated in northern Iraq, was dated

from a charcoal sample as about 10,870 years old.

The earliest appearance of a settled village-farming community which was the first to be dated is the village of Jarmo, probably dating back to 7000 B. C.

It is probably very difficult to conceptualize fully, or to exaggerate, the consequences of this first appearance of food production. Human existence took on new dimensions from diet, demography, disease and so on through social organization, politics, religion and esthetics.

Later followed the general spread of agriculture from its earliest home in the upper piedmont and intermontane valleys of the fertile crescent. There wild wheats, barley, sheep, goats, pigs, cattle, and some kind of horse were at home in nature.

The next stage occurred when mutations or hybridization, especially of plants, allowed the domesticated food to be removed from this area.

The new way of life had extended well up the Danube Valley by about 4000 B. C., Prof. Braidwood reports, and by 2500 B. C. it had pretty well covered Europe. It had also gone eastward; wheat was being grown in China by at least 1500 B. C.

Urban civilization in southern Mesopotamia appeared about 3500 B. C. and was followed by the beginning of the Egyptian dynasties around 3000 B. C.

Science News Letter, July 5, 1958

customers. Maintenance problems, particularly with the receiver, are greater than had been expected, but improvements are being made. The size, shape and weight of the receiver could be improved, he said.

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**READY RELAY**—The 20-foot mast and two-and-one-half-foot reflector used by the Marine Corps radio relay set goes up in minutes in the field. Using an extremely narrow message band, the radio operates in super high frequency range and can "send" for a distance of 40 miles. The Raytheon Manufacturing Company, Waltham, Mass., will supply the radio relay sets.

## ENGINEERING

## Design Test Reactor For Fuel Elements

► A NUCLEAR reactor to investigate the effect of extreme nuclear conditions upon reactor fuel elements will be completed in 1958 at the Atomic Energy Commission's National Reactor Testing Station near Idaho Falls, Idaho.

The million-dollar facility is designed especially to deliver a high-intensity, short-duration pulse of nuclear energy without damage to the installation itself. Resembling a small nuclear research reactor, it will be fueled by uranium oxide uniformly dispersed in graphite as a moderator.

The reactor is being designed by Argonne National Laboratory, Lemont, Ill.

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## ENGINEERING

# Device Pages Doctors

► A POCKET radio that whistles to let you know somebody is trying to reach you by telephone is part of a page-you-anywhere telephone system undergoing tests in the Allentown-Bethlehem, Pa., area.

Doctors, lawyers and other persons who must maintain immediate and economical contact with their offices can be signaled anywhere in the two-city area, C. R. Kraus, Bell Telephone Company of Pennsylvania, told scientists at the American Institute of Electrical Engineers meeting in Buffalo, N. Y.

The system, called Personal Signaling Service, was described as an improvement over similar services now in use or planned by telephone companies.

When using the small pocket signaler selectively tuned to a specific frequency, a customer does not need to remain near his automobile to be paged by radio-telephone, nor does he have to listen, at frequent intervals, through a long list of names being paged before he hears his own.

Here is the way the service works, as explained by Mr. Kraus:

1. A customer's secretary, or other prearranged party having a message to deliver, dials the telephone company's signaling operator and gives her the customer's number.

2. The operator dials the four-digit number and also records the information for billing purposes.

3. The signal tones are transmitted on the 35 megacycle channel to the customer's pocket radio where they set up a pleasant whistle.

4. The customer pushes a button to cut off the whistle and then goes to the nearest telephone where he calls his office, home or other prearranged point to receive the message.

The system has been in operation in the Allentown-Bethlehem area for ten months. Mr. Kraus said the tests have shown the service fulfills a need evidenced by extensive usage and steady growth in the number of