

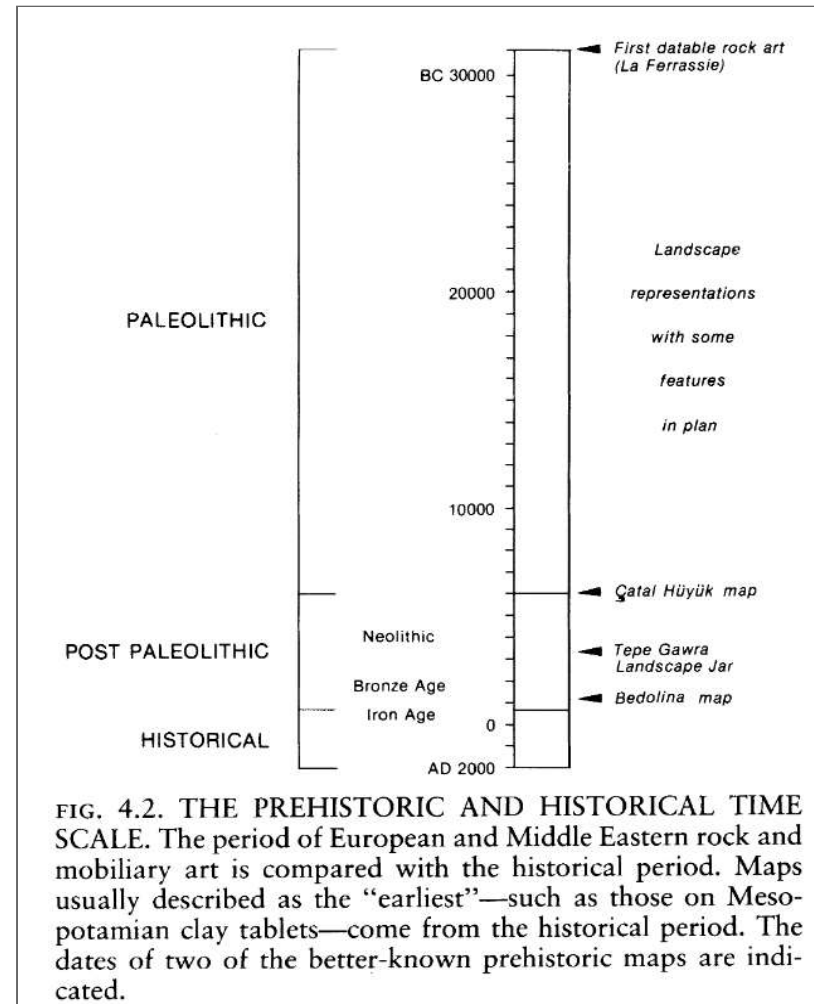
# PRE-HISTORIC MAPS

Many are hard to recognize as maps

-Rock art, pottery, carving, and etchings

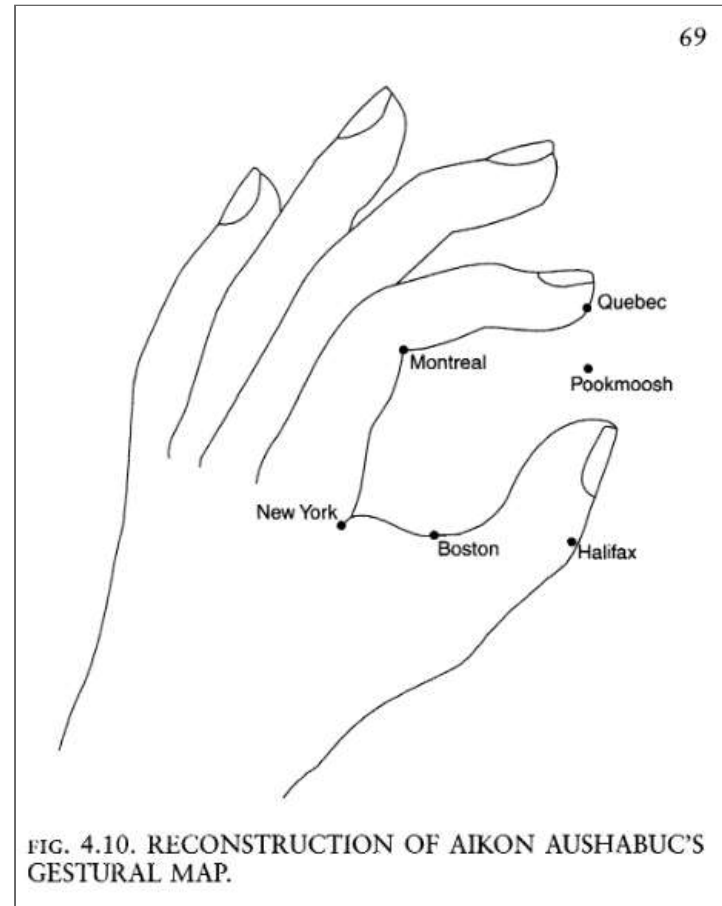
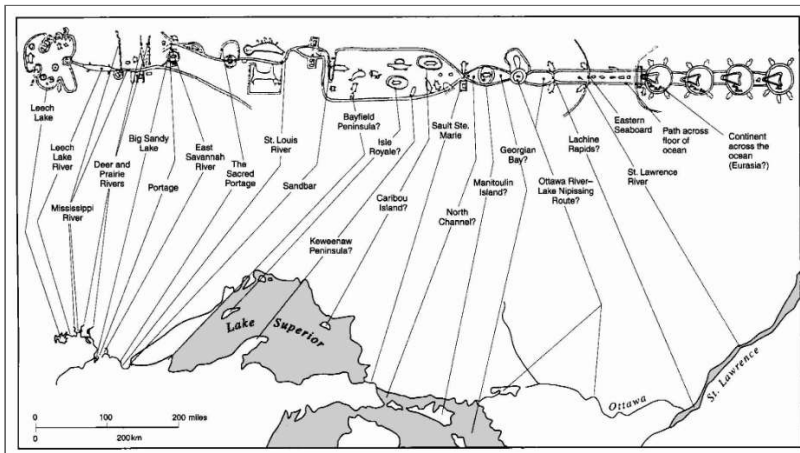
-Movement, gestures, & oral traditions

-Paper and Textile maps appeared later



# FEW SURVIVING EXAMPLES

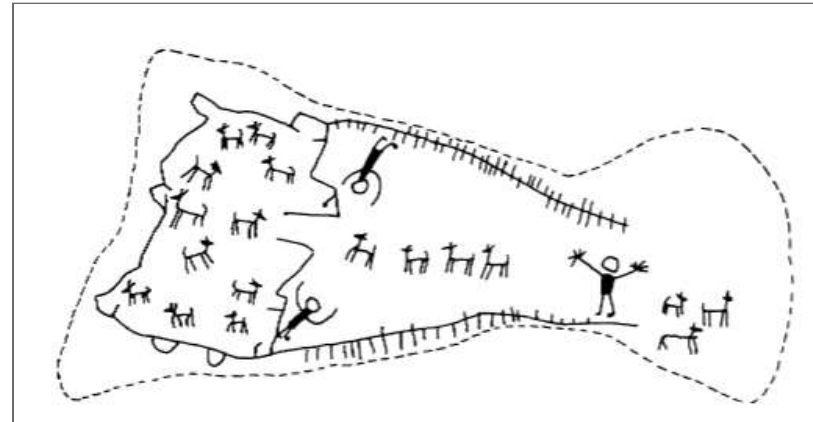
Must rely on more modern analogues.



# PRE-HISTORIC MAPS

Frequently depicted:

- Landscapes
- Hunting Grounds
- Villages
- Agricultural Plots



## OLDEST KNOWN MAPS

### MAMMOTH TUSK

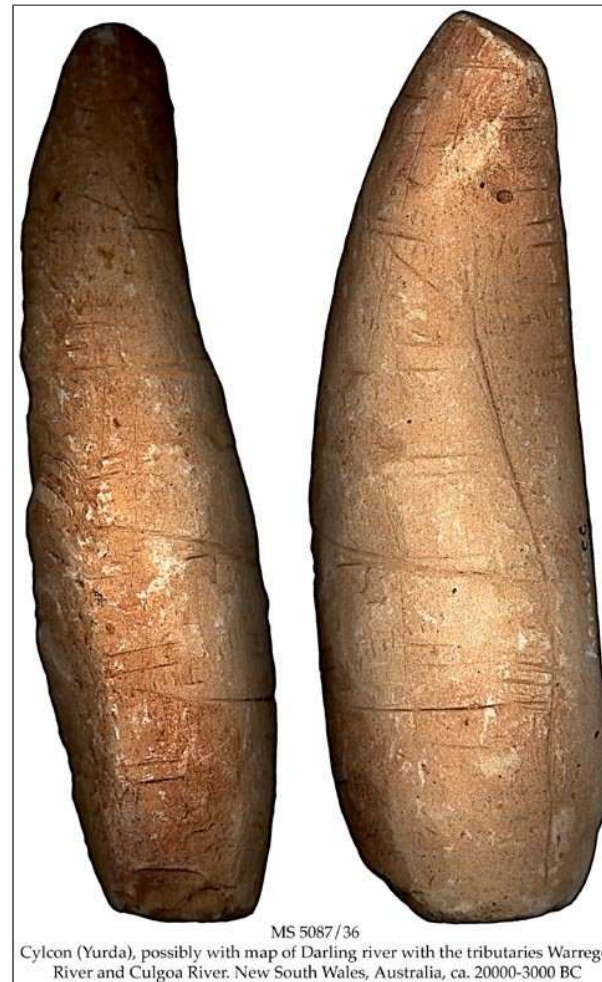
Oldest known graphic depiction of space. Hunting landscape around the Dyje River Czechia 26,000 B.P.



# OLDEST KNOWN MAPS

## YURDA

Stone engraving of Darling River basin with overland shortcuts.  
Australia 20,000 B.P.



MS 5087/36  
Cylcon (Yurda), possibly with map of Darling river with the tributaries Warrego River and Culgoa River. New South Wales, Australia, ca. 20000-3000 BC

# OLDEST KNOWN MAPS

## MAP ROCK

Stone engraving of Snake River Valley Idaho 12,000 B.P.



## FIRST "URBAN" PLANS

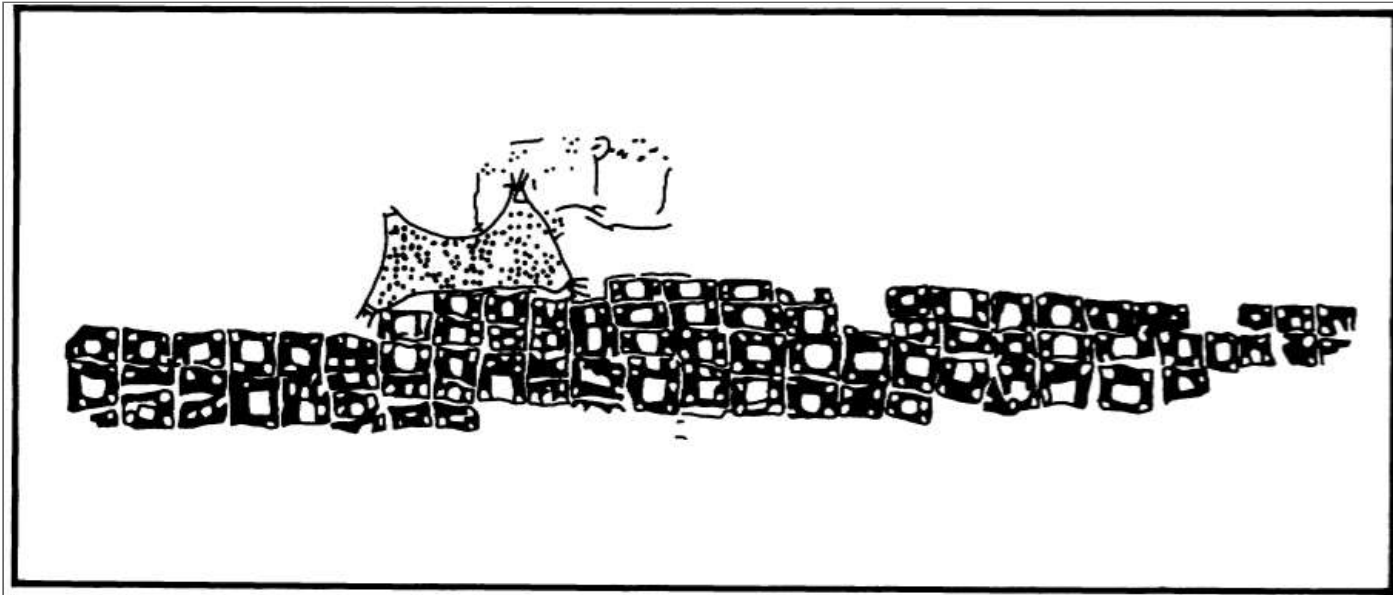
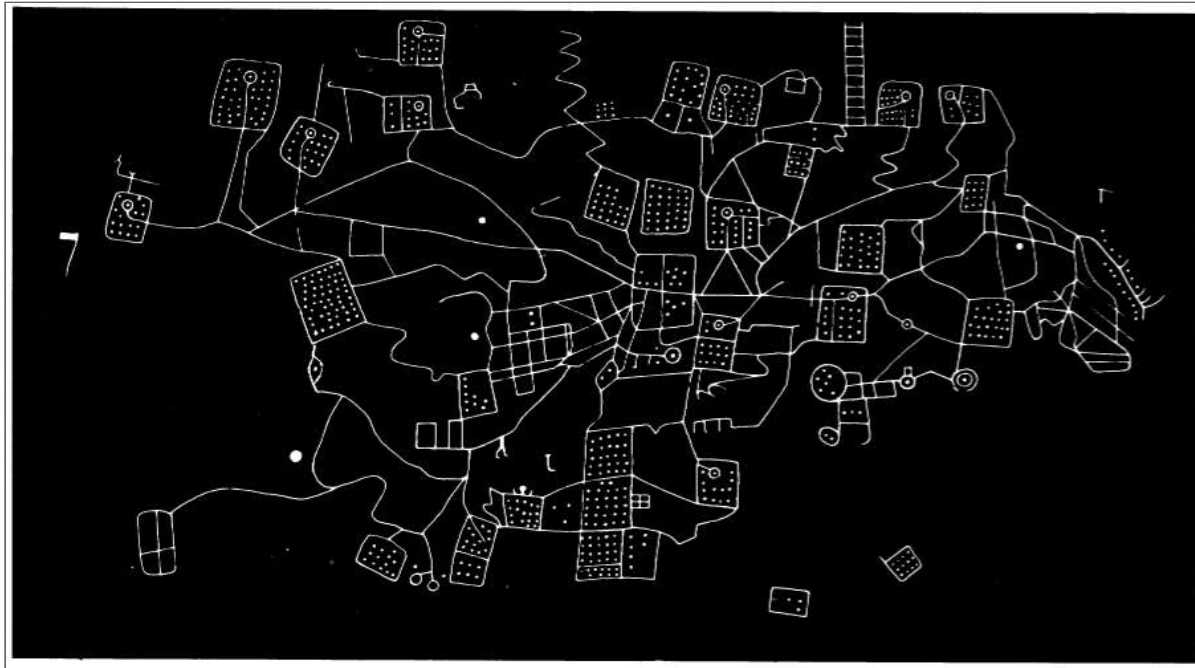


Fig. 4. *REPRODUCTION OF THE WALL PAINTING AT ÇATAL HÜYÜK* showing the town and the (? erupting) volcano. (After the copy by Grace Huxtable in Mellaart 1964, Plate VI).

**Çatalhöyük** a village Turkey, 8700 B.P.

# FIRST "URBAN" PLANS



Bedolina Petroglyph, Italy, 4000 B.P.



## PAPER AND TEXTILE MAPS



Maps on papyrus paper appeared in Egypt ~3,200 BP.

## PAPER AND TEXTILE MAPS



Paper and silk maps appeared in China ~2,200 BP.

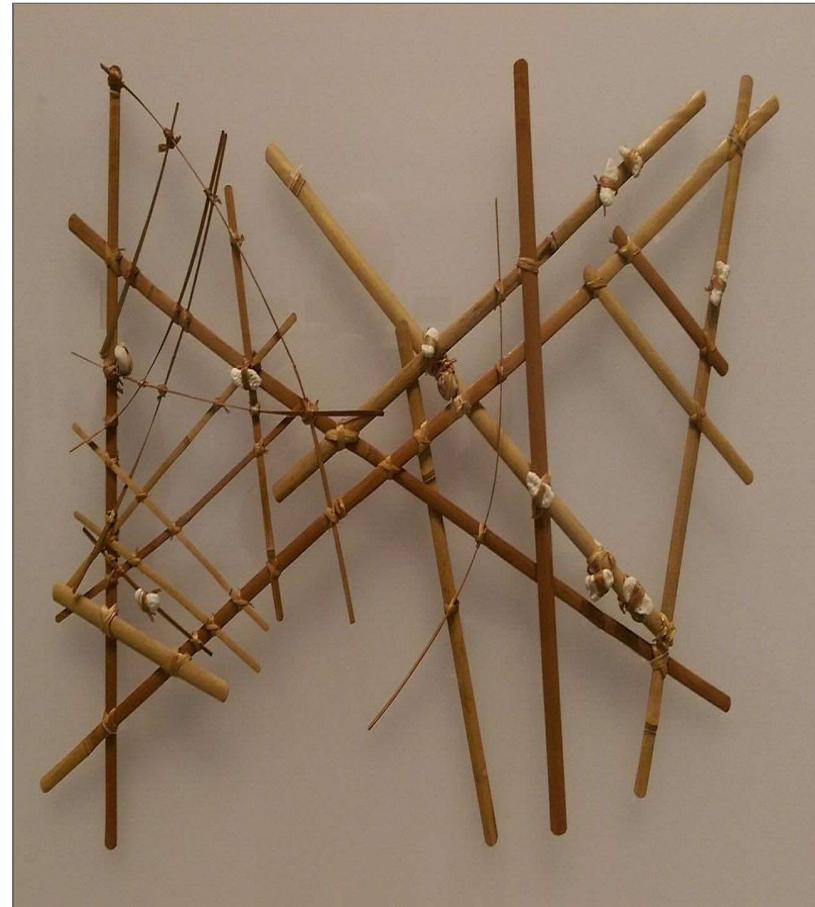


# NAVIGATIONAL CHARTS

Polynesian navigators spread  
across the pacific

-Reading stars, waves, weather,  
and wildlife

-Used charts, songs, and stories to  
record important details



## ADVENT OF SURVEYING

The earliest survey methods were:

- Limited in scale
- Labor intensive
- Only applicable for small areas



Rope stretching developed in Egypt and Mesoamerica.

## SYSTEMATIC DATA COLLECTION

As agricultural societies coalesced and grew methods for the systematic collection of information were developed and the first surveys were conducted.

- Methods were needed to conduct agricultural surveys, construct buildings, and create plan settlements.

- Objects needed to be drawn to scale.

## ADVENT OF SURVEYING

Systematic measuring and recording of angles and distances leads to development of geometry and trigonometry.

-Maps became more accurate but they were limited to small areas.

Australian mathematician reveals worl...



# URBAN PLANNING

Town plan of Nippur, Babylonia on a clay tablet. Possibly the earliest map drawn to scale 3500 B.P.

Maps could now "accurately" represent: bearings, distances, elevations, & sizes

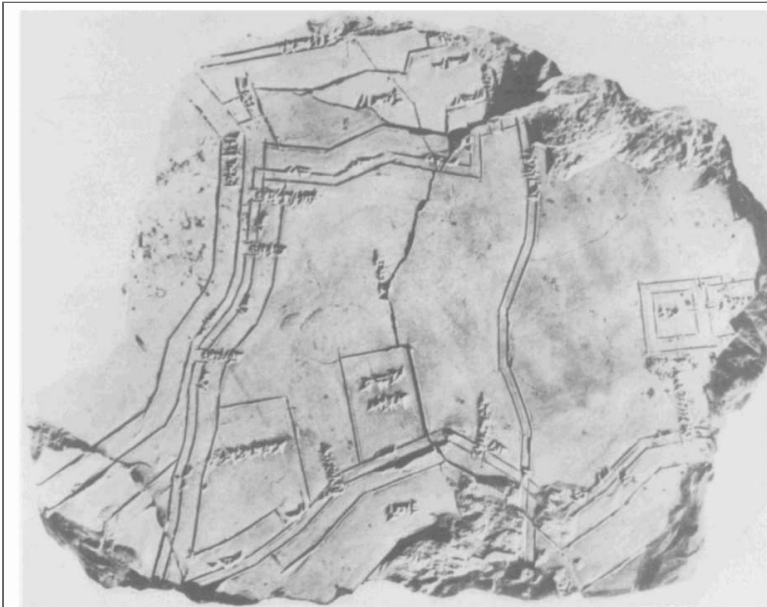


FIG. 6.7. PLAN OF NIPPUR, CA. 1500 B.C. Possibly the earliest town plan drawn to scale, this shows the temple of Enlil in its enclosure on the right edge, city walls, canals, storehouses, and a park. Size of the original: 18 × 21 cm. By permission of the Hilprecht Collection, Friedrich-Schiller-Universität, Jena.



# LINE OF SIGHT METHODS

Allowed for surveying over greater distances and mapping larger areas. Road networks could be constructed, distances between settlements could be approximated.



FIG. 6.10. THE BABYLONIAN WORLD MAP, CA. 600 B.C. This map shows the relationship between the legendary regions beyond the ocean and the Babylonian world. The parallel lines running to and from Babylon (the elongated rectangle) represent the Euphrates, while the circular band represents the salt sea. Largest dimensions of the original: 12.5 × 8 cm. By permission of the Trustees of the British Museum, London (BM 92687).

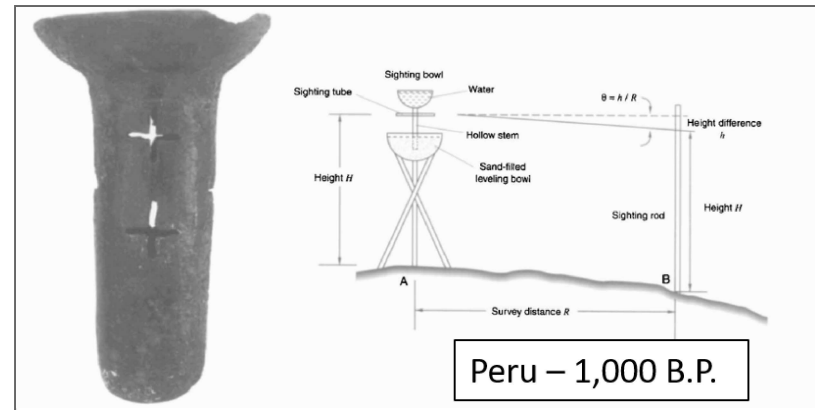
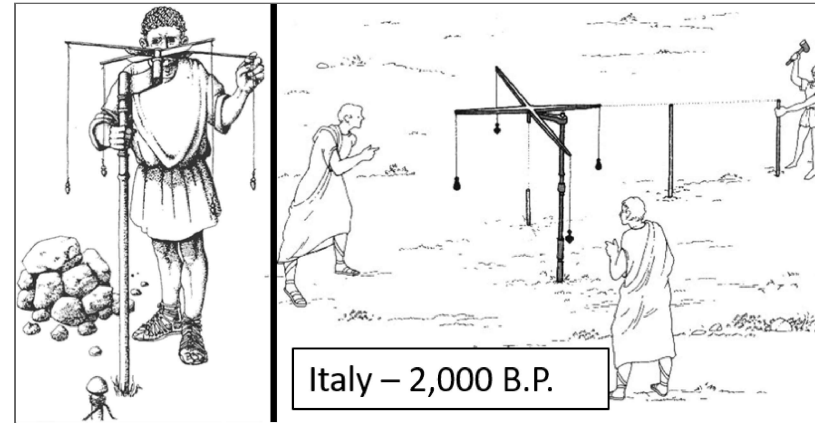
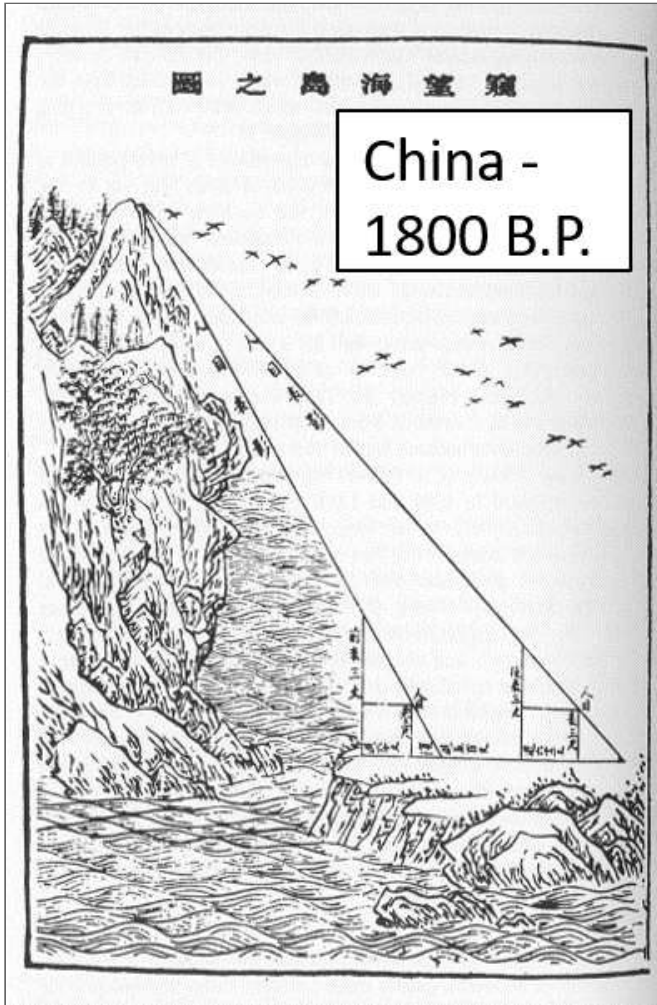


FIG. 6.11. CLAY TABLET MAP EXCAVATED AT YORGAN TEPE. This is a cast of the earliest known example, ca. 2300 B.C., of a topographical map in which the cardinal directions are clearly marked. Size of the original: 6.8 × 7.6 cm. By permission of the Semitic Museum, Harvard University, Cambridge (acc. no. SMN 4172); see also Theophile James Meek, *Old Akkadian, Sumerian, and Cappadocian Texts from Nuzi*, vol. 3 of Harvard University, Semitic Museum, *Excavations at Nuzi*, 8 vols. (Cambridge: Harvard University Press, 1929–62), tablet 1.

## CELESTIAL GEOGRAPHY

From early times the Babylonians observed how the heavenly bodies moved or did not move, and in the second and first millennia B.C. they noted this in writing. Their basic aims were calendrical and astrological, yet

# LINE OF SIGHT METHODS



## THE GORMA

The Roman empire employed professional surveyors. They built a massive road network, created an Agricultural land registry and did "Urban" planning. The gorma is the precursor of the **Theodolite**

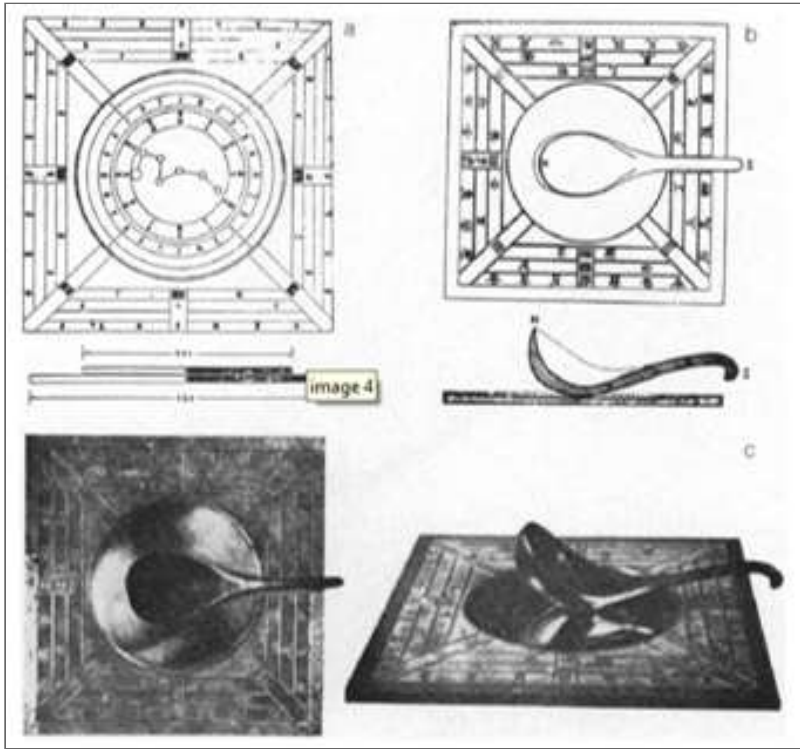
Groma Surveying



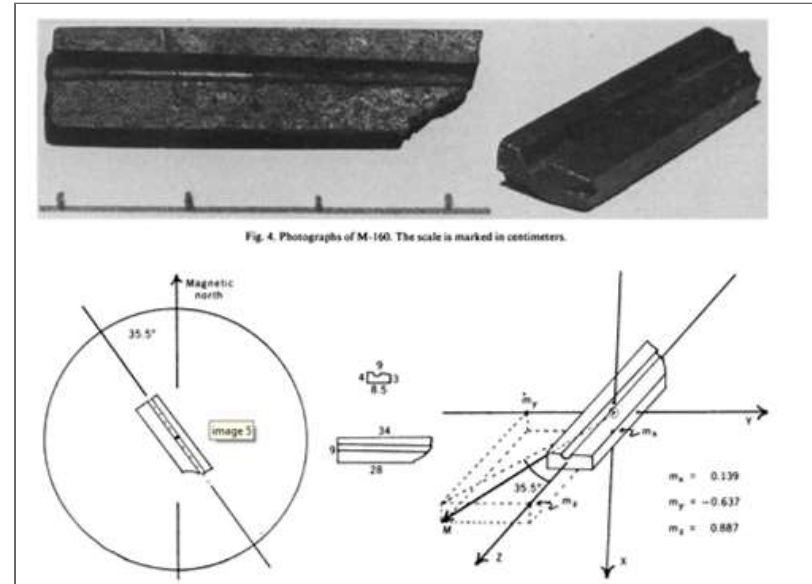
# THE GORMA



# THE COMPASS



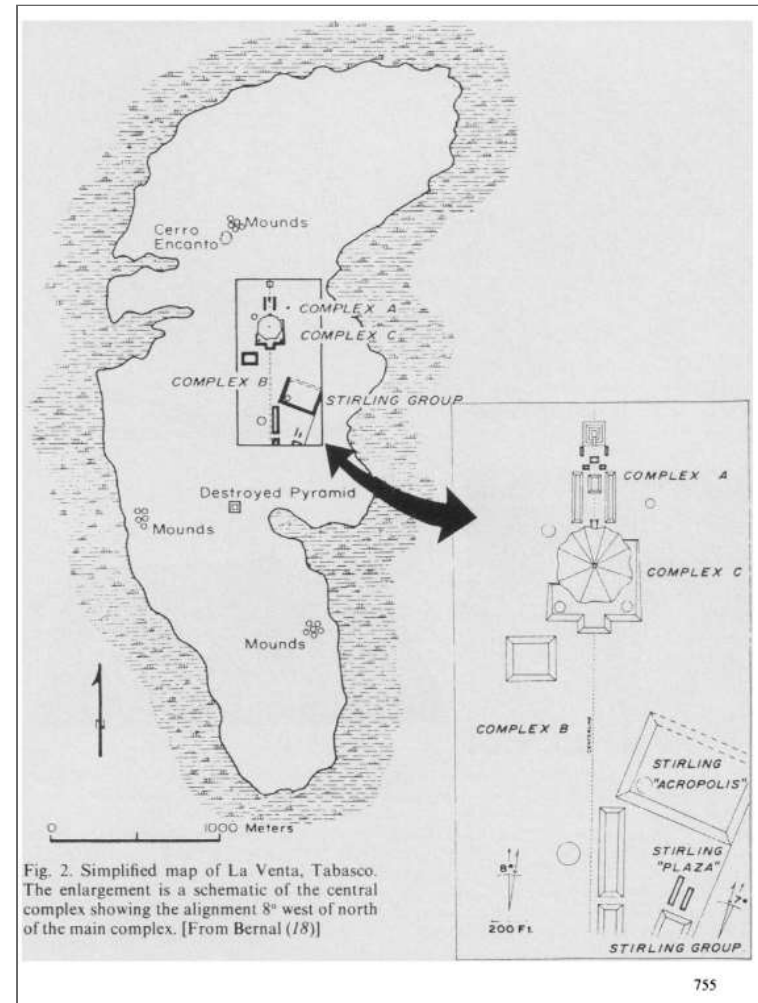
Han Dynasty "south-governor"  
~2200 BP.



Olmec Lodestone ~3000 BP.

# THE COMPASS

Lodestones are naturally occurring magnetic minerals. They were first used by the Olmec civilization to orient their pyramids and cities.



## THE COMPASS

The compass was first used for navigation in China during the Song Dynasty ~ 1000 B.P. It made its way to Europe around 800 B.P. The invention of the compass spurred on the "Age of Exploration"



南宋时发明了将磁针装在方位盘上的旱罗盘。此为江西临川南宋墓出土的持罗盘仙人俑。

In Southern Song Dynasty, Land Compass was invented. It is composed of a magnet needle mounted on an azimuth plate. Presented is a figurine of an immortal holding a compass, which was excavated from the Southern Song Tomb in Linchuan, Jiangxi Province.