

# archaeology notes

## ENGLAND

### Dating the pottery

Thermoluminescent dating of pottery, on which research has been in progress at the Oxford University Archaeological Laboratory for six years, is now ready to become operational.

Its principle is that when pottery is heated above the red hot stage the light it emits is in proportion to its age, its radioactive content and its susceptibility to an artificial dose of radiation.

The uranium, thorium and potassium contents of most clays provide a combined radiation dosage of about one roentgen per year. Minerals such as quartz, present in ancient pottery, store part of the energy they absorb from this radiation by the trapping of electrons at lattice defects.

These trapped electrons are released if the material is subsequently heated. This release results in the emission of light. This is thermoluminescence; it can be observed from most fragments of ancient pottery as long as a sufficiently sensitive photomultiplier is used for detecting the light. The effect has been demonstrated in samples of Roman, Greek and older pottery.

The thermoluminescence observed from a sample today is proportional to the time that has elapsed since the pottery was fired from raw clay. It is also proportional to the sensitivity of the minerals present in the sample and to its radioactive content.

By exposing the sample to a known dose of radiation and comparing the amount of thermoluminescence induced with the natural thermoluminescence first observed, the latter can be expressed as equivalent to a certain radiation dose (the equivalent dose).

The effective dose-rate to which the minerals have been exposed is calculated from measurement of the radioactive content. Division of the equivalent dose by this dose-rate gives the age in years.

The method is an absolute one in the sense that it does not require samples of known age for its calibration.

## AUSTRALIA

### Talgai skull proved genuine

The Talgai skull, found in southern Queensland 80 years ago, is now hailed as the most important fossil relic of man found in Australia—after years of painstaking work by the professor of anatomy at Sydney University, Prof. N. W. G. MacIntosh.

The skull received wide acclaim in 1914, but then became discredited. With its receding forehead, projecting face, prominent eyebrow ridges, and huge canine teeth, it has many of the characteristics of so-called Java man, *Homo erectus*, who lived half a million years ago.

Yet it is the remains of a 14-year-old aboriginal boy who lived and died in Queensland 13,000 years ago, and who belonged to the species *Homo sapiens*.

The significance of the find is that it indicates that *Homo erectus* and *Homo sapiens* might be the same species. It also suggests, with other fossil evidence, that two types of man with distinct features once existed in Australia.

The skull was found near Talgai in Darling Downs,

southern Queensland, in 1886 and remained in various homesteads until it was sent to Sydney in 1914. Sydney University's then professor of geology, Sir Edgeworth David, and a predecessor of Prof. MacIntosh in the Chair of Anatomy, Prof. J. T. Wilson, announced the discovery on Aug. 21, 1914, at an international science congress in Sydney.

Prof. David made a trip to the site at Talgai, but went off to World War I before doing any work on the skull.

The first scientific paper reporting the find reflected a lack of faith in the authenticity of the skull and also made an error in its description. Scientists lost all interest in the discredited skull until Prof. MacIntosh began his research in 1948.

## EUROPE

### Clamp-down on plunder

European countries are taking steps to stop the plunder of archaeological sites.

The Council of Europe in Strasbourg has drawn up a 20-nation scheme whereby national authorities would monitor excavation sites to ensure that work is carried out only by qualified people. Finds will be checked and protected and countries will encourage traveling public exhibitions.

In the past, international demand for museum pieces has promoted looting of sites—as well as a lucrative market in fakes.

Italian police in February seized three truckloads of goods, 90 percent of which were fake Etruscan art aimed at overseas buyers. Recently Turkish authorities ordered police with dogs to guard valuable sites following thieves by tourists and prospective dealers.

The Council of Europe's plan is the first attempt to bring the 1965 UNESCO recommendations on archaeology protection into regional operation.

## AUSTRALIA

### Cave doodles hundreds of feet down

While Australian scientists speculate over the significance of newly found 10,000-year-old rock carvings, another art find, twice as old, has been located in caves beneath the Nullarbor Plain.

The wall drawings are "just like doodling," and have little real pattern, except checkerboard effects, reports R. V. S. Wright, lecturer in anthropology at Sydney University. Their age has been placed at 20,000 years—some 10,000 years before the time now considered the dawn of civilization in Australia.

The drawings are located in caves about 250 miles west of Ceduna and several hundred feet underground. They add support to claims that early aboriginals did not live only in the open.

A second member of the expedition, Mrs. Louise Maynard of Sydney University, commented that five years ago it was not safe to suggest the aboriginals had been in Australia more than 5,000 years. "Now we say they've been here at least 20,000 years and most of us accept that 30,000 years is going to be the time we'll eventually agree upon."

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