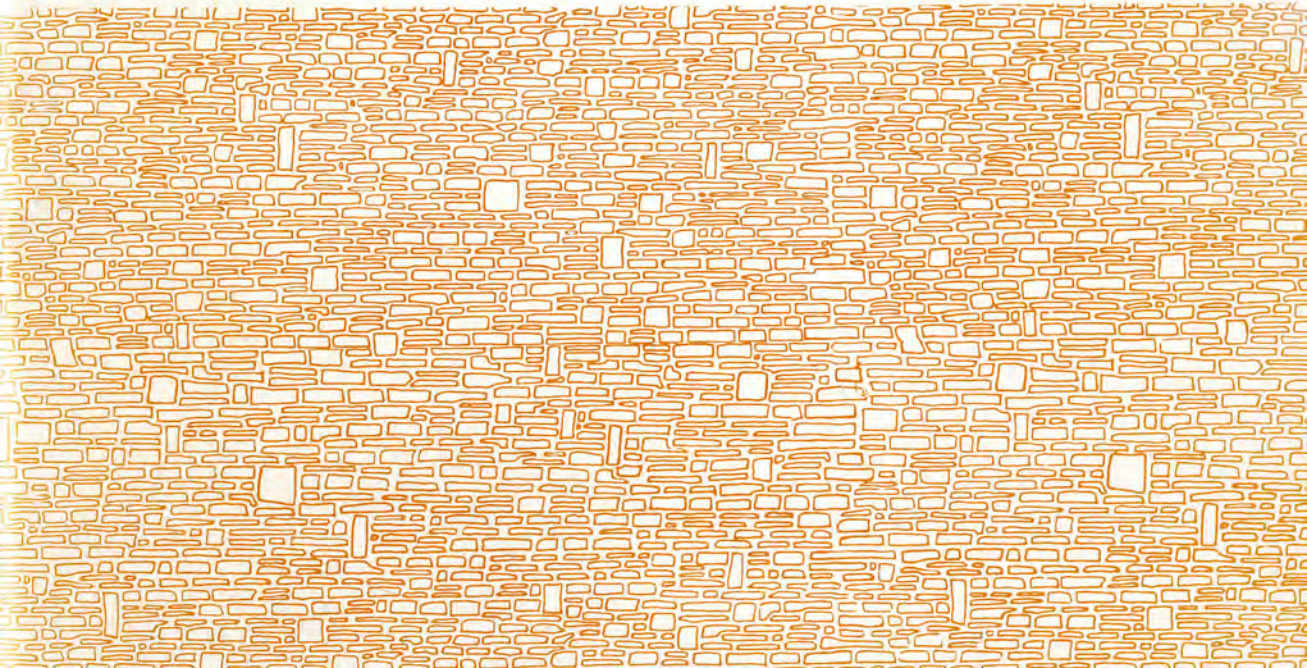




## ARCHAEOLOGY: EARLY CULTURES AND THEIR TECHNOLOGY



Betty W. Creek  
McClellan Museum  
May 29, 1981

Cover:  
Roman Votive Horse, c. A.D. 100, from Mogontiacum (Mainz, Germany)

**ARCHAEOLOGY: EARLY CULTURES AND THEIR TECHNOLOGY**

**an exhibit in celebration of the Archaeological Institute of America's centennial**

**MARCH 31 - MAY 16, 1980**

**FRANK H. MCCLUNG MUSEUM, COLLEGE OF LIBERAL ARTS  
UNIVERSITY OF TENNESSEE, KNOXVILLE**



## FORWARD

The occasion of this exhibit, which coincided with the Centennial Celebration of the Archaeological Institute of America, served to remind us of the diversity of professional backgrounds possessed by the members of the East Tennessee Society, yet all sharing a common interest in archaeology. An extraordinary group of members and friends of the East Tennessee Society graciously shared with the public some of their most cherished artifacts. As a result, many visitors to the Museum had the opportunity to see a unique and handsome selection of archaeological objects. To preserve the visual memory of this memorable exhibit, this catalogue has been prepared from the exhibit label copy and photographs taken of particular objects.

Individuals labored with unequalled dedication to make it happen. Thanks must go to many. Mrs. Thelma Present represented the program committee and secured many of the exhibit items; Dr. John H. Fisher and his wife Jane, generously donated funds to assist in bringing the publication of this catalogue to fruition; Dr. Harry C. Rutledge coordinated the numerous details that inevitably arise; and Elaine Altman Evans designed the exhibition and prepared this catalogue. All these individuals greatly eased my task as general chairman of the local society's centennial committee.

John A. Dean  
President (1980-81)  
East Tennessee Society, AIA

Left:  
"Panoramic View of the Pyramids and Sphinx at Sunset," from an engraving of the Napoleonic expedition to Egypt in 1798. (Photograph through the courtesy of AIA)

## ACKNOWLEDGEMENTS

This is to recognize those of our members and friends who responded so enthusiastically to our appeal for the loan of artifacts for this exhibit in celebration of the Archaeological Institute of America's Centennial. Without your generosity in parting temporarily with precious objects from your private collections, this exhibit could not have taken place with such success. We, the East Tennessee Society, feel that we accomplished much in presenting such a varied collection to the general public. It was an unusual attraction and display and was enjoyed by an impressive number of visitors.

Our appreciation, also, and warm thanks to Mr. Basil Saffer, curator, General Shale Products Corp., Johnson City, who was especially gracious in allowing us to select a considerable number of brick from their museum to complement our theme.

Finally, but not least, a grateful acknowledgement to a special friend and member of our society, Dr. John H. Fisher, Past President, East Tennessee Society, AIA, who helped make this catalogue a reality.

Mrs. Thelma Present  
Past President  
East Tennessee Society, AIA

## LENDERS

Mr. and Mrs. Richard Bagwell  
Dr. and Mrs. William M. Bass  
Mr. and Mrs. David M. Blumberg  
Mr. and Mrs. Beverly Burbage  
Dr. and Mrs. John A. Dean  
Dr. W. Edward Deeds  
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Mr. Basil Saffer  
Dr. and Mrs. Tony Spiva  
Mr. and Mrs. Robert A. Weeks  
Dr. and Mrs. Jon Manchip White

## PREFACE

The aim of this catalogue is not to offer anything particularly new on the subject of technology nor is it intended as a technical work. Rather, it serves merely to provide a few basic technological factors associated with each of the items that were exhibited in order that they may become more meaningful in terms of the development of technology. The writer hopes the catalogue will serve as a useful introduction.

Most of the objects, like many of those in museum collections, are almost all from undocumented finds or random purchases, though for most a source of sorts (country and approximate date) was supplied by the lenders. The value of the material as archaeological data is therefore limited, since absolute accuracy for provenance and dating might in some instances be considered questionable, as they had long been removed from their original archaeological context. For this reason, a technological interpretive approach was taken and the objects arranged according to their composition or material. Although no claim for authenticity can be made with certainty without a technical laboratory, it is believed that with few possible exceptions the objects have been correctly identified.

The references cited in the Selected Bibliography were liberally drawn upon as main sources, and a number of publications on specific materials were consulted, such as "Studies in Ancient Peruvian Metalworking" (History, Technology, and Art. Monograph 3, Royal Ontario Museum, 1979), and J.W. Hayes, Roman and Pre-Roman Glass (Royal Ontario Museum, 1975).

I would like to acknowledge my debt to Mrs. Thelma Present, past president of the East Tennessee Society of the Archaeological Institute of America, whose constant enthusiasm and assistance was invaluable and to Dr. Harry C. Rutledge, Secretary/Treasurer of the ETSAIA, for his kind support and generous encouragement. I would like to express my appreciation to Mr. Larry Kimble and Mr. Richard Polhemus for the valuable information they provided regarding prehistoric implements. I also wish to thank Dr. Paul W. Parmalee, director of the Frank H. McClung Museum, for his kindness in reading over the text, and Mrs. Betty Creech, Senior Secretary, for her cheerful assistance in typing the text.

Elaine Altman Evans  
Curator of Collections

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**MAYAN BIFACIAL KNIFE**  
Late Classic, c. A. D. 900  
Loitun, Yucatan  
Material: flint

**MISSISSIPPIAN BIFACIAL KNIFE**  
A. D. 1300-1450  
Sumner County, Tennessee  
Material: flint

#### SHELL

Local Indian groups used flint drill points to pierce bits of animal bone, marine shell and other material for beads. These were worn for adornment in necklaces, anklets, garments and headbands. Tiny Olivellas and Marginellas were strung as they were.

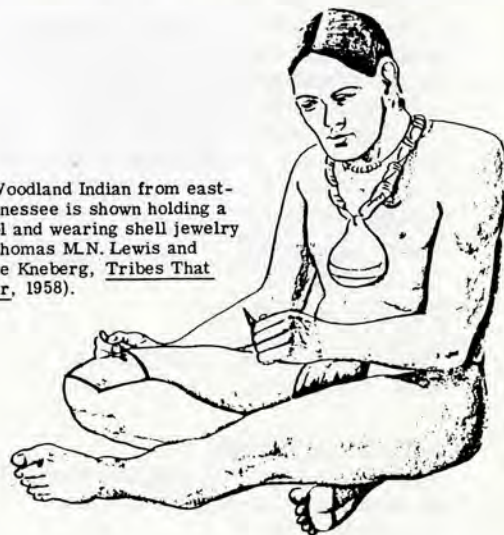
**SHELL BEADS**  
c. 1400-1600  
Toqua Site, Toqua, Tennessee  
Found in 1946

**MAYAN CELT**  
Classic, A. D. 325-900  
Isla Cozumel, Yucatan  
Material: shell



An engraved gorget (from Thomas M. N. Lewis and Madeline Kneberg, Tribes That Slumber, 1958).

Shell gorgets were cut from large marine conches and often engraved in intricate symbolic motifs with a flint tool. The two pierced holes at the pendant top were used to suspend it from a necklace.



A late Woodland Indian from eastern Tennessee is shown holding a flint tool and wearing shell jewelry (from Thomas M. N. Lewis and Madeline Kneberg, Tribes That Slumber, 1958).

#### BONE

One important early stage of technology was the discovery of tools to work bone. By the Magdalenian Period, c. 12,000-8,000 B. C., stone gravers, scrapers and blades were being used to fashion bone implements, including spears, harpoons, and needles that reached one millimeter in diameter for sewing or net-making.

**ROMAN NEEDLE AND PIN**  
c. 1st-2nd century A. D.  
Mogontiacum (Mainz, Germany)  
Material: bone

In Roman times bone was found appropriate for a wide variety of artistic as well as utilitarian purposes.

**ROMAN STYLUS**  
Material: bone

**ROMAN SKATE?**  
1st century A. D.  
Mogontiacum, (Mainz, Germany)  
Material: bone

Perhaps the hole at one end was for a plug to hold a leather thong that tied around the foot.

**ROMAN GAMBLING DIE**  
1st century A. D.  
Mogontiacum (Mainz, Germany)  
Material: bone



Two men use hard wood or bone points to trim stone tools (from a tomb at Beni Hasan, c. 1900 B. C., Thebes, Egypt).

## LEATHER

Hides and skins were treated different ways in the production of leather. Some were simply dried, smoke or salt cured, softened by alum, oil, fat, dung or urine. The vegetable product such as bark, rind, nuts, roots and berries were used as tanning agents.

A armor, shields, helmets, horse trappings, vessels and money are among the items of leather made in Roman times.

**ROMAN LEGIONARY SHOE SOLE**  
c. 1-2nd century A. D.  
Mogontiacum, (Mainz, Germany)  
Material: tanned leather, iron

This sole was possibly made of cow hide, tanned with an extract from the oak-bark.

Styles varied from simple to elaborate. The soles of soldiers' sandals were thick, with at least two layers of vegetable - tanned hide laced or sewn together, and studded with iron nails or spikes. The uppers were made by a system of laces or straps. The aristocracy wore yellow, red and green dyed sandals, probably of alum-dressed leather.

The Romans had guilds for many types of leather industries to satisfy the great demand for leather goods, including footwear. Based on Greek types, footwear was produced in factories for the flourishing export trade.



A Greek shoemaker with a half-moon knife is about to cut-out sandals (from a black-figured amphora, Museum of Fine Arts, Boston).

## POTTERY

Pottery became universally diffused following the birth of early agriculture when the wandering hunter-food gatherer peoples were slowly replaced by permanent and semi-permanent settlers who probably had a need for vessels to store grains.

The first pots were of coarse material, crude in shape and poorly baked. Later, sophisticated pottery was produced for beauty as well as utility.

A major technological advance was the discovery that clay objects were stronger and more readily replaced.

### FUNERARY VESSEL

Dynasty III  
Sakkara, Egypt  
Material: hand-formed, baked clay

Inside the container are corn seeds emblematic of Osiris and resurrection. Impressed on the sealed mouth is an undetermined cartouche.

### GROUP OF SHARDS

c. 4500 B.C. -A. D. 800  
Gezer (southern Palestine)  
Material: baked clay

### JUGLET

c. 2100-1500 B.C.  
Palestine  
Material: hand-formed, baked clay, burnished

### JUGLET

Cyprus-style, c. 1570-1340 B.C.  
Palestine  
Material: hand-formed, baked clay

### GROUP OF SHARDS

c. 1200-250 B.C.  
Gezer (southern Palestine)  
Material: baked clay, wash, natural pigments

### JUGLET

c. 1200 B.C. ?  
Canaan  
Material: earthenware

### UNGUENT JUGLET

c. 800-600 B.C.  
Palestine  
Material: hand-formed, baked clay

### VESSEL HANDLE

c. 700 B.C.  
Jerusalem  
Material: earthenware

**SAUCER-SHAPED LAMP**

c. 2100-1500 B.C.

Palestine

Material: hand-formed, baked clay

Pinch-nosed lamps were one of the earliest forms of oil lamp.

**OIL LAMP**

c. 930-586 B.C.

Palestine

Material: hand-formed, baked clay

**OIL LAMP**

3rd century B.C. ?

Sardis?, Asia Minor

Material: baked clay, orange slip

**OIL LAMP**

c. 1st century A.D.

Palestine

Material: moulded, baked clay

**ROMAN OIL LAMP**

1st century A.D.

Mogontiacum (Mainz, Germany)

Material: moulded, baked clay

A gladiator holds a raised sword.

**ROMAN OIL LAMP**

1st century A.D.

Mogontiacum (Mainz, Germany)

Material: baked clay

**OIL LAMP**

3rd-4th century A.D.

Palestine

Material: baked clay

**ROMAN OIL LAMP**

3rd-4th century A.D.

Volibus, Morocco

Material: carved, steatite

Pottery lamp styles were used for stone lamps.

**ROMAN OIL LAMP**

3rd-4th century A.D.

Volibus, Morocco

Material: carved, sandstone

**ROMAN JUG**

c. A.D. 120

Mogontiacum (Mainz, Germany)

Material: hand-formed, baked clay

Common Roman household pottery was usually unglazed.

**ROMAN VOTIVE HORSE**

c. A.D. 100

Mogontiacum (Mainz, Germany)

Material: moulded, baked clay

The Celto-Roman Goddess Epona (goddess of horses), originally mounted on the horse, was lost in ancient times.

The figurine was moulded, finished with wooden or metal tools, and then covered with a layer of white clay wash and baked at a low temperature. After baking it was colored with tempera pigments now gone.

**ROMAN VESSEL FRAGMENTS**

A.D. 90-2nd century A.D.

Mogontiacum (Mainz, Germany)

Material: moulded, glazed, kiln baked clay

The Romans' love of Greek art is reflected in these terra sigillata (stamped earth) fragments. They are a combination of wheel-work and precise moulding and are glazed. In the kiln they were supported on stilts with temperatures up to 1050° to 1150°C. Some are impressed with a maker's mark.

A female artisan decorates a pot in a Greek factory, a rarity as males were usually employed as painters (from an Athenian vase, c. 400 B.C.).

**PLATE**

2nd century A.D.

Mogontiacum (Mainz, Germany)

Material: moulded, glazed, kiln baked clay

**ROMAN VOTIVE CHALICE**

2nd Century A.D. ?

Mogontiacum (Mainz, Germany)

Material: wheel and hand-formed, baked clay

**TRIPOD VESSEL**

Pre-Classic: 800-300 B.C.

Colima, Mexico

Material: part moulded?, baked clay, red slip

**FIGURE**

Pre-Classic, 800-300 B.C.

Chupicuaro, Mexico

Material: hand formed, baked clay, natural pigments, applique

**INCISED HEAD**

Classic, 300 B.C. - 500 A.D.

Papanao, Mexico

Material: baked clay, applique

**FIGURE**

Classic, 300 B.C. - 500 A.D.

Colima, Mexico

Material: hand formed, baked clay, applique

**STIRRUP-SPOUTED JAR**

Mochica style, c. A.D. 400?

Cyalti, Peru

Material: moulded baked clay, burnished

**ZOOMORPHIC JAR**

Nasca style, c. A.D. 400?

Cayamarca, Peru

Material: baked clay, burnished

**ANIMAL-SHAPED VESSEL**

c. A.D. 500-600

Ixtlan, Mexico

Material: hand formed, mottled, baked clay

**SEATED FIGURE**

Pre-Tarascan, c. A.D. 600-700

Chupicuaro, Mexico

Material: hand formed, baked clay, natural pigments, applique



A pot is being shaped by a wheel, clay kneaded with the feet, and a brick kiln tended (from a tomb painting, c. 1450 B.C., Thebes, Egypt).

**MAYAN FIGURINE**

14 cm. high

(Page 22)

**SEATED FIGURE**

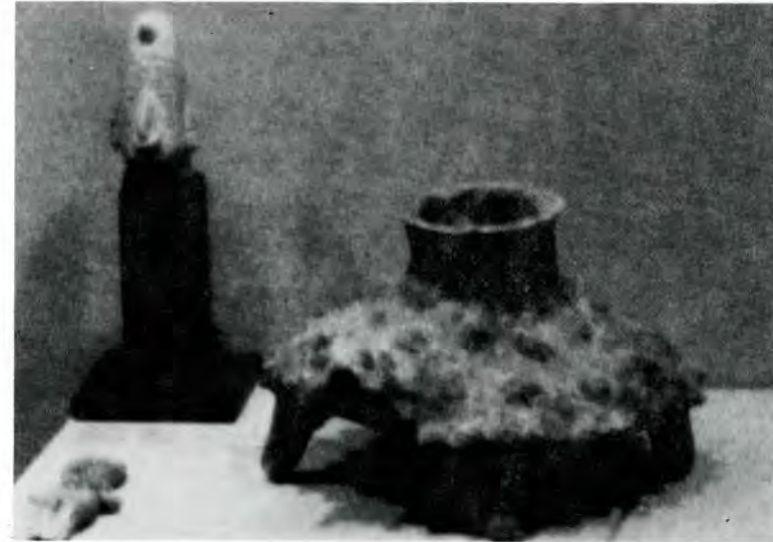
9.5 cm. high

(Page 16)

**INCISED HEAD**

5.5 cm. high

(Page 16)

**FIGURE**

8.3 cm. high

(Page 16)

**ANIMAL-SHAPED VESSEL**

9.5 cm. high

(Page 16)



ZOOMORPHIC JAR  
19.8 cm. high  
(Page 16)



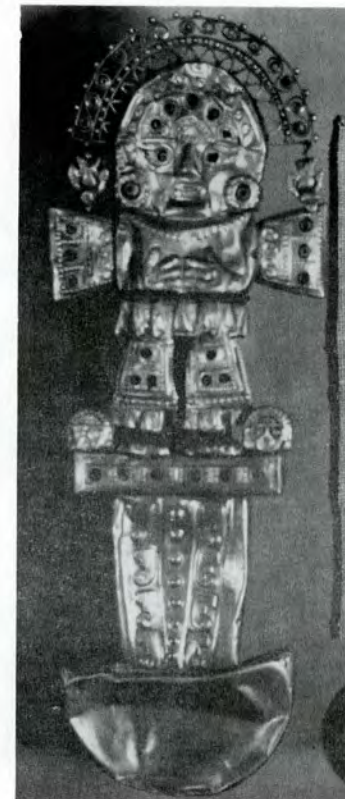
MAYAN HEAD  
7 cm. high  
(Page 21)

WATER PURIFIER JAR  
c. 42 cm. high  
(Page 22)



STIRRUP-SPOUTED JAR  
20 cm. high  
(Page 16)

RITUAL KNIFE  
20 cm. high  
(Page 24)



## CERAMIC ITEMS

Left: 4.7 cm. high  
 Middle: c. 5 cm. high  
 Right: 8 cm. high  
 Bottom: c. 5 cm. high  
 (Page 21)



SHARDS  
 7.5 - 11 cm. wide  
 (Page 22)

## ANIMAL HEAD

c. A.D. 300-600  
 Monte Alban, Mexico  
 Material: hand formed, baked clay,  
 applique

## MAYAN HEAD

Late Classic: A.D. 700-900  
 Izamal, Yucatan  
 Material: part moulded?, baked  
 clay, red slip

## MONKEY WHISTLE

c. 8-9th century A.D.  
 Flores, Guatemala  
 Material: baked clay

## JAGUAR HEAD

8th century A.D. ?  
 Flores, Guatemala  
 Material: moulded, baked clay

## CERAMIC ITEMS

8-9th century A.D.  
 Flores, Guatemala  
 Material: moulded, baked clay

## FIGURINE FRAGMENTS

c. Classic-Post-Classic Periods  
 Gulf Coast, central Mexico  
 Material: hand-formed, baked clay

A variety of clays were used in the  
 Huastec cultural area, near Vera  
 Cruz.

## HEAD

c. A.D. 800 ?  
 Teotihuacan, Mexico  
 Material: moulded baked clay

The fragment represents the rain  
 god Tlaloc.

Moulding was begun at Teotihuacan,  
 Mexico in the 6th century A.D., and  
 later in Peru and Yucatan. Moulds  
 were for mass production of objects,  
 particularly those with magical or  
 religious significance.  
 Objects were baked or "fired" in  
 either an open fire or in unlined  
 kilns. Some objects were unslipped  
 and finished by burnishing, usually  
 with a quartz stone, pieces of cloth,  
 calabash or leather.

## TRI-COLORED SHARDS

c. A.D. 700-1100  
 Southern Peruvian Highlands  
 Material: baked clay, natural  
 pigments

These unglazed fragments were  
 hand decorated by the Huari and  
 Pikillacta and show decorative  
 influences from the Nazca culture  
 of Peru and the Tiahunaco of  
 Bolivia.

**WATER PURIFIER JAR**

c. A.D. 1000

Chancay Valley, Peru

Material: baked clay, white wash,  
natural pigments

The Chancay Culture used such vessels as river water filters. In the desert dryness clear water sweated through the jar into a separate container.

**MAYAN FIGURINE**

Post Classic: A.D. 900-1400

Yaxuna, Yucatan

Material: part moulded?, baked  
clay, applique**SHARDS**

Mimbres culture, c. A.D. 1000

Southeastern New Mexico

Material: earthenware,  
natural pigments**EFFIGY FRAGMENT**

c. 1400-1600

Toqua Site, Toqua, Tennessee

Material: clay, shell

Found in 1946

This cougar? head is unique, since no other like it has been recovered from Toqua. Crushed shell was mixed with local clay to prevent cracks or shrinkage while it was being made, probably as part of a vessel.



One Assyrian scribe writes on a tablet, one on a parchment sheet (from Layard, *Monuments of Nineveh*, Vol. I, pl. 58).

**CUNEIFORM FRAGMENT**

c. 2150 B.C.

Gir'su, Akkad (Iraq)

Material: baked clay

Clay "writing tablets" were prepared in various sizes for the scribe, who pressed wedge-shaped characters in the wet clay with a beveled reed "pen". Clay contracts were often signed with a cylinder seal engraved with the owner's name and baked to a brick. Cuneiform was used by the ancient Akkadians, Assyrians, Babylonians and Persians.

**EARLY STAMPING SEAL**

Asia Minor?

Material: basalt

**EARLY CYLINDER SEALS**

Babylonian?

Material: basalt

**METAL**

An essential factor in metal production is fire. Once fire had been controlled it became the basis for better shaping and transforming metallic materials. Early metal objects were hammered to shape, but hammering often caused problems of brittleness. This was subsequently solved by the important discovery of annealing, a heating process to relieve stresses that could occur from the pounding. After it was found that metallic elements could be reduced from ores, piece moulds developed for the molten metal, first of stone, then of fired clay and later for the more sophisticated lost wax moulding process.

**WARRIOR AXE**

c. 1500-1200 B.C.

Glamorganshire, South Wales

Material: cast, bronze

The axe was possibly cast by the cire-perdue or lost wax method; the blade was cold hammered to a sharp edge.

Originally it was attached to a wooden shaft (handle) by a leather thong tied through the side loop.

**ROMAN KEY**

Material: moulded bronze

**ROMAN COINS**

305 B.C. - 44 B.C.

Material: Silver, bronze

Apparently the earliest coinage was produced by the Lydians in northern Anatolia, Asia Minor, who, around 700 B.C., issued coins for commercial use.

Pure silver was produced by heating impure silver with materials to absorb the impurities, particularly lead. A blank of metal was pressed by punch blows into a bronze or iron mould. The pieces were stamped according to weight, purity, and the issuing authority. Often it was thought unimportant to strike a well-centered impression on the coin.

**ROMAN CHARM**

Material: moulded bronze

**ROMAN NAILS**

c. 1-2nd century A.D.

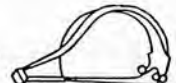
Mogontiacum (Mainz, Germany)

Material: wrought iron

**ROMAN FIBULAE**

Material: bronze

One of the first safety pins!



Hinged-type Fibula

**RITUAL KNIFE**

Lambayeque style, 12th century A. D. ?  
Material: cut, hammered, soldered,  
sheet gold, gold wire, beads

Metalworking in ancient Peru was a sheet technology and the main type of decoration was embossing. Native gold was refined and then smelted in an open terracotta furnace. Soldering was a combination of heating, hammering and welding gum to join the pieces of sheet gold.



Molten metal streams from a Peruvian furnace into an axe-shaped mould (from a 16th century A. D. codex).

**BRICK**

In ancient Egypt, sun-dried brick developed from a need for more solid dwellings than those made of clay-plastered reeds or twigs. The brick was easily replaced, kept the house cool in summer and warm in winter. Present day villagers construct houses with sun-dried brick as was done 6000 years ago.

Nile mud, a mixture of clay and sand, varies. When the percentage of clay was high a binding material was often unnecessary, but when low chopped straw and sometimes animal (donkey) dung and other organic materials were added to increase its strength and plasticity.

The mud was broken up with a hoe, water added and kneaded into the mixture with the feet to the correct consistency. A brickmaker packed the mud in wooden moulds which were then lifted off so the bricks could dry in the sun.

**HOG-BACKED BRICK**

c. 7000-8000 B.C.  
Jericho, Palestine  
Material: clay

This plano-convex sun-baked brick

was recovered from a pre-pottery neolithic settlement beneath the biblical city of Jericho. It is indisputably the oldest brick ever found to date and possibly one of the first ever made.

**SUN-BAKED CONES**

c. 4500 B.C.  
Ur, Mesopotamia  
Material: clay, earth pigments

Cones such as these were hand-rolled, dipped in color and inserted side by side in thick mud plaster to create patterns. Some of the original red, buff, and black paint can be seen.

**SUN-DRIED BRICK**

c. 1413-1377 B.C.  
Nubia, Egypt  
Material: clay, straw

Impressed on the brick is the cartouche of Amenophis III and Queen Tiy, rulers of ancient Egypt and parents of the famous heretic King Akhenaten.

**BABYLONIAN TABLET**

c. 1323-1298 B.C.  
Material: clay

This is an inventory of the sheep

and goats entrusted to a Mr. Rabasha-Ninurta and dates to the reign of a Kassite King of Babylon. The sun-baked tablet was fired after being found to prevent it from crumbling.

**INSCRIBED BRICK**

c. 2000 B.C.  
Ur, Mesopotamia  
Material: clay

Dating back to the Elamite Dynasty, the kiln-fired brick is inscribed in Sumerian pictographic script.

**BABYLONIAN BRICK**

c. 604-562 B.C.  
Babylon, Mesopotamia  
Material: clay, straw

Found in the ruins of Babylon, the kiln baked brick carries the cuneiform inscription: Nebuchadnezzar, King of Babylon, beautifier of the Temple of Esagila and Ezida, first son of Nebupolassar, King of Babylon. Impressions are seen from the straw layers that separated the bricks in the kiln.

**ROMAN BRICK**

A.D. 79  
Pompeii, Italy  
Material: clay, crushed fired brick

Kiln-baked brick became popular and replaced sun-dried brick apparently at the time of Augustus (63 B.C. - A.D. 14).

As for sun-dried brick, in the 1st century A.D. Vitruvius wrote that it was better made of white clayey earth, red earth, or rough gravel to be strong, light and easy to manage, and was best produced two to five years in advance for still greater durability.

Kiln-baked brick became useful as the top layer (coping) for mud-brick walls, columns and floors. Bricks were used for walling and vaulting, but covered with plaster or marble slabs as the Romans thought bricks unattractive.



Brick-makers extract the clay, mould the bricks and transport them on shoulder-yokes (from a tomb painting, c. 1000 B.C.).

#### ROMAN BRICK

A.D. 72

Rome, Italy

Material: clay, crushed fired brick

The triangular-shaped kiln-fired brick is from the original construction of the Colosseum in Rome.

#### ROMAN ROOF-TILE

c. 1-2nd century A.D.

Mogontiacum (Mainz, Germany)

Material: kiln-baked terra cotta

Impressed on the surface is LEG. XXII, indicating it was produced for the 22nd Roman legion.

Terracotta roof-tiles were very popular. Similar to the Greek method, the tiles were butted together on the roof and the joints covered by separate semi-circular cover-tiles tapered to over-lap the adjoining cover-tiles.

#### ROMAN ROOF-TILE

c. 1-2nd century A.D.

Mogontiacum (Mainz, Germany)

Material: kiln-baked clay

A dog left its paw print to history!

#### TEXTILES

Pre-Columbian Peruvian textiles display some of the finest weaving techniques in the world. Basket weaving, requiring no preparation other than splitting plant fibers into strips for plaiting, probably predates textiles and no doubt sparked the idea for textile weaving. By 1000 B.C., the settled agricultural peoples of Peru were shearing wool from the llama, vicuna and alpaca and preparing it for the widely used backstrap loom. At the beginning a fragile twig was used as a spindle to produce a coarse and uneven thread. Later small ceramic whorls were added to a finely balanced spindle. Some threads were so finely spun that modern machines cannot copy them.



Stone or clay weights hold warp threads under tension on a vertical loom (from a Greek vase, c. 500 B.C.).

#### TEXTILE FRAGMENT

Nasca culture, c. 400-1000 A.D.

Paracus, Peru

Material: wool, natural dyes

Textiles were made in narrow strips. When wider cloth was desired, the narrow pieces from the loom were hand sewn together side by side. The pattern of one strip did not have to match the pattern of the adjacent strip.

#### SPINDLE WHORL

Pre-Toltec

Teotihuacan, Mexico

Material: burnished baked clay

#### SPINDLE WHORLS

Cholula Pyramid, Puebla, Mexico

Material: moulded baked clay

## ANCIENT EGYPTIAN FAIENCE

The invention of faience in Dynasty II greatly influenced the jewelry industry. Small objects, ornaments, pendants and scarabs were made in pottery moulds and often engraved with a point when dry for finer detail.

### VASE FRAGMENTS

c. 2065-1785 B.C.  
Lisht, Egypt  
Material: faience

Ancient Egyptian faience is made from powdered quartz and is not a glazed pottery or porcelain; it comes in three major types:

- a) a body material (core) of granular texture, varying in color from white pale brown and yellow to slightly blue or green that is coated with a vitreous alkaline glaze (a true glass).
- b) a single self-glazing mixture where the copper color rises to the surface through capillary action that results in a single semi-glass fused vitreous mass.
- c) a vitreous glaze applied to carved steatite (soapstone) objects.

### SCARAB

Reign of Tuthmosis IV, Dyn. XVIII  
Egypt  
Material: yellow faience

The most common type of amulet was the scarab beetle that was so closely associated with the life-giving properties of the sun. Made of faience or stone, the undersides usually had incised hieroglyphics, figures, animals or designs, representing magical formulae, royal or non-royal names and dieties.

HEART SCARAB  
c. 1585-1085 B.C.  
Abydos, Egypt  
Material: faience

The scarab was placed over the heart of the deceased and stitched through the holes to the linen shroud.

ANUBIS AMULET  
Sakkara, Egypt  
Material: faience

The beautiful and bright green, blue or greenish-blue color results from using copper oxide in the glaze or mixture.

GODDESS NEFERTUN AMULET  
Sakkara, Egypt  
Material: faience

NECKLACE WITH WEDJAT-EYE  
Egypt  
Material: faience, mummy beads

The Wedjat-eye on this faience necklace was moulded, dried, coated with a glaze wash and fired. The amulet represents the eye of the god Horus and is a symbol for sacrifice. It was thought to protect the wearer from sickness and restore the dead to life.

NECKLACE  
Egypt  
Material: mummy beads

Great quantities of beads were made from pulverized quartz mixed with lime or alkali; these were formed around an axis and rolled on a board. The long cylinder was then sectioned into desired sizes, dried, glazed and fired, or after baking then dipped in a glaze wash and fired again. The threading holes with slight or no discoloration of the inner surfaces suggest the beads were strung on threads or other material which burned out in the firing. However,

some beads were pierced, probably with a wire or bone awl, while the paste was soft.

USHABTI  
Egypt  
Material: faience

Ushabtis, or "answerers", were magically animated in the hereafter to serve the deceased. The moulded faience figures are in the conventional osiride pose, with crossed arms holding hoes.

USHABTI  
c. 1085-950 B.C.  
Thebes, Egypt  
Material: faience

The figure was recovered from the lower court, Temple of Hatshepsut at Deir el-Bahri.



Beads are being made with a triple drill and threaded (from a tomb painting, c. 1450 B.C., Thebes, Egypt)

## GLASS

Mould-blown glass was probably first invented in Syria in the 1st century B. C. and free-blown soon thereafter. Simple free and blown-moulded vessels were mass produced by ancient glass-makers and swiftly spread throughout the Roman Empire. Palestinian and Syrian glass is susceptible to "weathering" that causes flaking in thin powdery layers, creating an iridescence.

## BOTTLE

c. 2-3rd century A. D.  
Syria  
Material: free blown, glass

## UNGUENT BOTTLE

c. 2-3rd century A. D.  
Syria  
Material: free blown, glass

## GLASS FRAGMENT

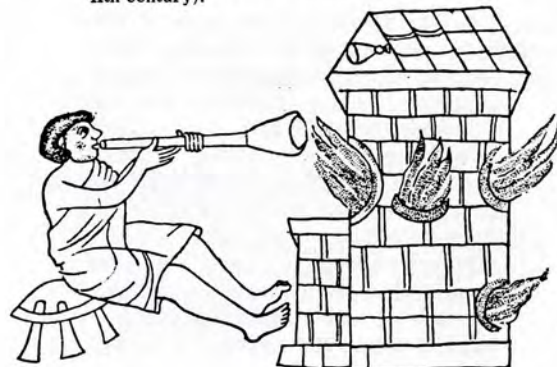
Roman  
Material: mould blown glass

## PENDANTS

Arikara culture, c. A. D. 1790-1830  
Corson County, South Dakota  
Material: glass trade beads  
(red, white, blue)

To make pendants, colored seed beads were pulverized to powder and moistened to a paste. The paste was shaped with a tool, or perhaps a clay mould, and fired on a copper baking pan. These pendants were found associated with burials at the Leavenworth site.

A man blows glass in front of a three-storied glass furnace (from an Italian manuscript, 11th century).

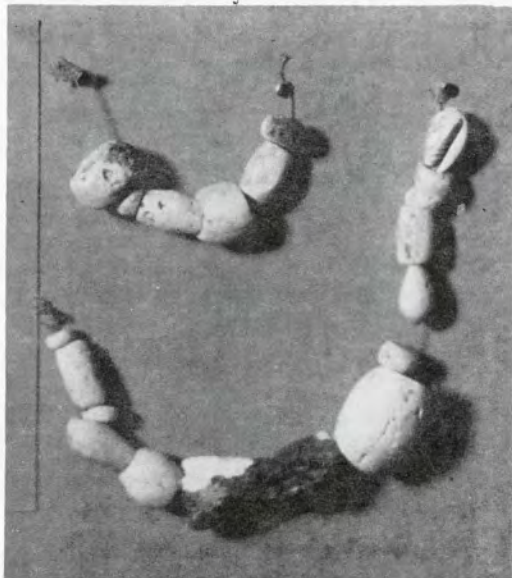


GLASS FRAGMENT  
c. 5.7 cm. diameter  
(Page 30)

BOTTLES  
Left: 7 cm. high  
Right: 10 cm. high  
(Page 30)

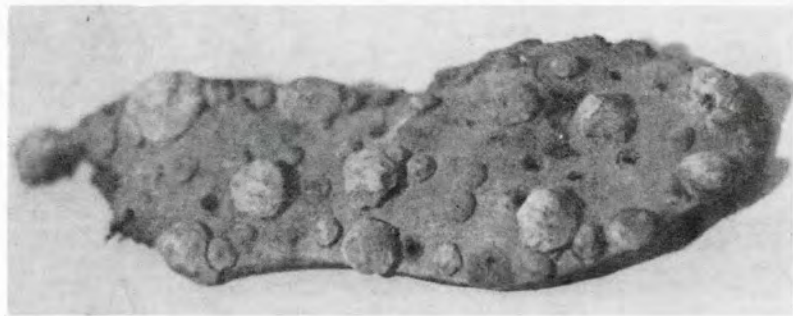


OIL LAMPS  
(Page 14)



SHELL BEADS  
0.5 cm. — 1 cm. diameter  
(Page 10)

ROMAN LEGIONARY SHOE SOLE  
20.3 cm. long  
(Page 12)



JUGLETS FROM PALESTINE  
Left: 14.5 cm. high  
Right: 12.5 cm. high  
(Page 13)



ROMAN JUG  
16.5 cm. high  
(Page 14)

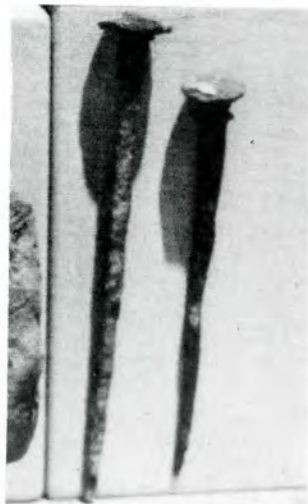


ROMAN VOTIVE CHALICE  
12.7 cm. high  
(Page 15)

ROMAN VESSEL FRAGMENTS  
(Page 15)



ROMAN NAILS  
Left: 20.3 cm. long  
Right: 15.3 cm. long  
(Page 23)



BABYLONIAN TABLET  
7.6 cm. high  
(Page 25)



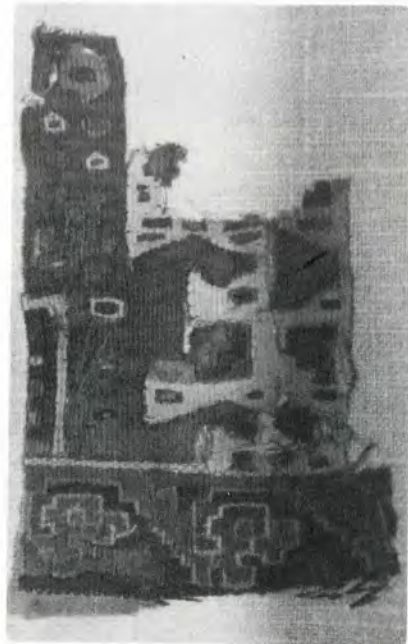
INSCRIBED BRICK  
28 cm. high  
(Page 25)



SUN-DRIED BRICK  
38 cm. long  
(Page 25)

NECKLACE  
44 cm. long  
(Page 29)

TEXTILE FRAGMENT  
c. 15 cm. x 9.5 cm.  
(Page 27)



VASE FRAGMENTS  
Left: 4.5 cm. x 4.5 cm.  
Right: 3.2 cm. x 5 cm.  
(Page 28)



SPINDLE WHORL  
3.5 cm. diameter  
(Page 27)

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