The nature of archaeological evidence

The Archaeological Record

- Each piece of data in an archaeological site comes from a unique place in time and space

- The archaeological record is a finite resource.

- Each archaeological site contains a unique record of past human behavior...

- .... and since no two archaeological sites are ever the same, each site is important.

Artifact or Ecofact?

Artifact

A man-made or –modified portable object typically this could be pottery, stone tools, metal objects, etc.

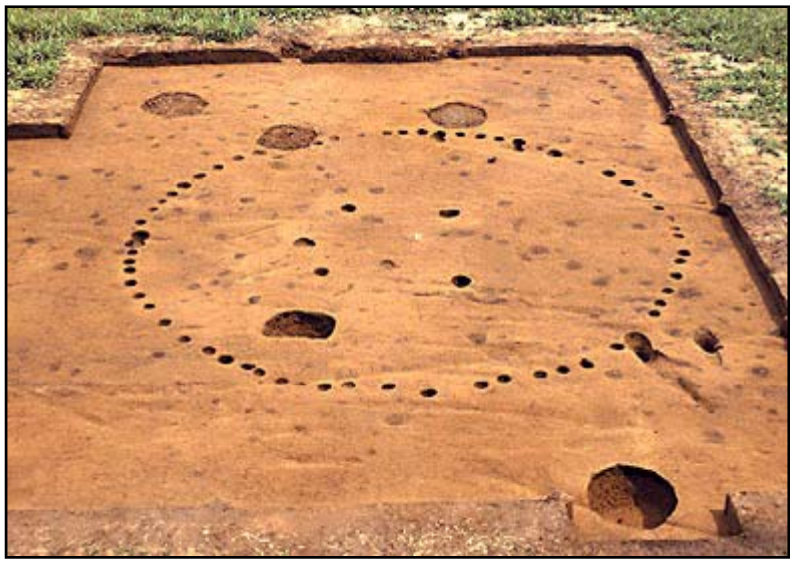
Artifact or Ecofact?

Ecofact

non-artifactual organic, environmental remains (plant and animal remains, human skeletons, soils and sediments), or naturally occurring objects (shells, fossils)

Artifact or Feature?

- Usually parts of archaeological sites or landscapes modified by humans is referred to as a "**feature**"
- Features, like artifacts are a product of human "**intentionality**", but are not portable
- This includes a wide range of possible features, including, pits, hearths, postholes, kilns, bedrock mortars (the list is very extensive)



Sites

Sites are typically any place where you find a concentration of artifacts, feature, structures, etc.

Archaeological sites range from the large-scale (cities, towns, villages, *tells* (ancient Near Eastern mounds of accumulated human debris)….

but also individual buildings, concentrations of structures, cemeteries and tombs
(again a very long list of types of sites)

When is a site, a site?

The answer differs depending on who you ask:

- Usually this is a definition which varies by region and period, depending on what is seen as typical or a critical mass to fulfil the criteria for a site
- In England a Roman site may be just a handful of imported Roman pottery sherds
- In the Middle East, this would just be “background noise” since there is so much pottery kicking around
- So the exact definition of a site is variable, but is usually defined in the research design

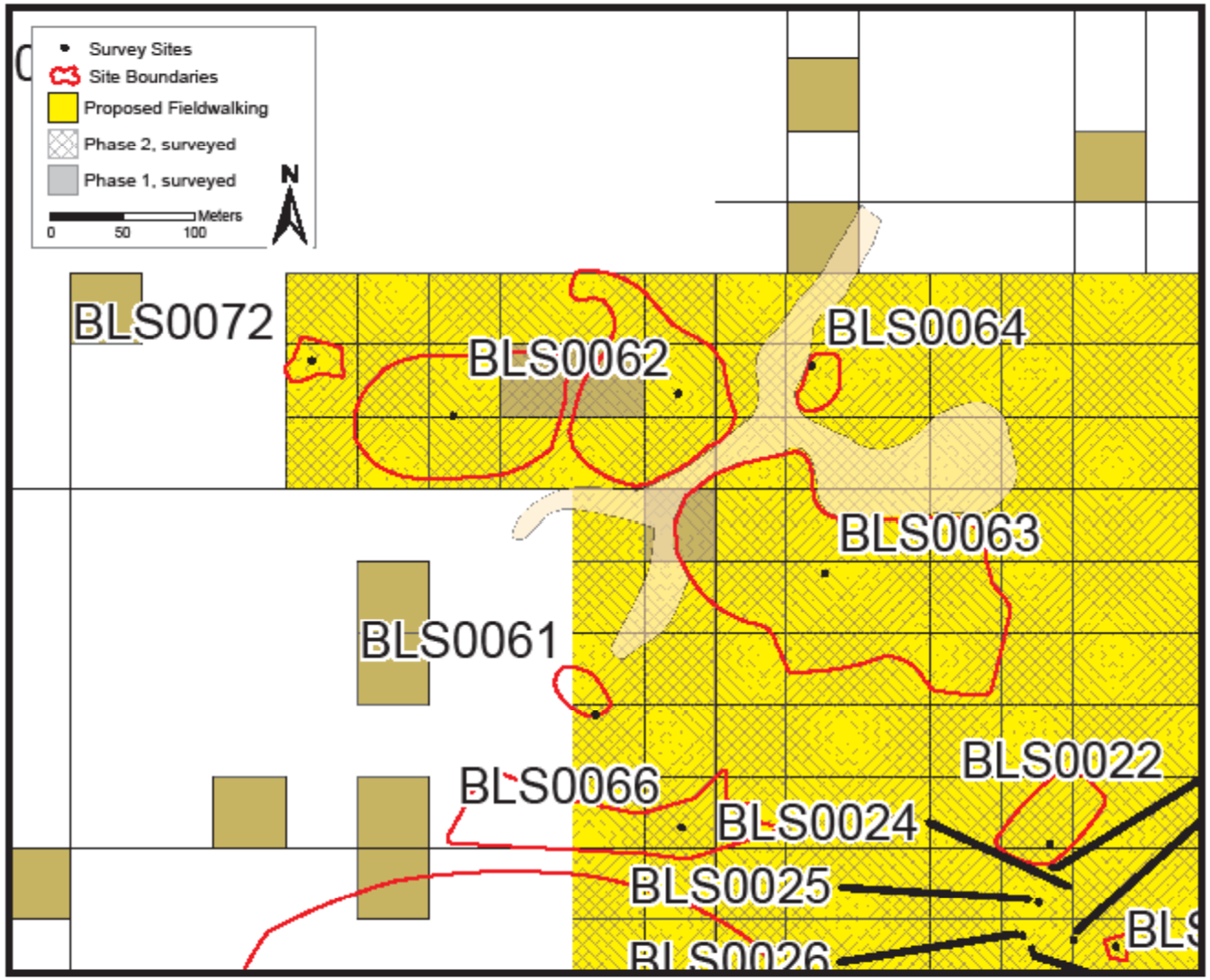
When is a site, a site?

- It can be as small as an accumulation of artifacts, like a concentration of broken pottery sherds.

When is a site, a site?

or a flint scatter

One site or many?



Context

This is absolutely KEY to archaeological interpretation

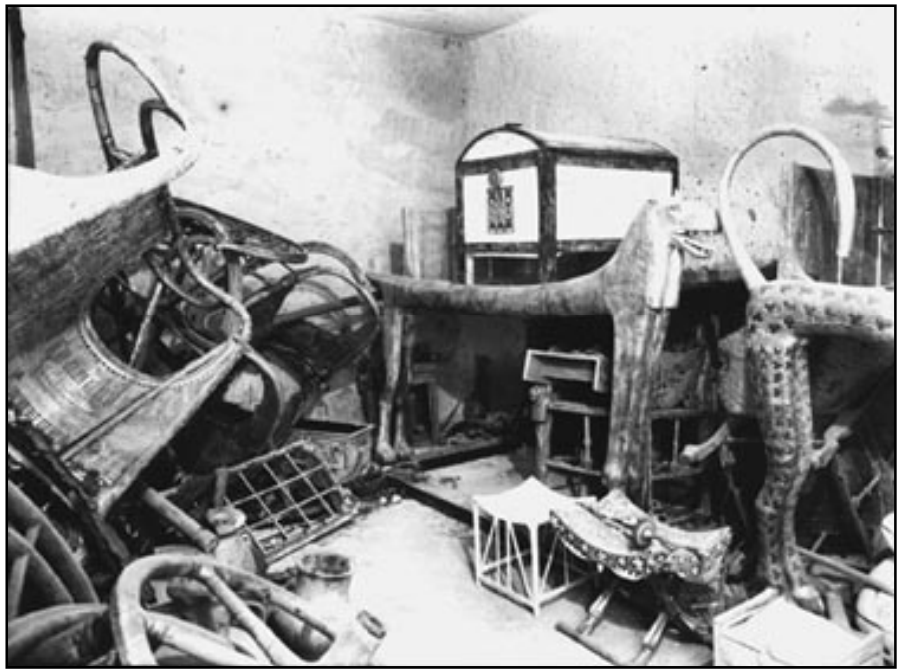
Whether it is an artifact, feature, structure or organic remains, the context often assists with any interpretation

Key terms:

- **matrix -** the sediment in which an artifact is found
- **provenience -** the location of the artifact in spatial terms

Primary or secondary?

- It is also important to know if data is found in a primary or secondary context.
- Artifacts may be found in a secondary context (not their original position) due to a number of factors
  - human removal and disturbance (looting, modern or in the past)
  - animal activity
  - erosion



Site Formation Processes

those agencies, natural or cultural, that have transformed the archaeological record since a site was abandoned

Michael Schiffer was one of the first to make the distinction between:

- **cultural formation processes (C-transforms)**
- **noncultural/natural formation processes (N-transforms)**

Schiffer said that artefacts pass through numerous social contexts of procurement, manufacture, use, recycling and disposal and that the same kind of artefact can enter the archaeological record at any of the points along trajectory.

C-tranforms

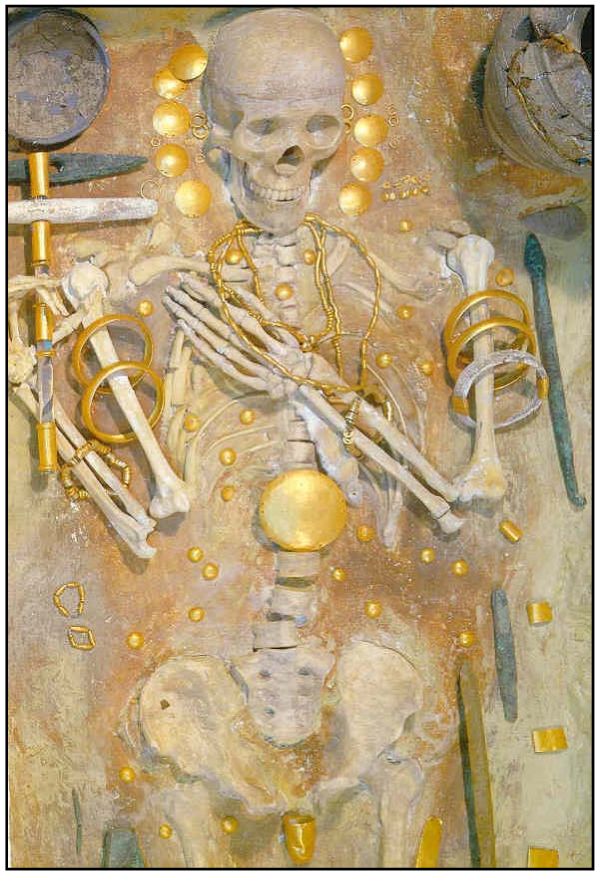
Both purposeful and accidental actions of humans that lead to deposition of remains:

Original human behaviour (example of a stone tool), can be seen in four distinct stages:

1. acquisition of raw material
2. manufacture
3. use
4. disposal/discard (when worn out), or lost

Human activity both intentional and unintentional may preserve the archaeological record.

- deliberate burial



Varna ‘elite’ burial

Moche – Huaca Rajada, Sipan

Human activity both intentional and unintentional may preserve the archaeological record.

- hoards

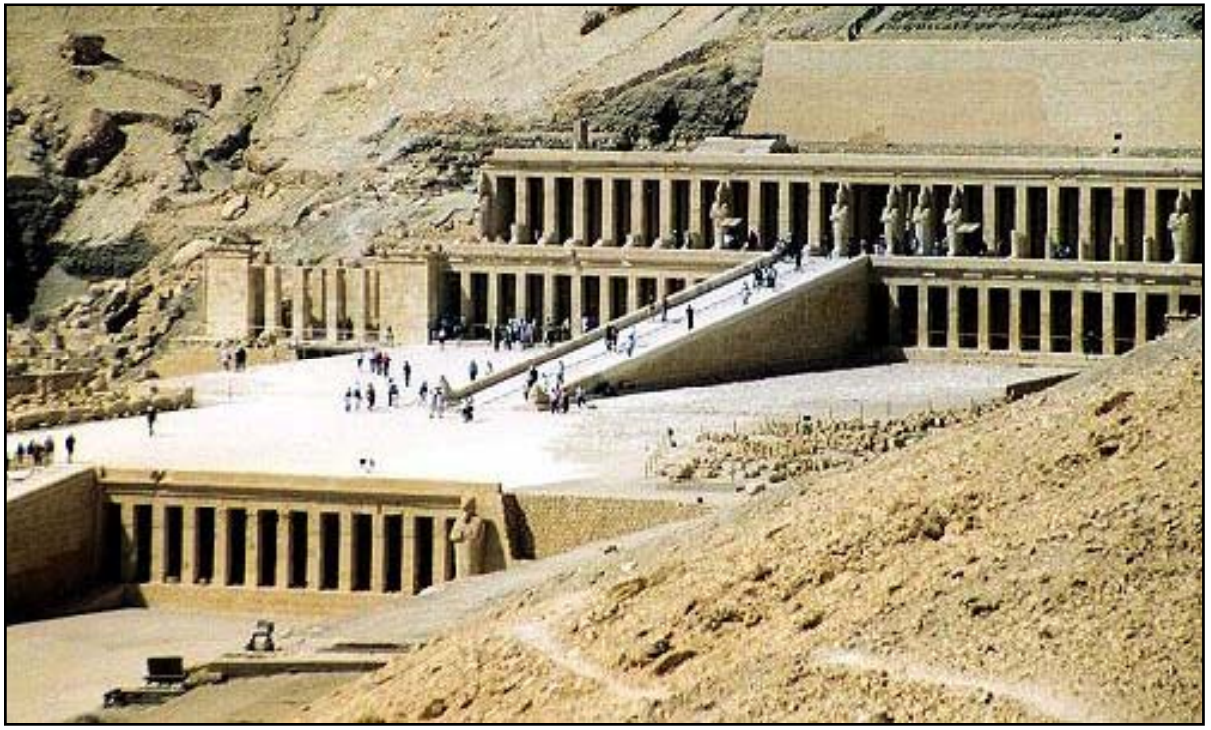
Roman coin hoard

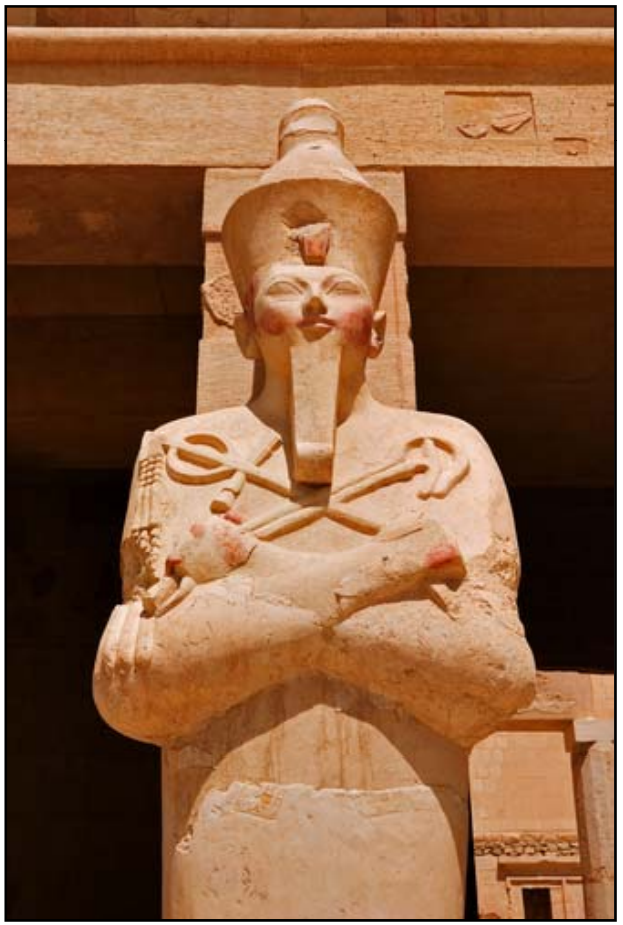
Staffordshire hoard – Anglo-Saxon period

Destruction of the archaeological record by human activity can also have several forms…

Intentional destruction

- as in the case of the funerary temple at Deir el-Bahri of the only female Pharaoh Hatshepsut (1479-1458 BC)
- all trace of her reign “erased” by her half-brother Thutmose III

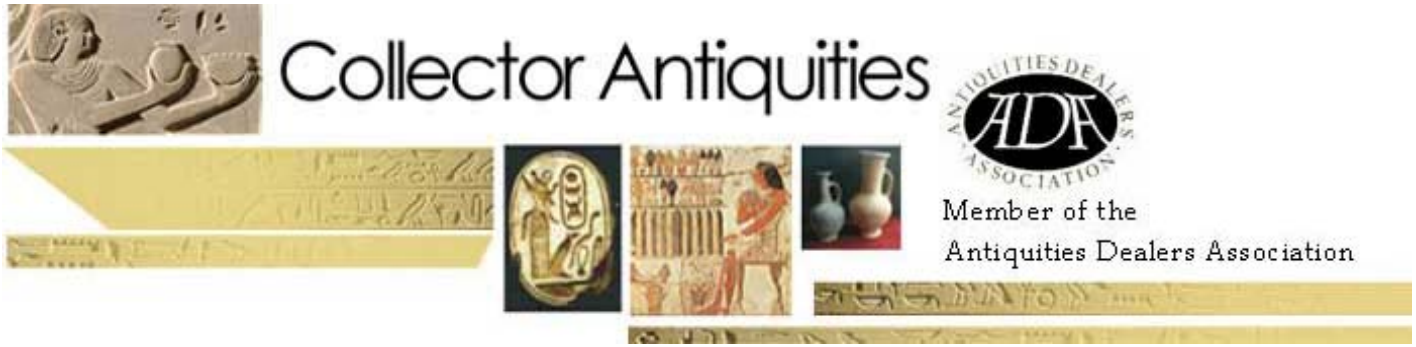




Destruction of the archaeological record by human activity

Modern looting

Modern looting for the antiquity market



ebaY.ca

A CYCLADIC MARBLE RECLINING FEMALE FIGURE

Name-piece of the Schuster Master, early Cycladic II, circa 2400 B.C.

Price realized: **$16,882,500**
Dec 2010, New York, Rockefeller Center
World auction record for a Cycladic figure

CHRISTIE'S

Destruction of the archaeological record by human activity

Unintentional destruction

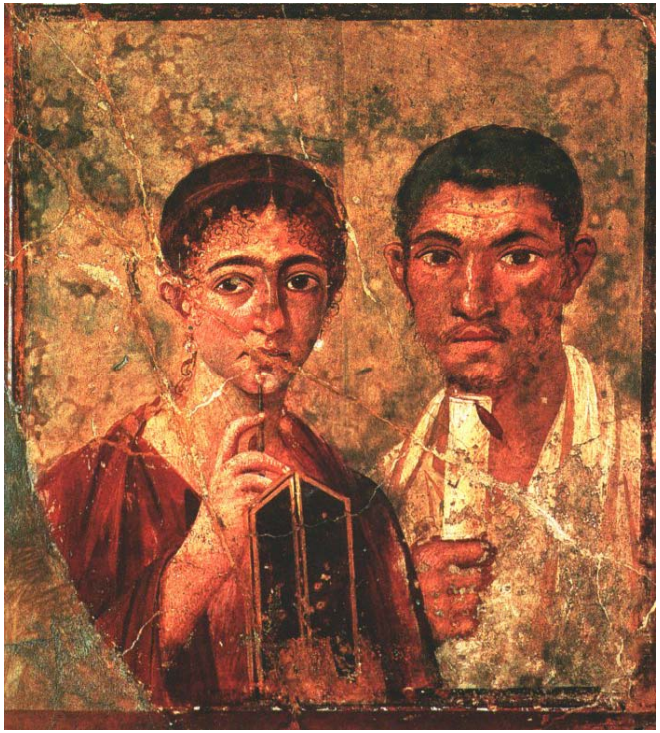
Ploughing

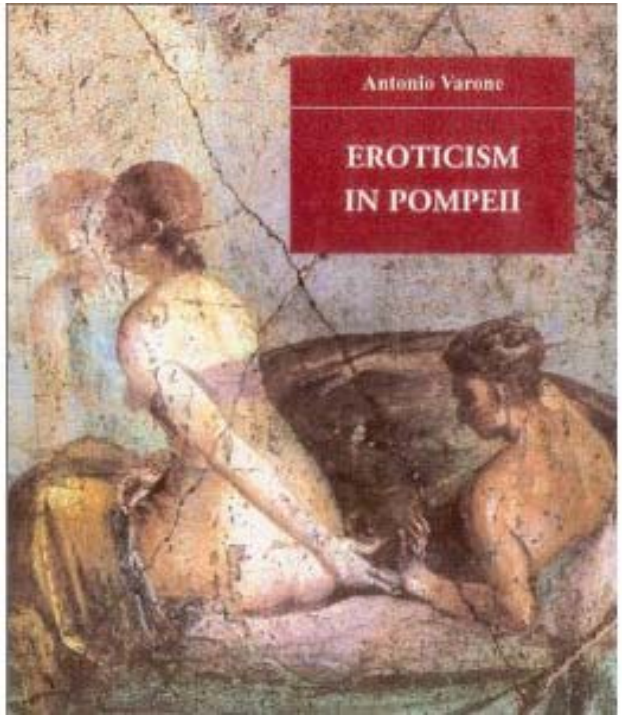
Modern construction work (road building etc.)

N-transforms: (Natural or Non-cultural)

Natural events that lead to both burial and survival of archaeological record

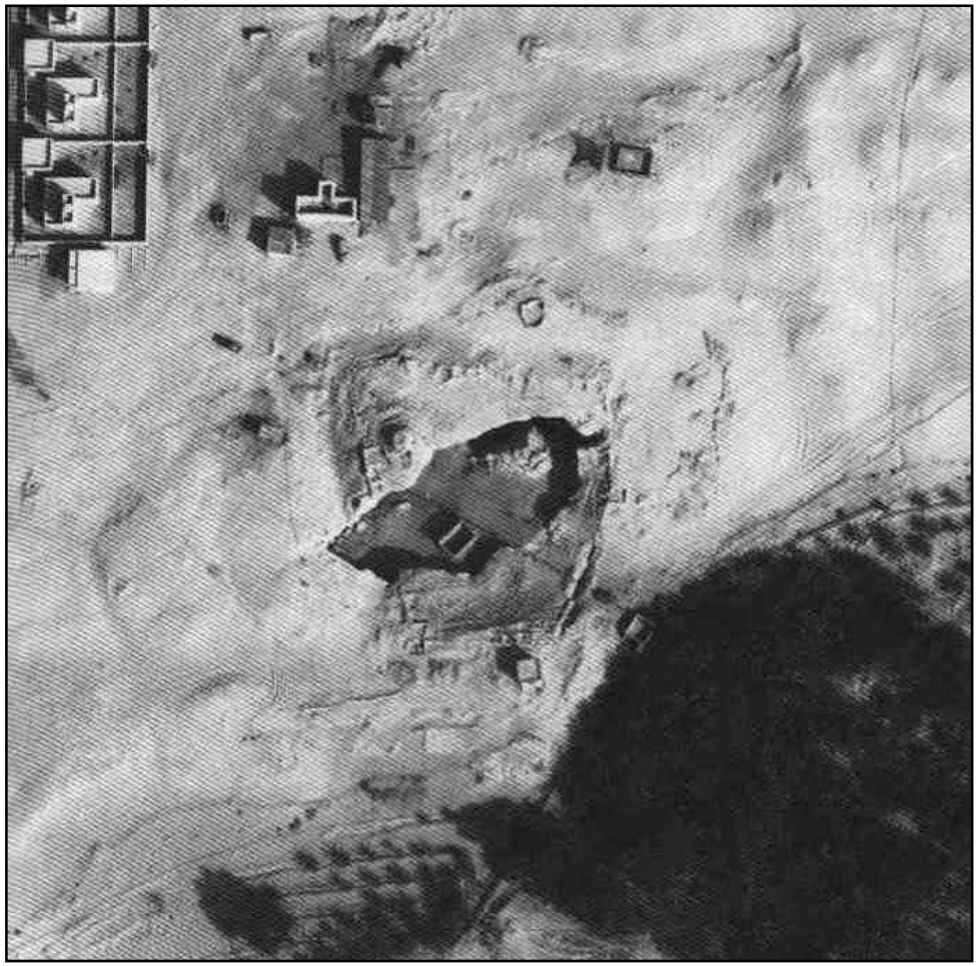
Pompeii preserved by the eruption of 79AD by rapid burial of the city in volcanic ash




Antonio Varone
EROTICISM
IN POMPEII

N-transforms: (Natural or Non-cultural)

also biological transport agents, such as wind, and water



“Lost” caravan city of Ubar discovered in 1992 by Nicholas Clapp and Ranulph Fiennes

N-transforms: (Natural or Non-cultural)

Biological processes that lead to destruction of the archaeological record

Burrowing

rodents, crayfish; ants; earthworms; termites

Trampling

by people and other large mammals

Decay

bacteria occur almost everywhere, and are usually the first to colonize dead organic matter and begin the processes of decay

N-transforms: (Natural or Non-cultural)

Biological processes that lead to destruction of the archaeological record

Fungi

occur widely, and are especially destructive to wood and other plant matter, particularly in, damp climates

Scavenging

dogs, hyenas, and other such animals gnaw, chew, and scavenge bones and other organic materials from the surface of abandoned sites and game kills

Preservation: What remains and why

Preservation of artifacts is sometimes a result of the physical properties of the materials

- pottery
- stone tools

But preservation can also be a result of the physical environment in which the artifact is found

- This can be caused by climatic factors
- At other times it is a result of the chemistry of the matrix in which the artifact is found

Inorganic materials

Pottery and flint are the best preserved and most prevalent artifacts due to their physical characteristics

Pottery, once the clay reaches a high enough temperature the clay minerals become “vitrified” or fixed, and very stable

Stone tools, naturally very stable due to elemental properties, and last for millennia due to the elemental properties (flint, chert, etc)

These materials are most often degraded by **mechanical weathering** (movement of wind, rain, transport across a landscape due to erosion)

Dry and hot environments

The Dead Sea Scrolls

Dry and hot environments

Pre-Dynastic Egytpian “pit” burial – extreme dessication

Extreme cold and low oxygen environment

Incan ‘ice mummy’ discovered high in the Andes

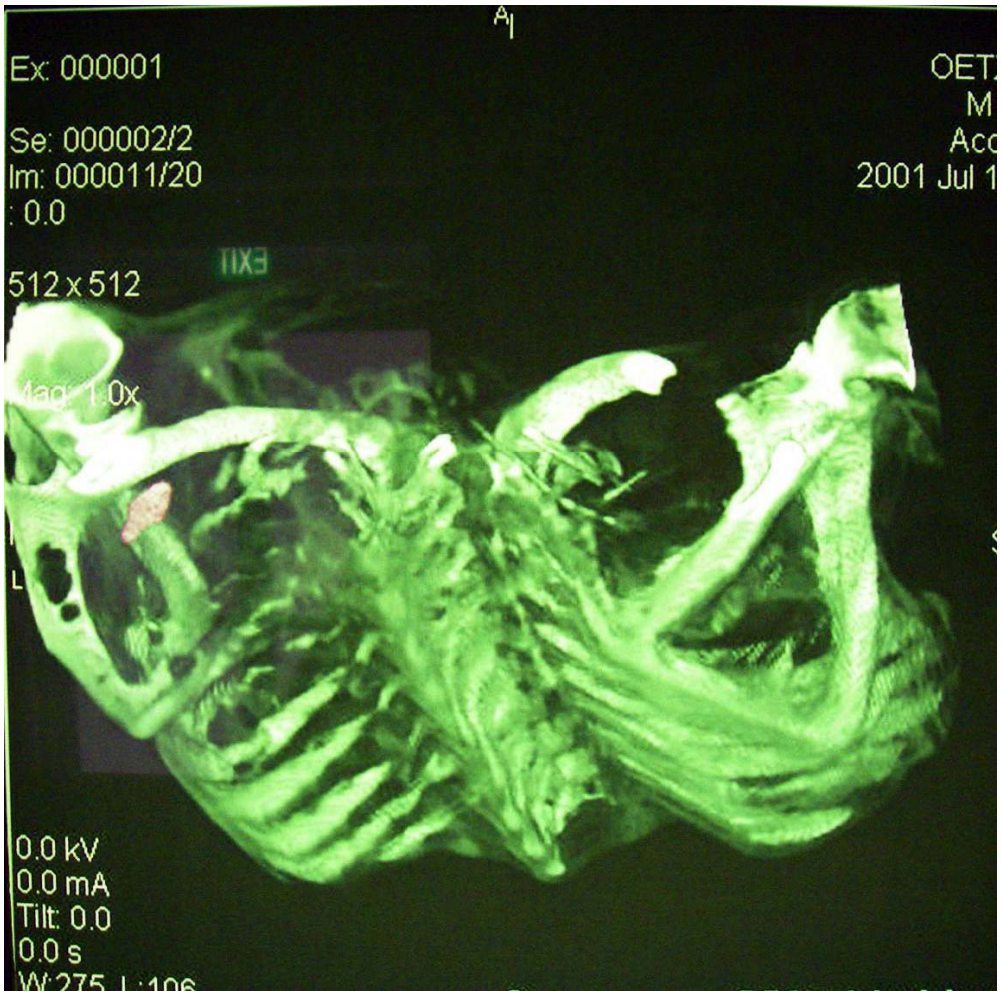
Frozen in ice - Otzi

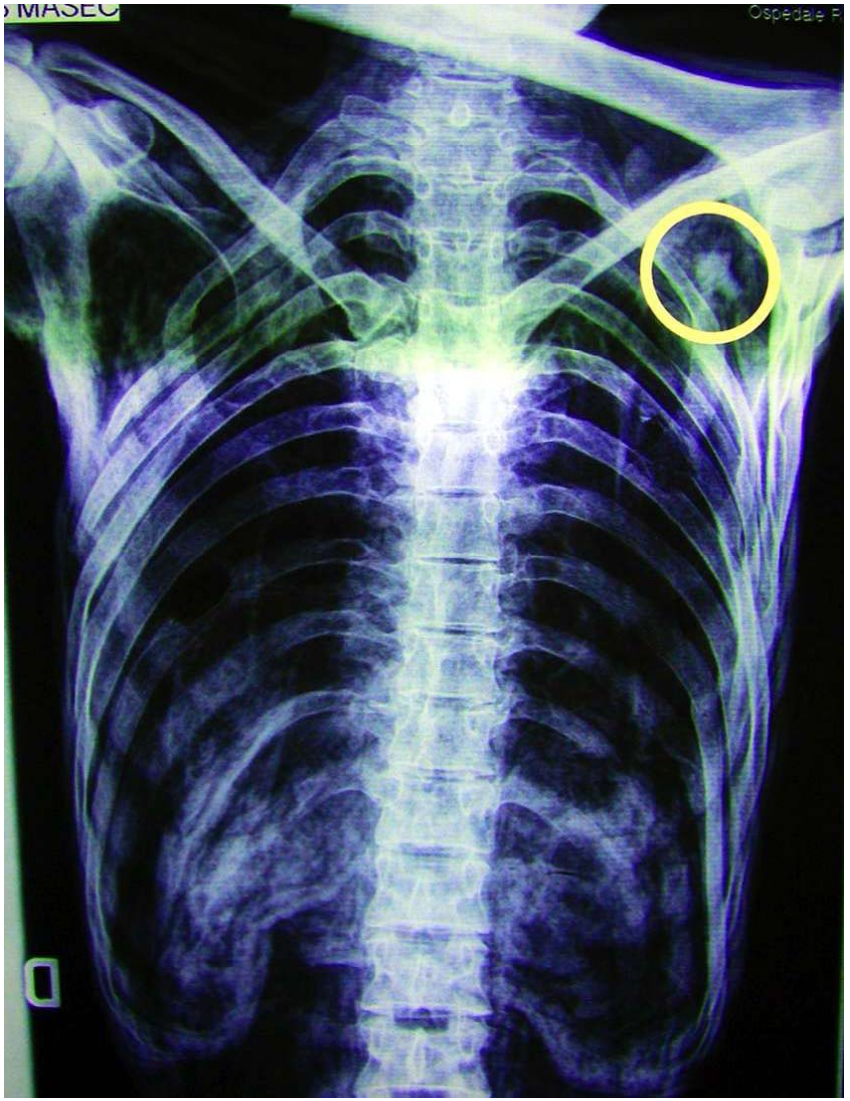
Found in the Italian Alps, Bronze Age man with his "high tech equipment"

- Iceman: in 1991was found by German hikers at 3200m, in South Tyrol, 100m into Italy from Austria
- took four days before the body and its objects of leather, grass, flint, and wood were removed to Innsbruck University (now in Italy)
- Wide variety of objects provide a window on the technology of the time

- yellowish brown, desiccated skin
- thought to have died of exposure, forensic examination later revised to murder (ritual sacrifice? conflict?)
- placed in freezer at –6C, and 98 percent humidity

Forensic evidence of a murder?





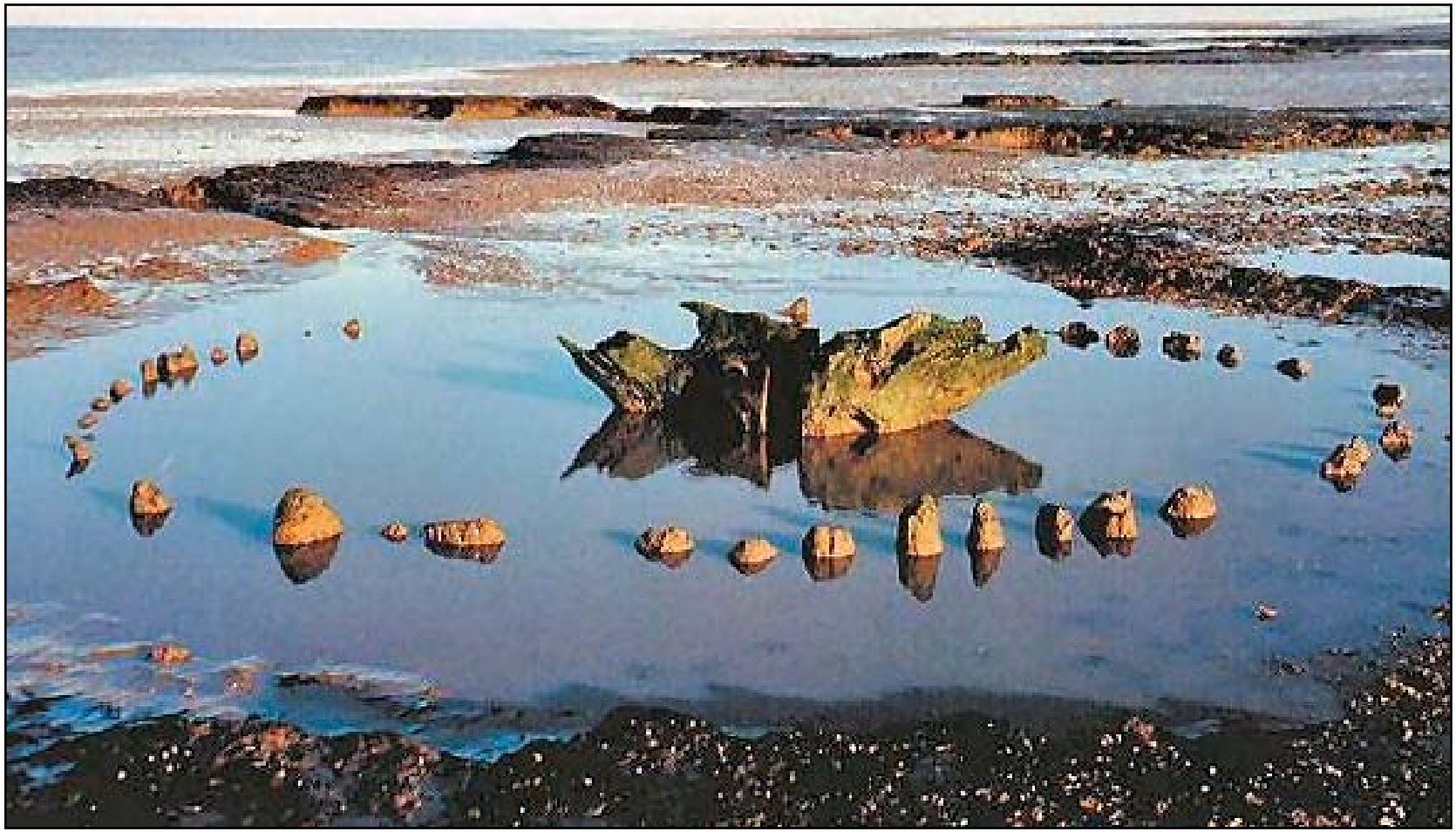
- brain, muscle tissues, lungs, heart, liver and digestive organs are in excellent condition
- black lungs from smoke, hardening of arteries and blood vessels
- chronic frostbite on one little toe, and 8 ribs were healing or healed
- tattoos, mostly short parallel vertical blue lines, half an inch long, were found on his lower spine, left calf, right ankle, a blue cross on his inner right knee, and on his wrist

- Vast number of organic and inorganic remains were preserved, giving us a glimpse into the Bronze Age and a range of objects rarely preserved
- 15 Radiocarbon dates, place him at 3300 BCE

Otzi's equipment

Waterlogged environment

Sea Henge – Wooden Early Bronze Age (2049 BC) ritual monument, preserved by the sea



Waterlogged environment

Sweet track (Somerset levels, England).

Neolithic wooden elevated footpath dated by dendrochronology (tree-ring dating) to 3807 or 3806 BC

Bog bodies

Northern Europe – preserved in peat bogs – mostly dated to Iron Age

highly acidic water (favourable PH), low temperature, and a lack of oxygen, combining to preserve but severely tan their skin

Carbonized organic remains

One of the key ways to reconstruct ancient diet through the controlled recovery of charred plant remains

Metals

- gold, silver and lead have good survival
- copper and bronze do not, and will turn green in their process of decay (mineralization, “bronze disease”)
- copper can favor the preservation of organic remains, perhaps by preventing the activity of destructive micro-organisms

Metals

iron will rust (oxidize) building up corrosion products

These can (in some cases) be removed with electrolysis

Salt

The prehistoric (Iron Age) salt mines of central and southeast Europe have yielded remains of wood, leather, and textiles.