Readings

Pages 20-32,
A World History of Architecture,
Fazio, Michael, Moffet & Wodehousecopoy

Pages 46 – 51
Great Architecture of the World

Welcome to architecture 1121- **HISTORY OF ARCHITECTURAL TECHNOLOGY**

Class 3 – Mesopotamian & Egyptian Architecture

Please turn off cell phones etc.
for the entire duration of the class.
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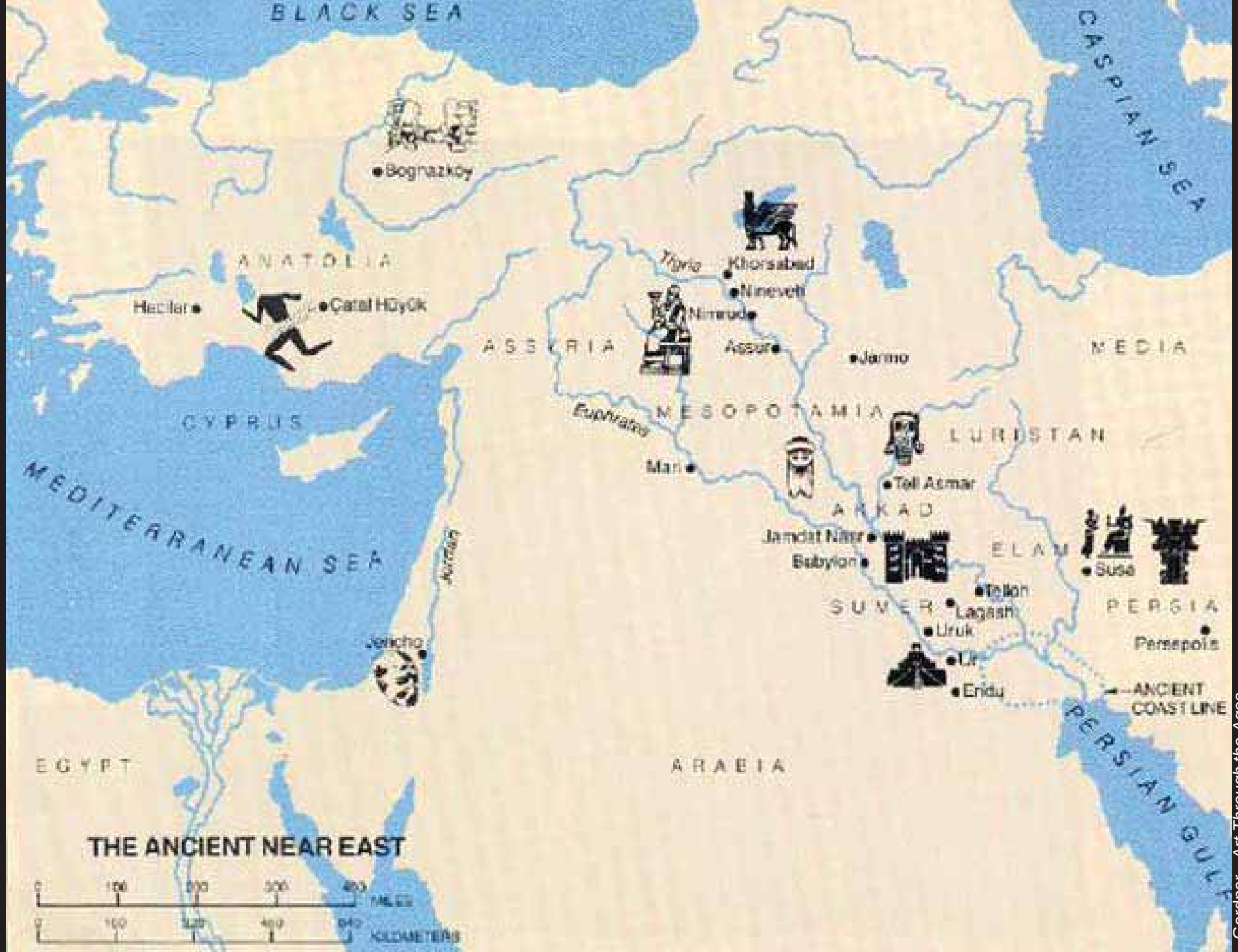
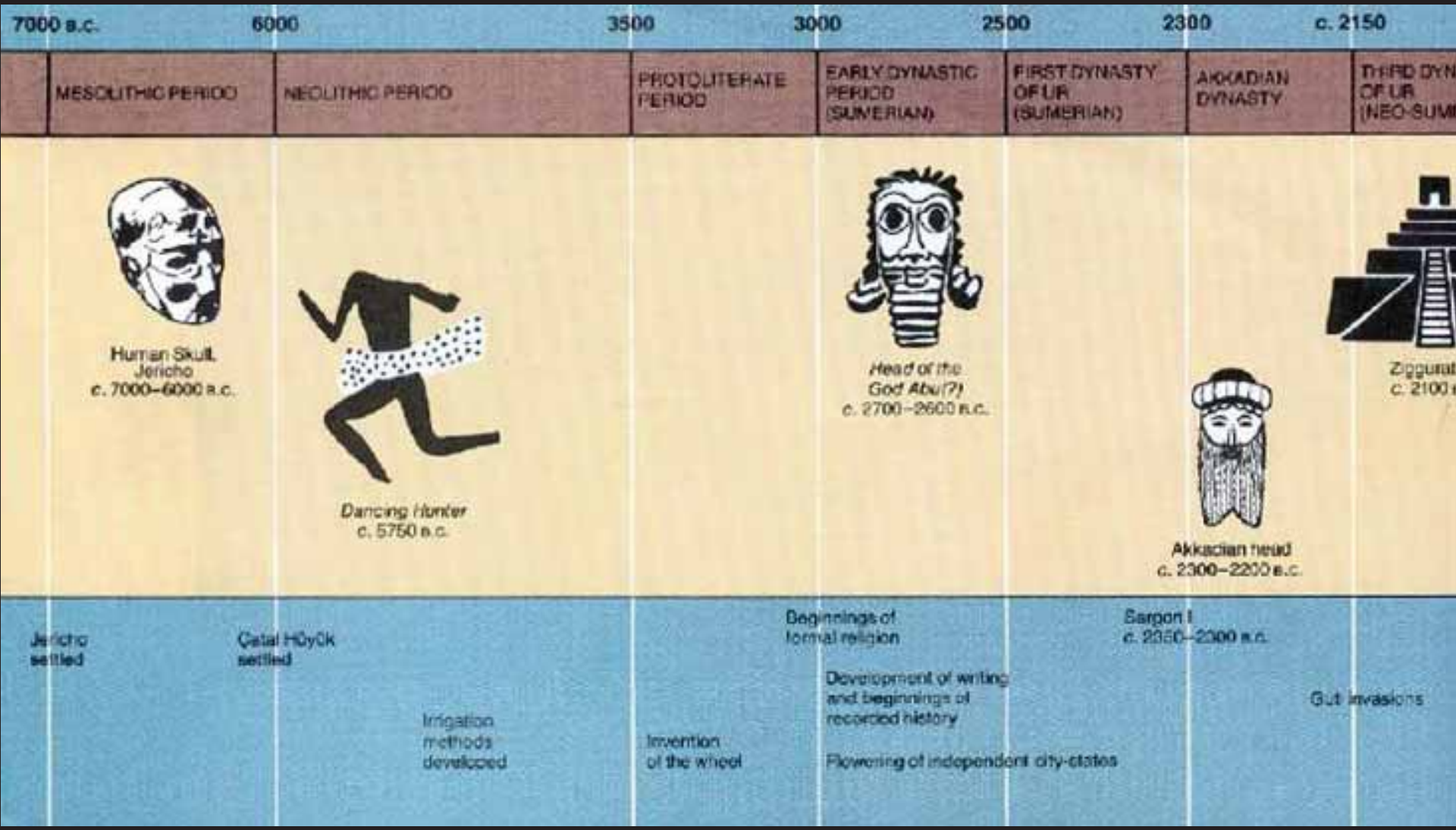


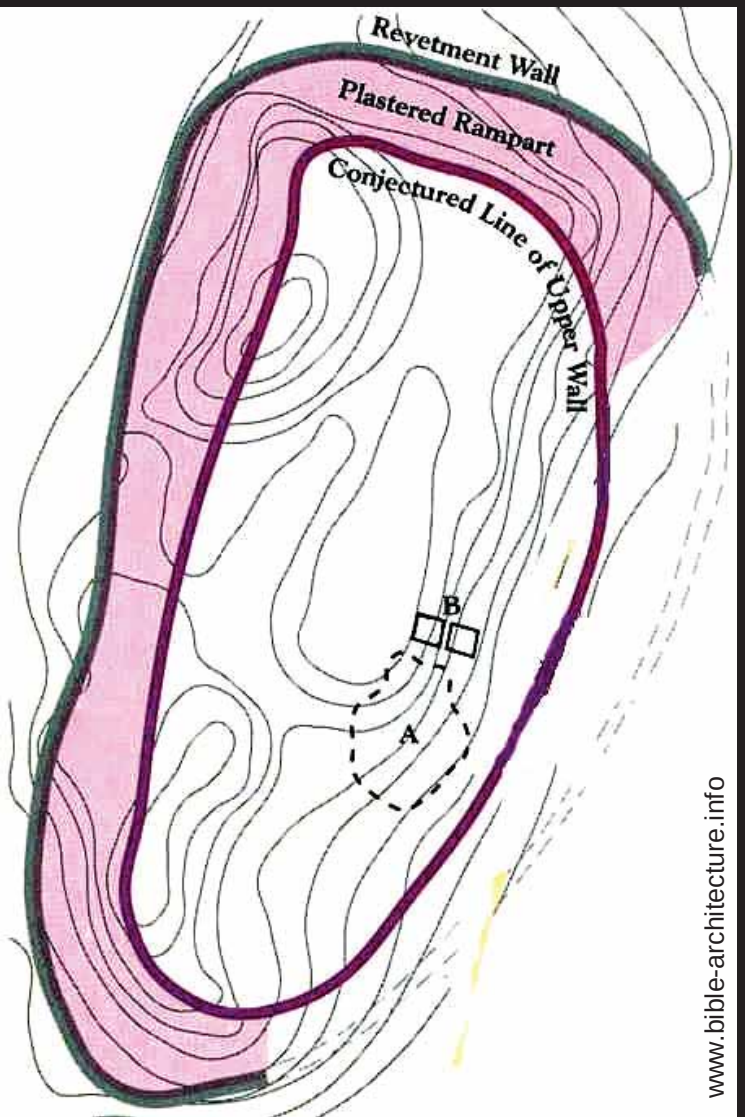
Mesopotamia & Ancient Near East:
c. 8000 – 300 BCE



Gardner - *Art Through the Ages*

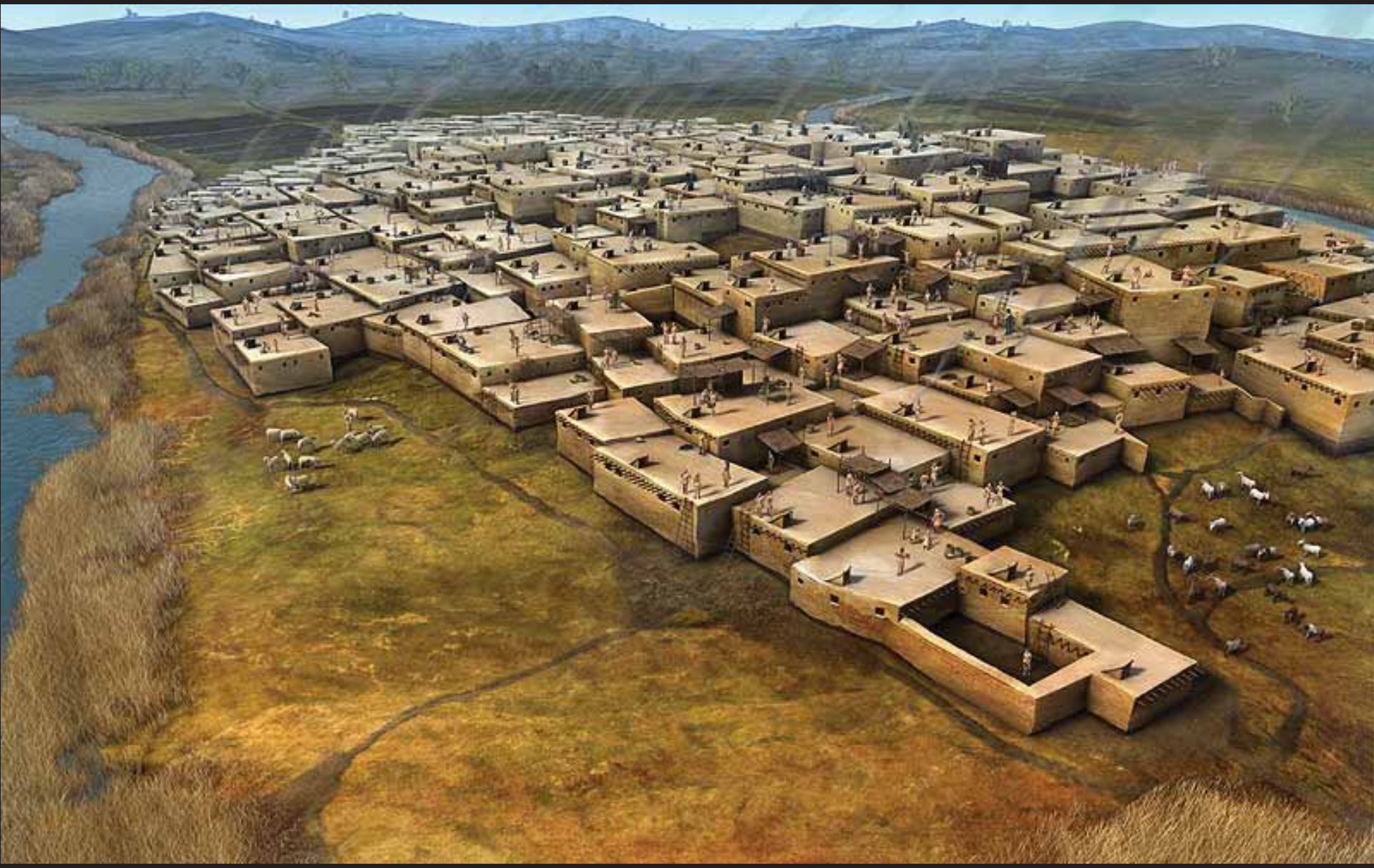
Jericho (modern Jordan)-7500BCE

Ancient city surrounded by a 14’ high wall and 10’ thick
A tower was 25’ tall – a lookout for invaders



www.bible-architecture.info

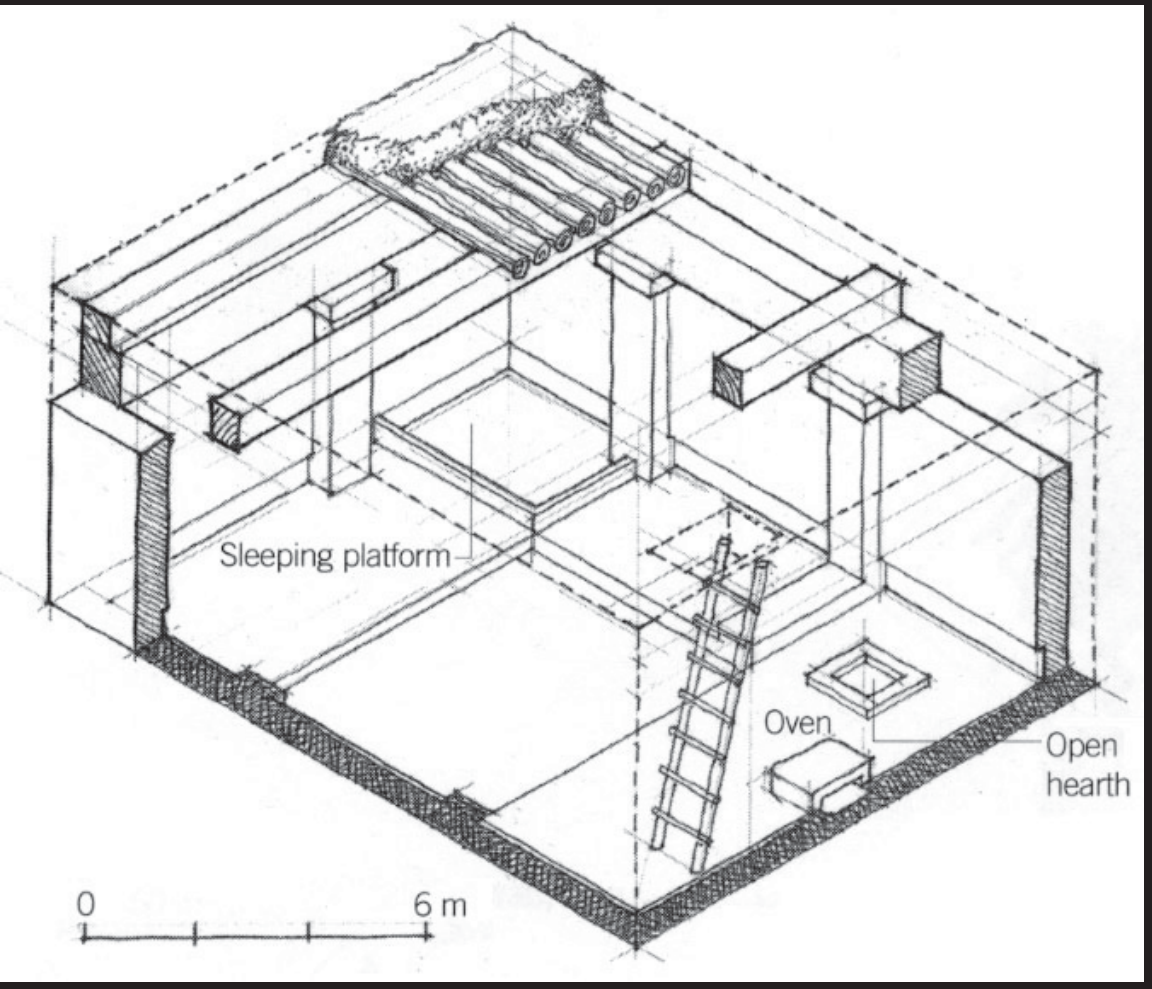
Catal Huyuk, Anatolia, 6000-5900 BC



http://www.illustrato.de/mappe.html by Jochen Stuhrmann

Catal Huyuk, Anatolia, 6000-5900 BC

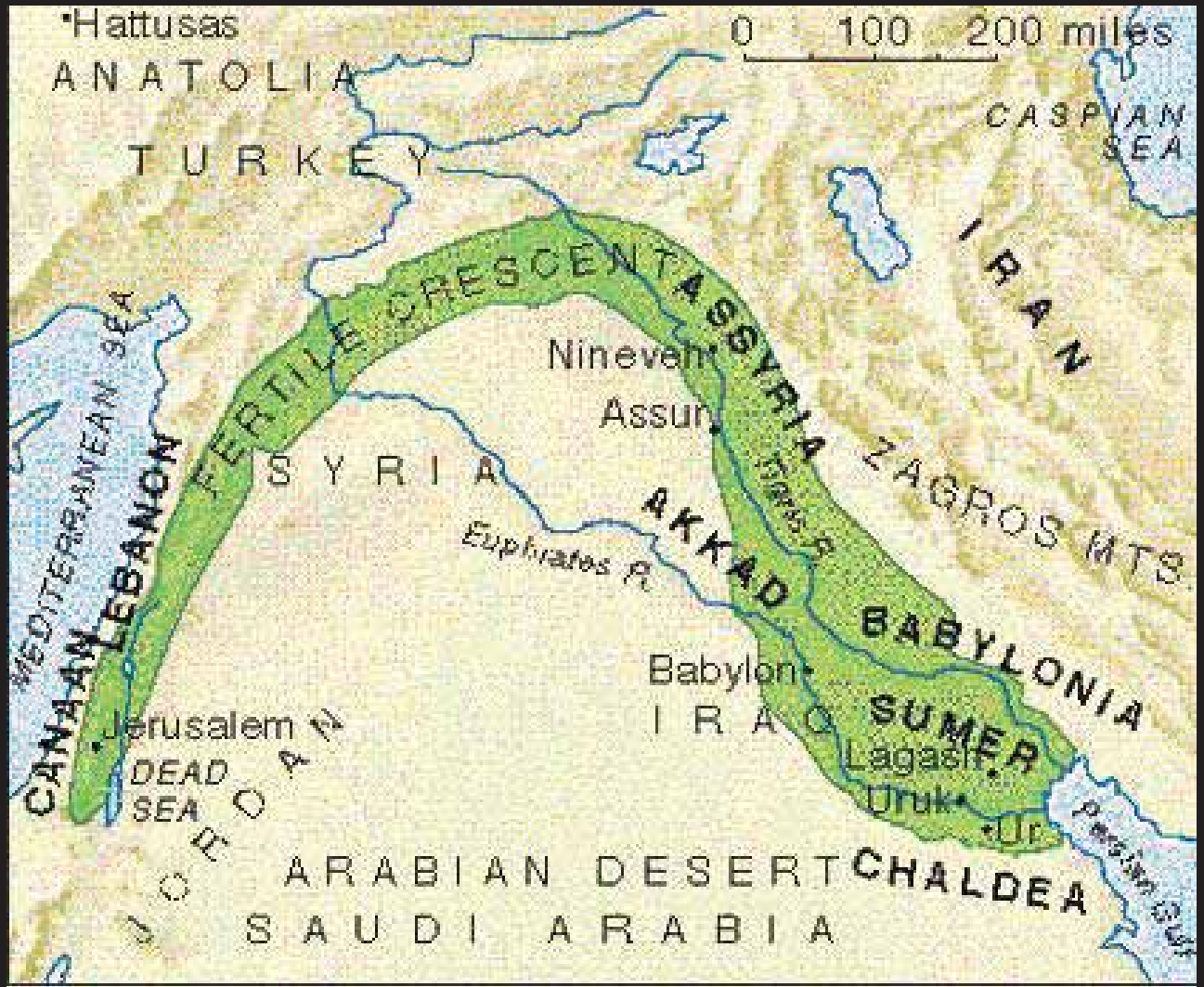
A reconstructed sanctuary of Catal Hüyük in Angora Museum >



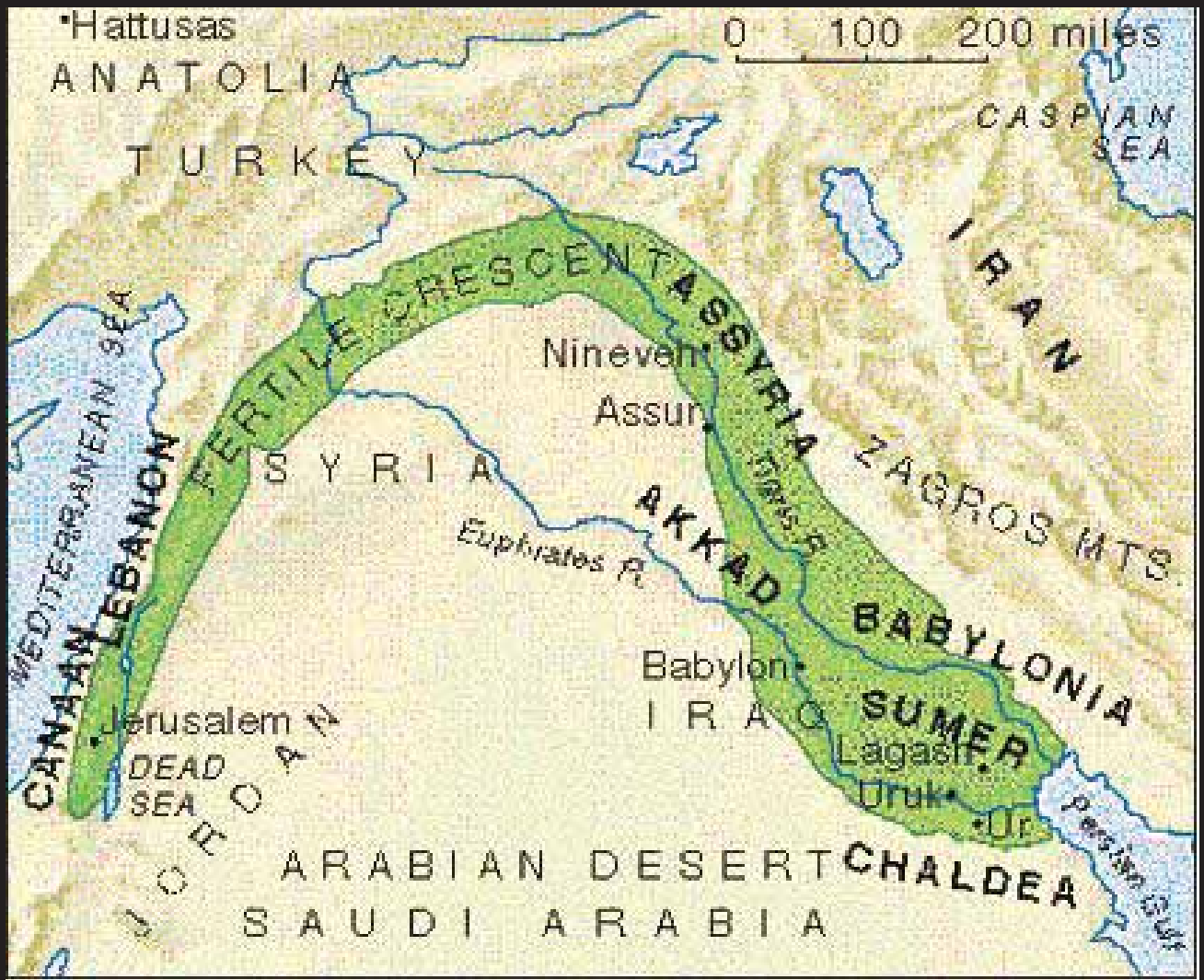
Ching & Jarzombek & Vikramaditya - *A Global History of Architecture* ^

Mesopotamia: (*means between rivers*)

located on the plain between the Euphrates and Tigris Rivers, now Iraq. Civilization developed in the Fertile Crescent, benefiting from this agriculturally rich area.



Sumer: Early Sumerian culture developed and peaked in 3,300 BC. Lacking timber and stone, they used sun-dried mud bricks. These brick were structurally weak, so walls were made very thick.



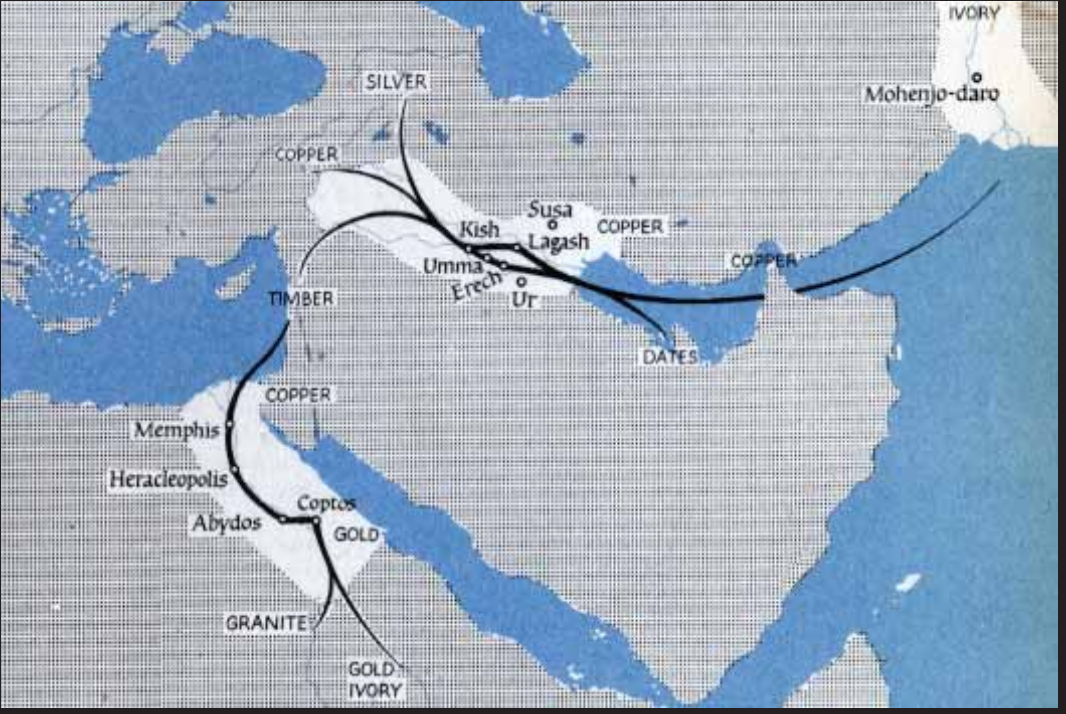
Sumerians developed the first known written language.

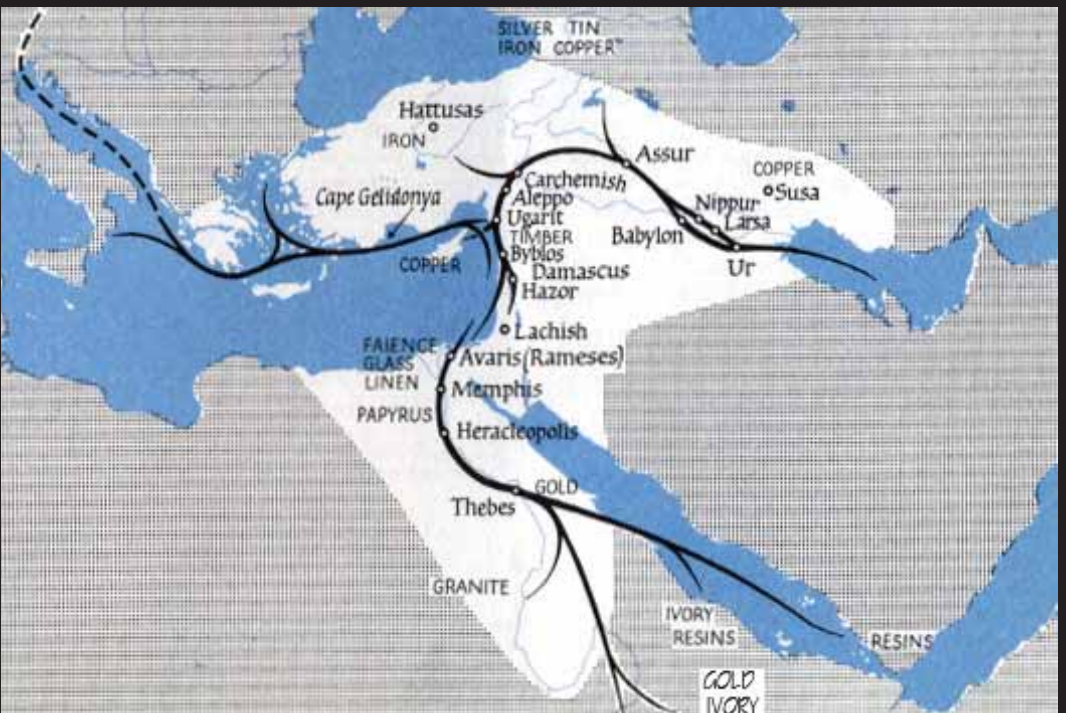
This was important for passing knowledge from generation to generation, and has been essential to the development of Civilization. The cuneiform script was first used for administrative records around 3100 BC.

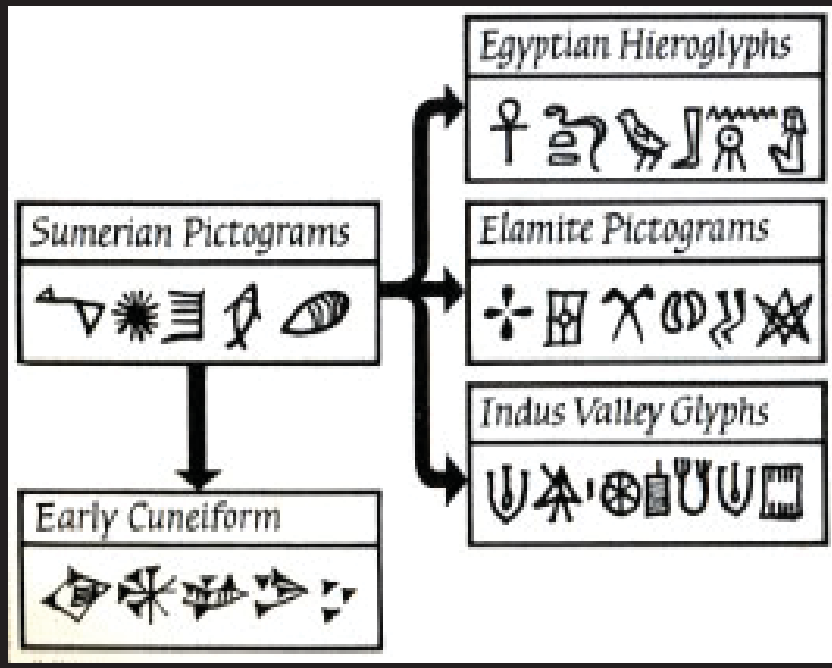
Also, the Sumerians introduced new forms of art, monumental architecture, and politics to Mesopotamia.

Ancient Language and Trade

c. 2300 BCE
&
c. 1300 BCE







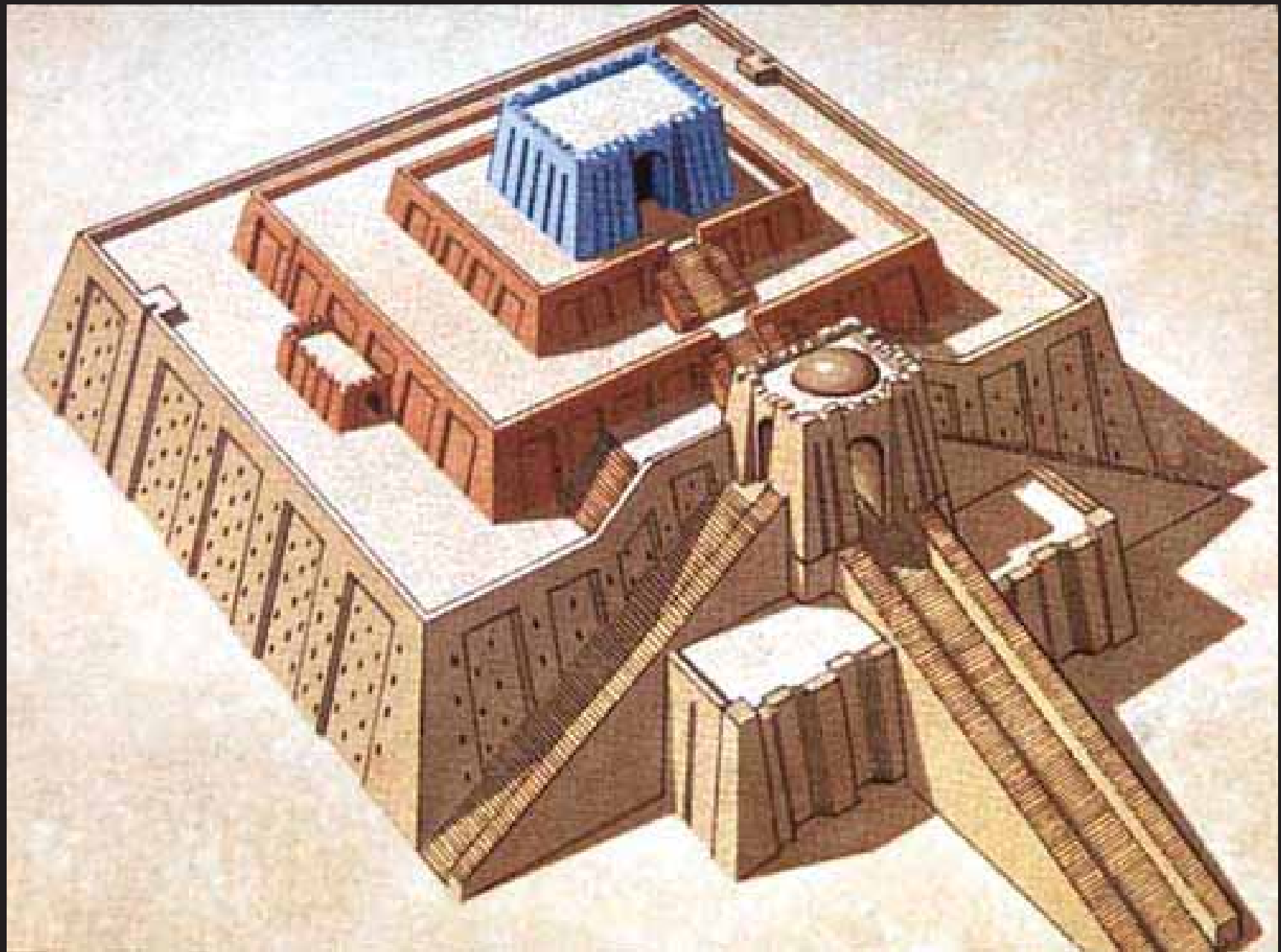
McEvedy, Colin. *The Penguin Atlas of Ancient History* , 1967

Architecture of Sumer: With only sun-dried mud bricks, they erected massive towers. These structures were the first monumental buildings designed.

The Ziggurat

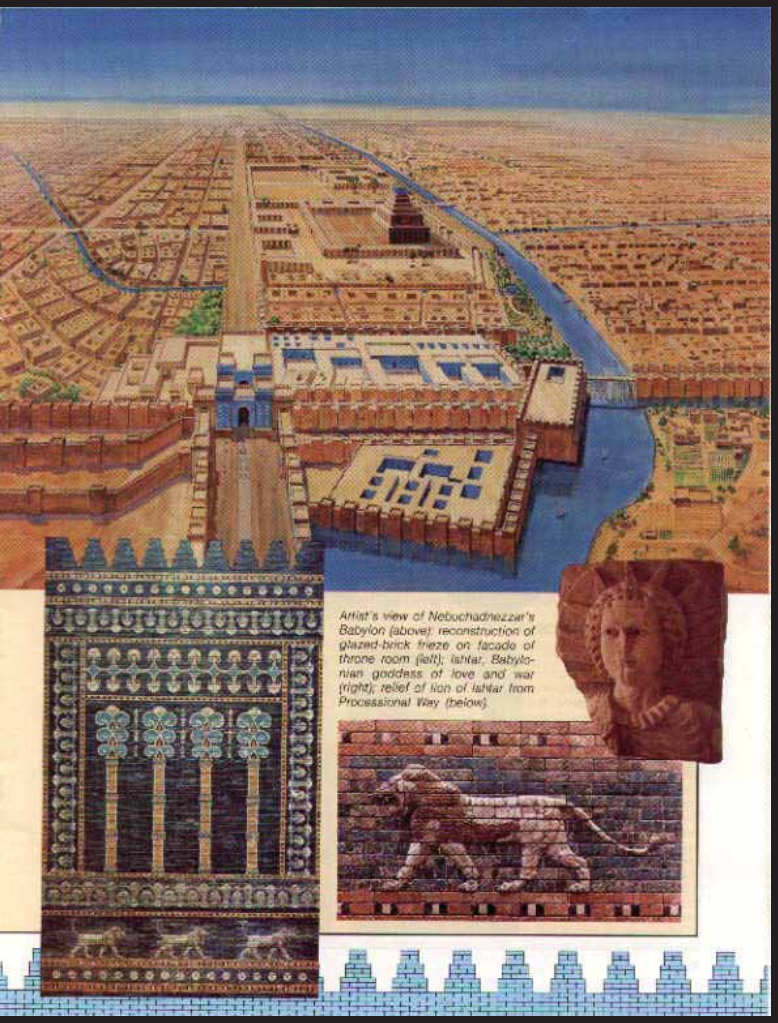
was the major invention of the Sumerians. It is an imposing terraced tower with up to seven layers that rose over the newly settled cities. There was a temple on the summit. The king climbed the ziggurat to be with the gods. The Ziggurat also gathered together the central economic and administrative functions of the city.

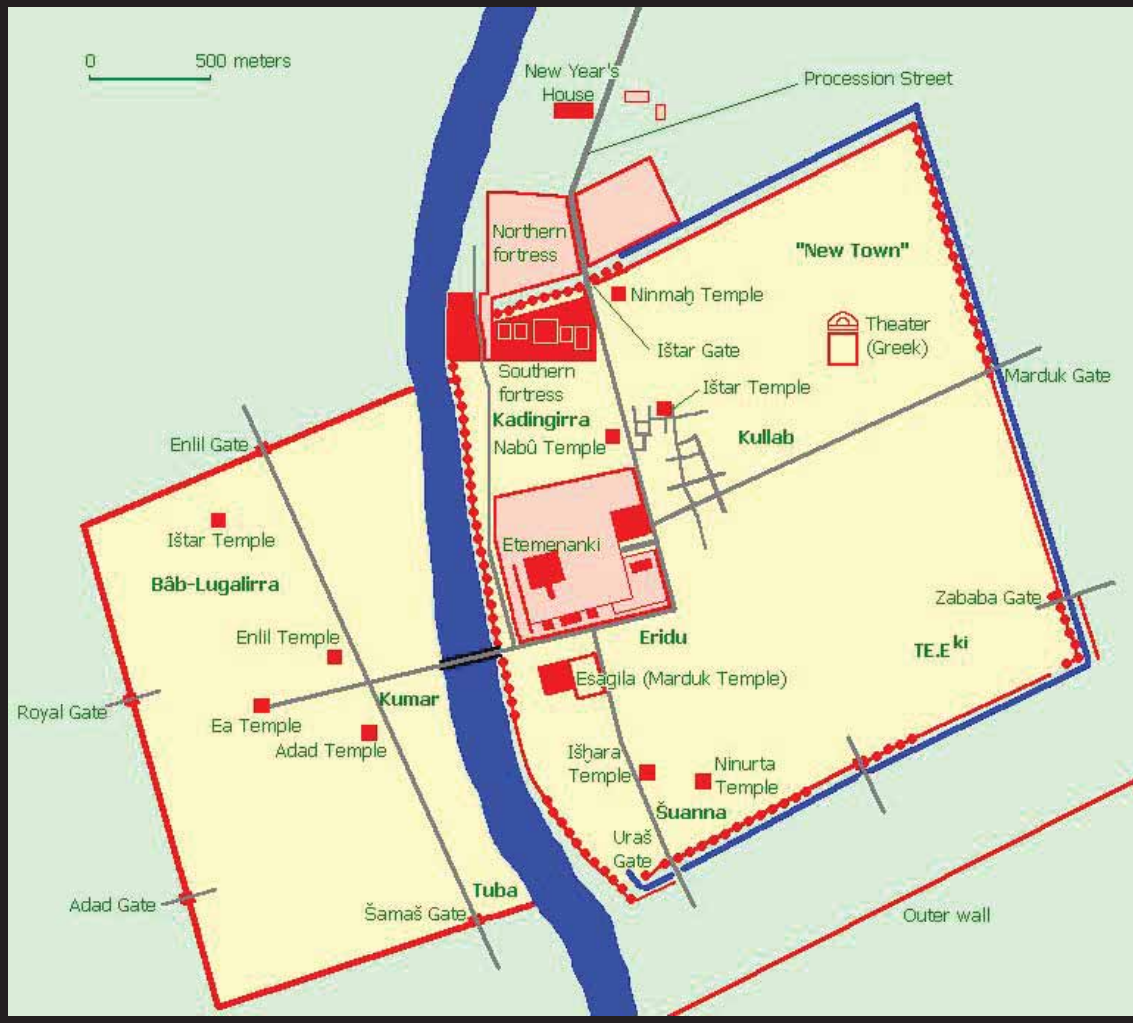
Ziggurat at Ur (Urnammu), Iraq; 2125 BCE, 50 feet tall



Babylon: (*located 25 miles south of Baghdad, Iraq)*

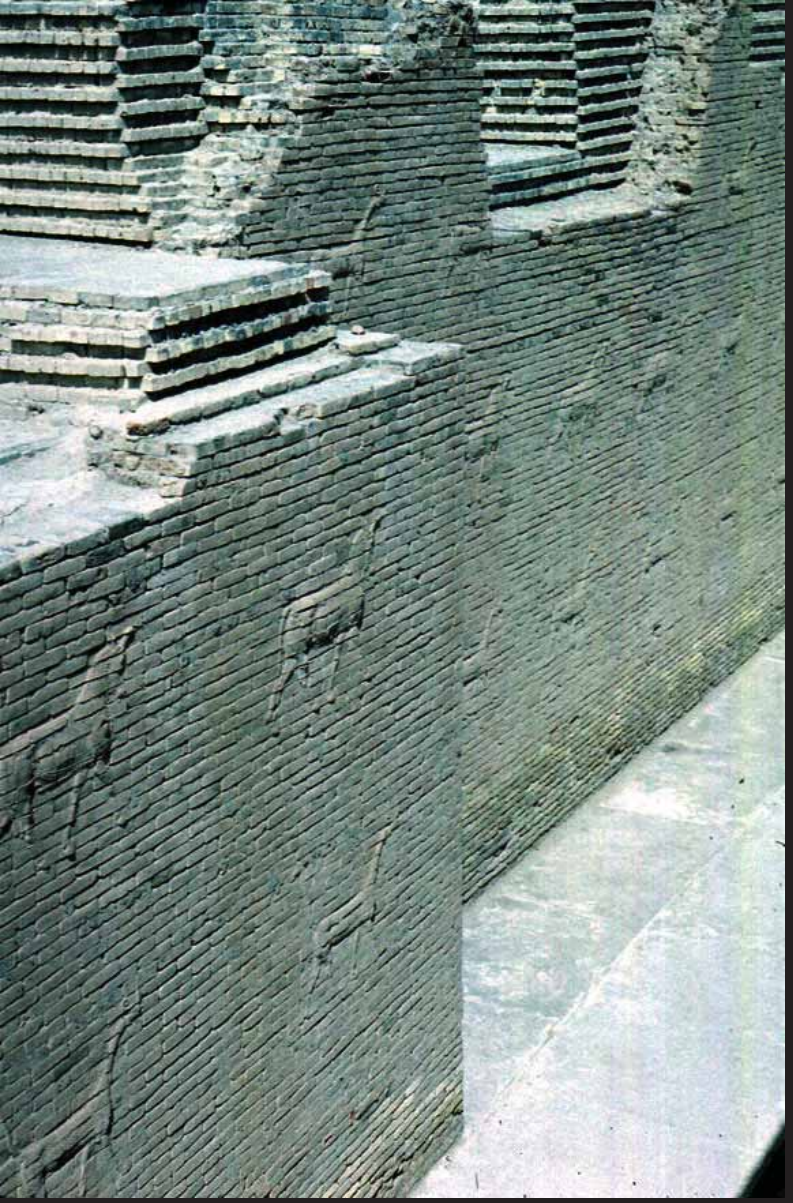
reached its height of luxury from 605-562BC. There are two major architectural achievements from Babylon.





www.users.rcn.com

http://oi.uchicago.edu



http://oi.uchicago.edu

Ishtar Gate-23’ high decorated with blue and red tiles with gold relief enamels of lions

http://oi.uchicago.edu

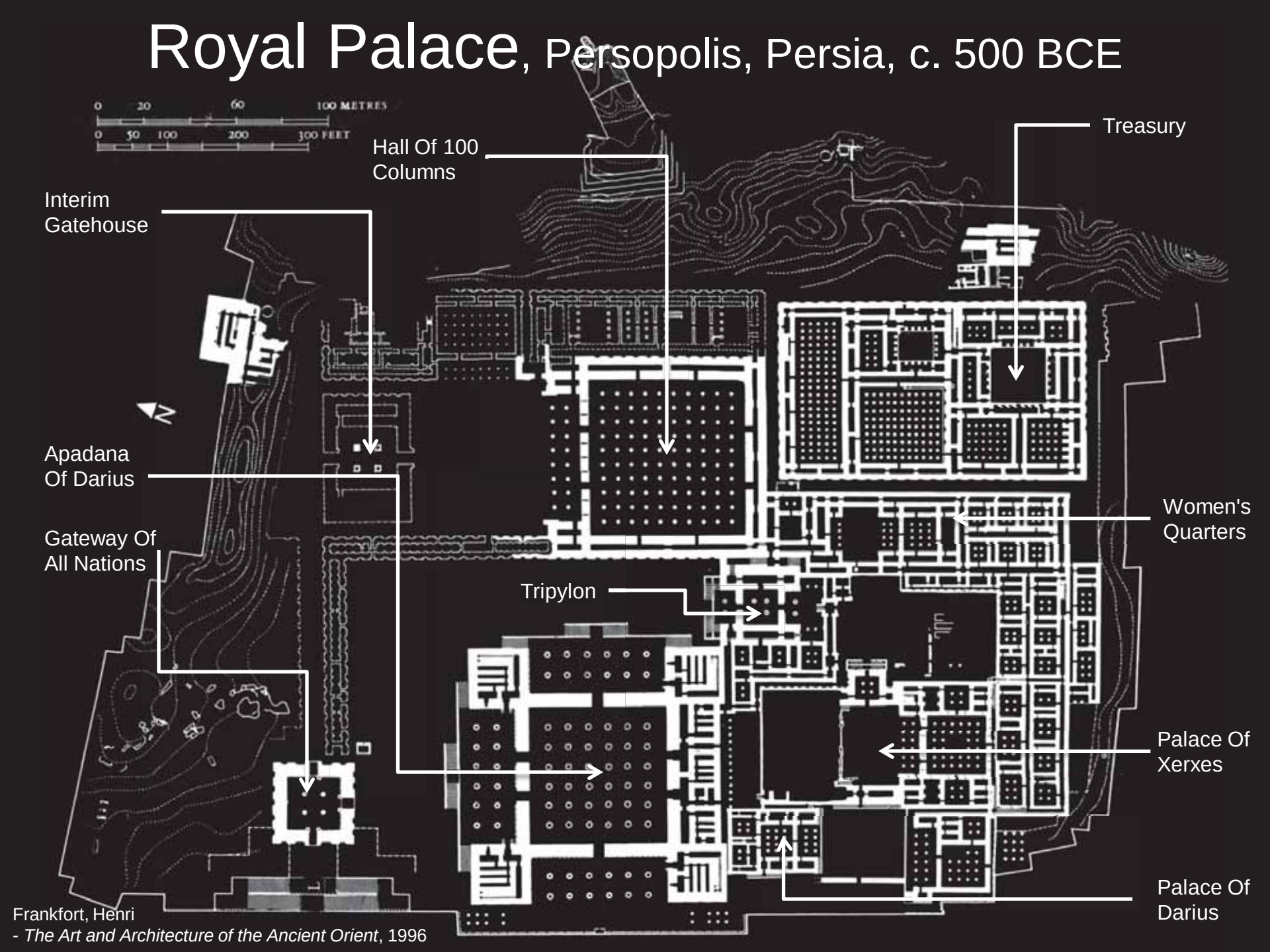
The Processional Way-73’ long running North to South, paved with white limestone and pink marble.

Ishtar Gate, 605 563 BC

Renalias, Josep. "Porta d'Ishtar - Ur" from " Category:Ishtar Gate" 2008 http://commons.wikimedia.org/wiki/ (2/1/2010)

Norton, Rictor "Ishtar Gate, Pergamon Museum, Berlin " Image from "http://www.flickr.com" 2009/17/05 http://www.flickr.com/photos/24065742@N00/151247206/ (2/4/2010)

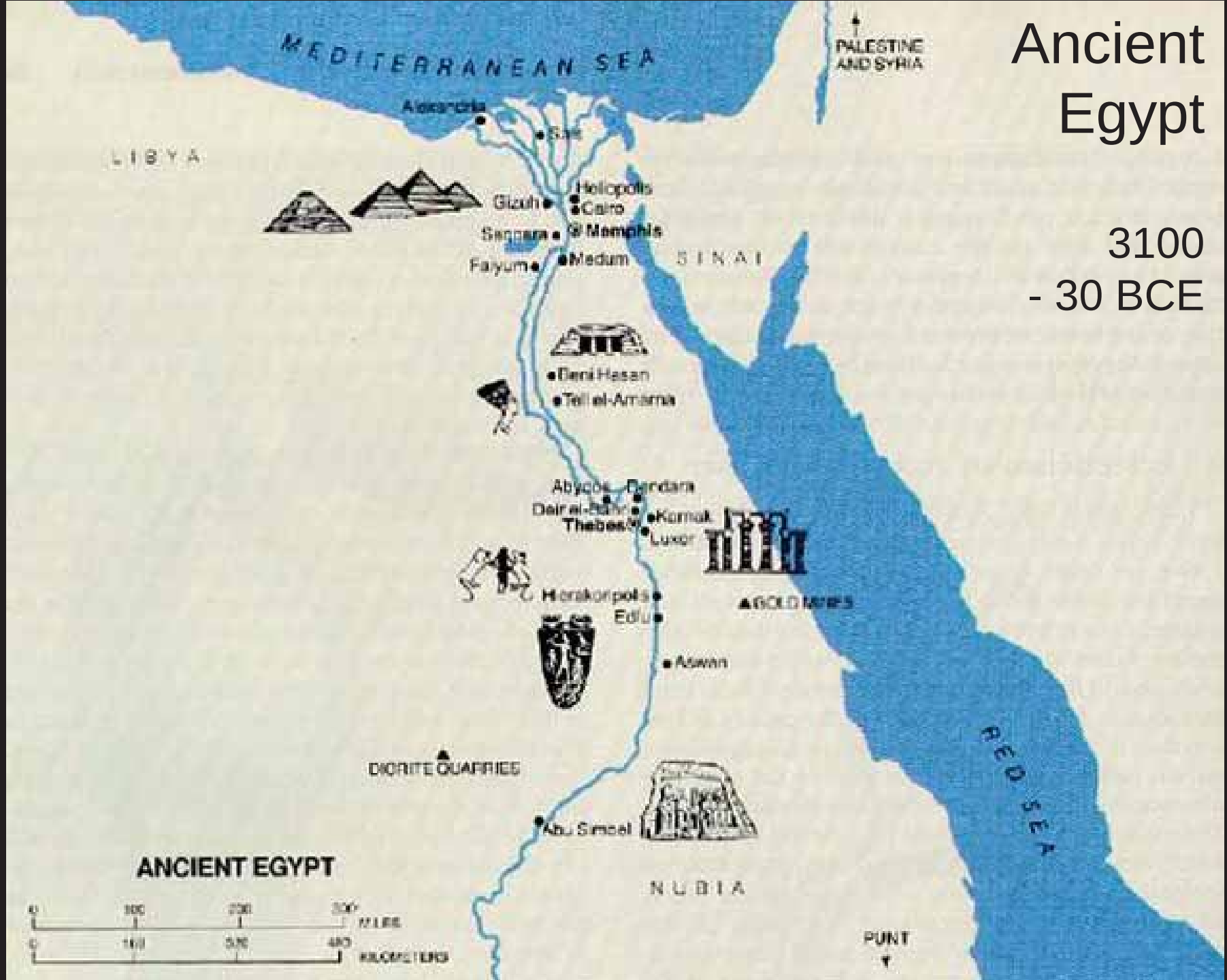
Royal Palace, Persopolis, Persia, c. 500 BCE



Frankfort, Henri
- *The Art and Architecture of the Ancient Orient*, 1996

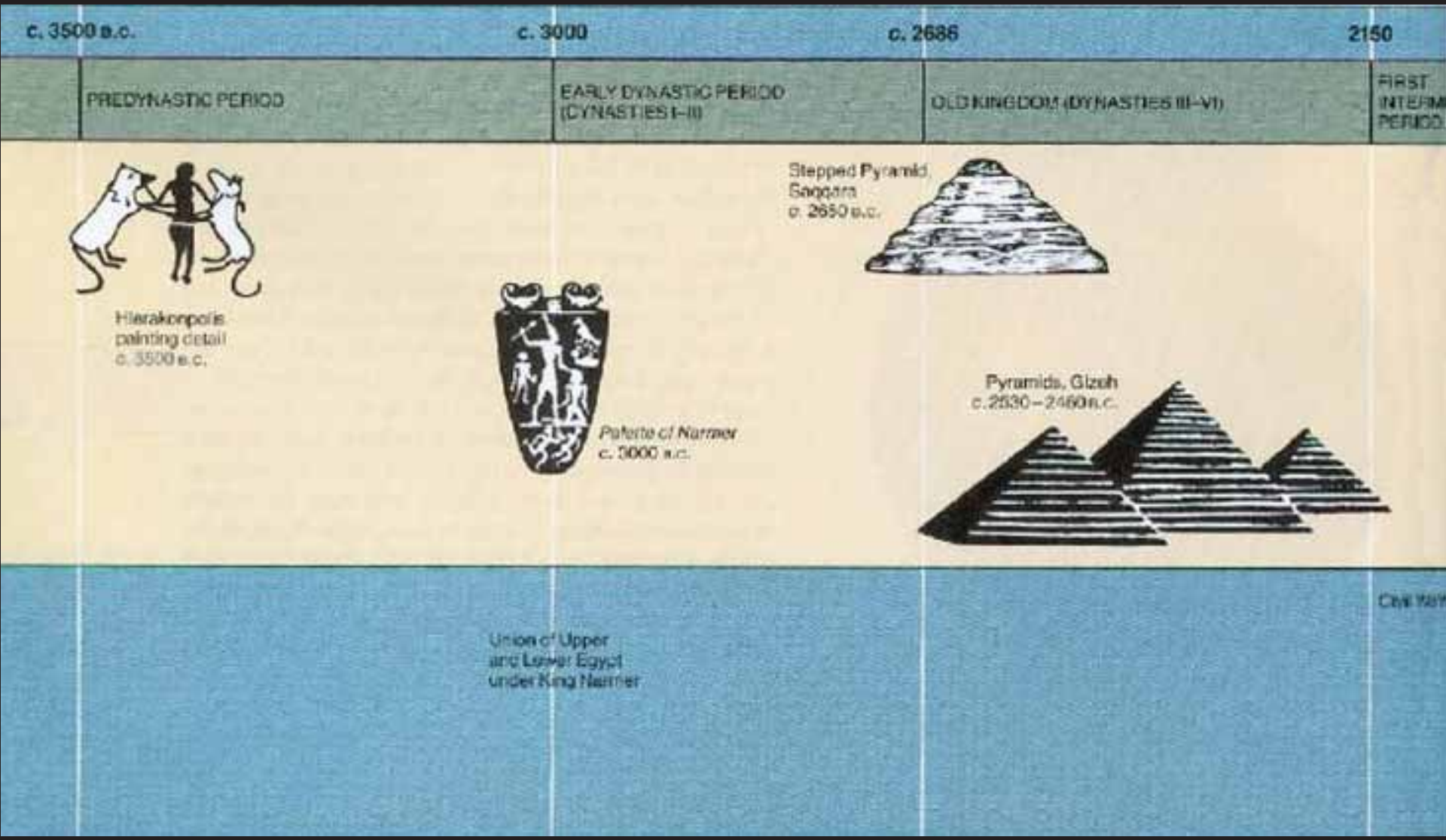
Ancient Egypt

3100
- 30 BCE



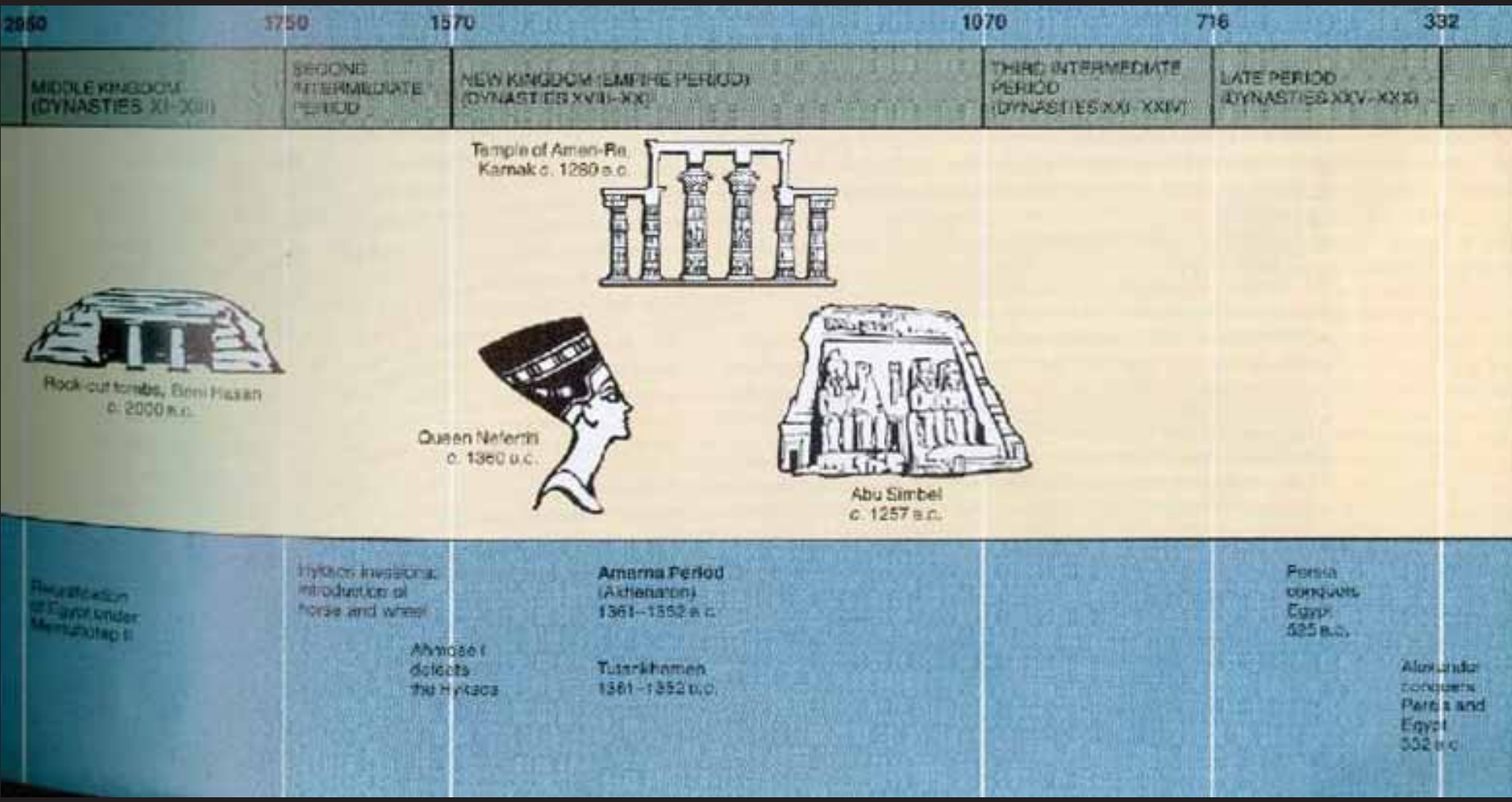
Gardner - *Art Through the Ages*

Ancient Egypt 3100BC - 30 BCE



Gardner - *Art Through the Ages*

Ancient Egypt 3100BC - 30 BCE



Gardner - *Art Through the Ages*

Egypt: Ancient Egypt thrived for over 3000 years (3100BC-30BCE).

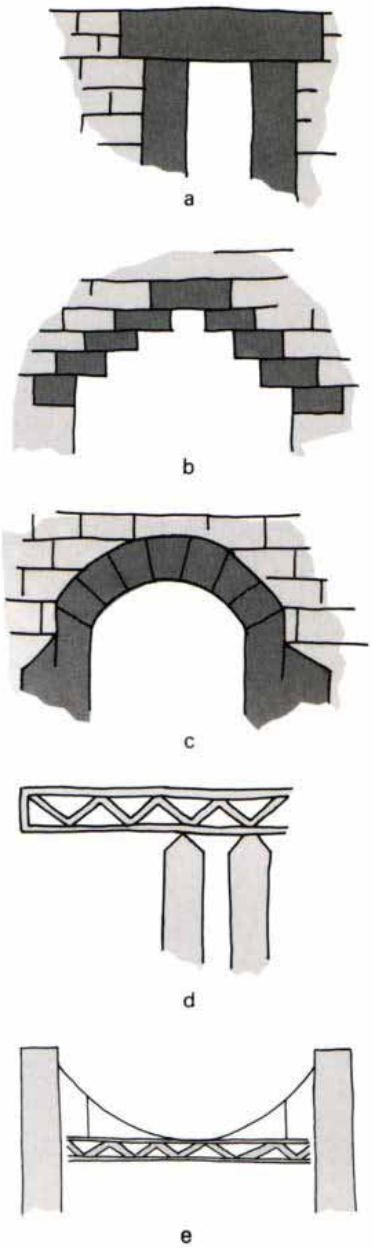
Flat plains of the desert and the Nile were the setting for the great architecture of the ancient Egyptians.

Ancient Egypt was a highly advanced civilization where the kings, known as pharaohs, were believed to be gods or the Messenger of the gods.

Egyptians believed that immortality for the pharoahs depended upon adequately providing for the deceased.

Egypt’s contribution to architecture:

- The first large scale dressed stone buildings
- Pure geometric forms such as the pyramid
- Fine craftsmanship
- Invention of the column, obelisk, capital, cornice, & pylon



8 Basic structural devices: *a*, post and lintel; *b*, corbeled arch; *c*, arch; *d*, cantilever; *e*, suspension.

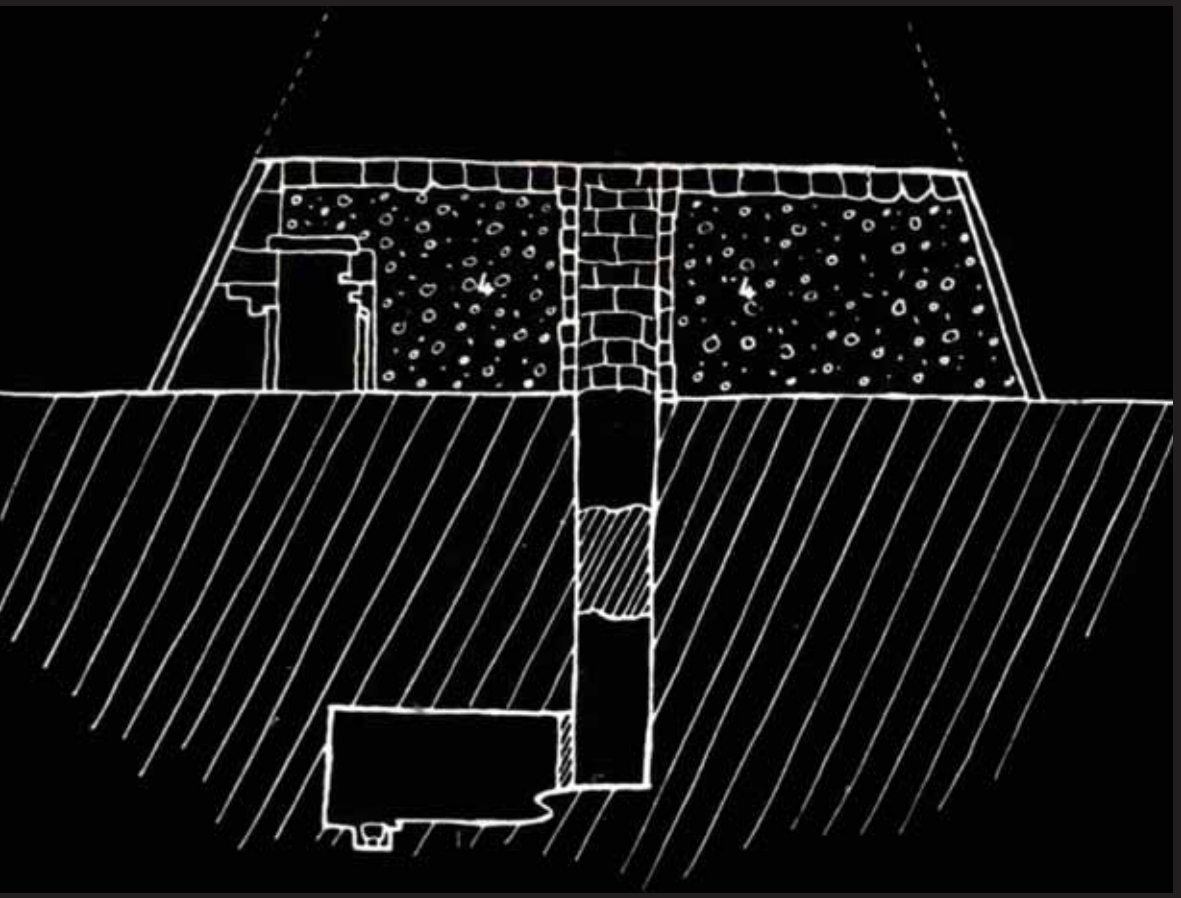
Mastabas:

- Mastabas were the beginning of the pyramids

- means “bench” in Arabic

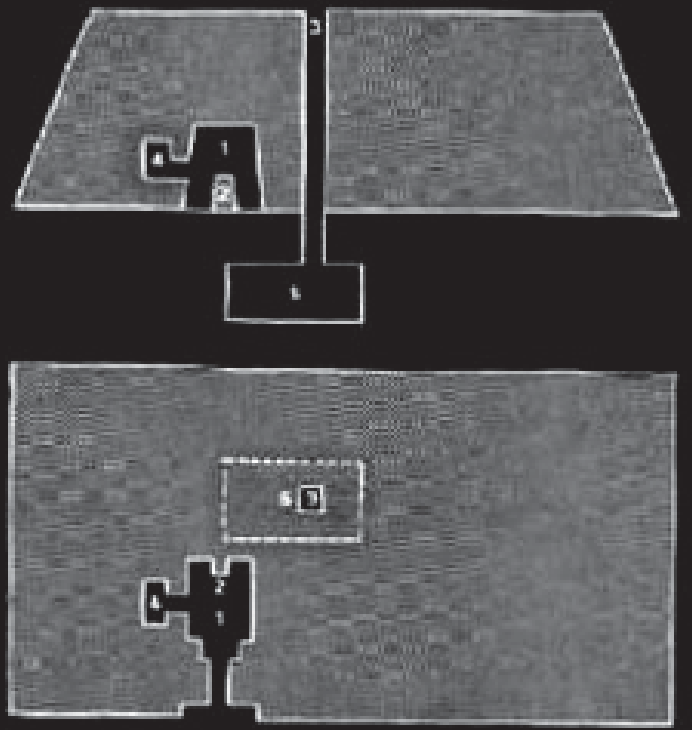
- It was a flat topped rectangular tomb

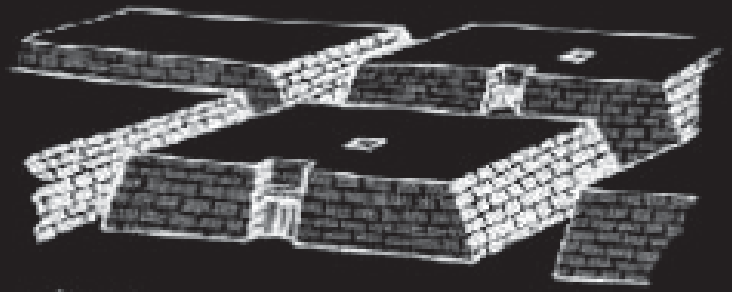
- first made of sun dried bricks and later solid rock, with shafts and passages leading to subterranean crypt



Samivel, *The Glory 1955*

3-5 Mastabas (bottom), with plan (middle) and schematic section (top).





1. Chapel
2. False door
3. Shaft into burial chamber
4. Serdab (chamber for statue of deceased)
5. Burial chamber

Gardner - *Art Through the Ages*

Stepped Pyramid of Djoser [Zoser]: (2778 BC)

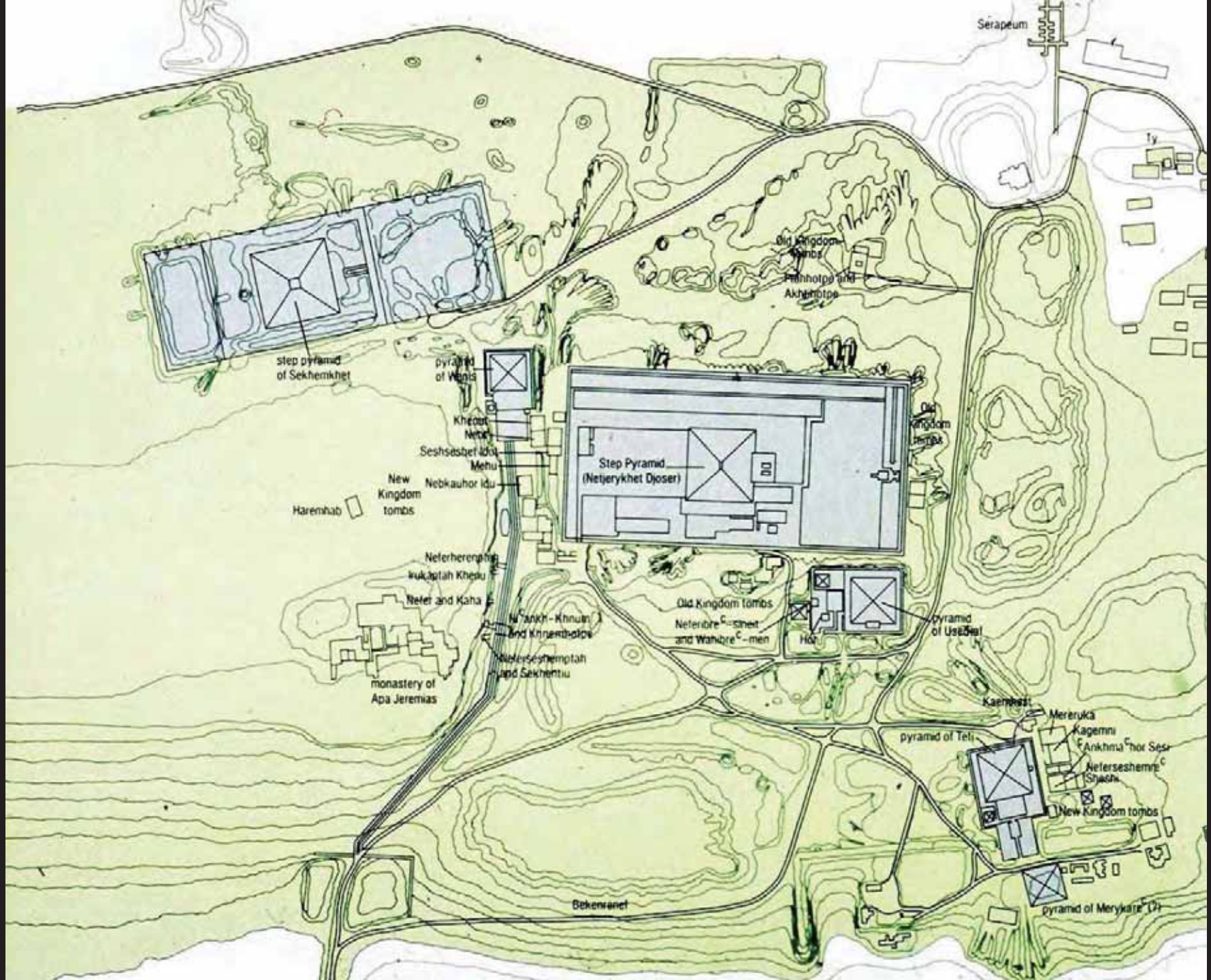
- Designed by Imhotep – 1st known Architect

- Receding stack of 6 stone mastaba rising over 200’ high

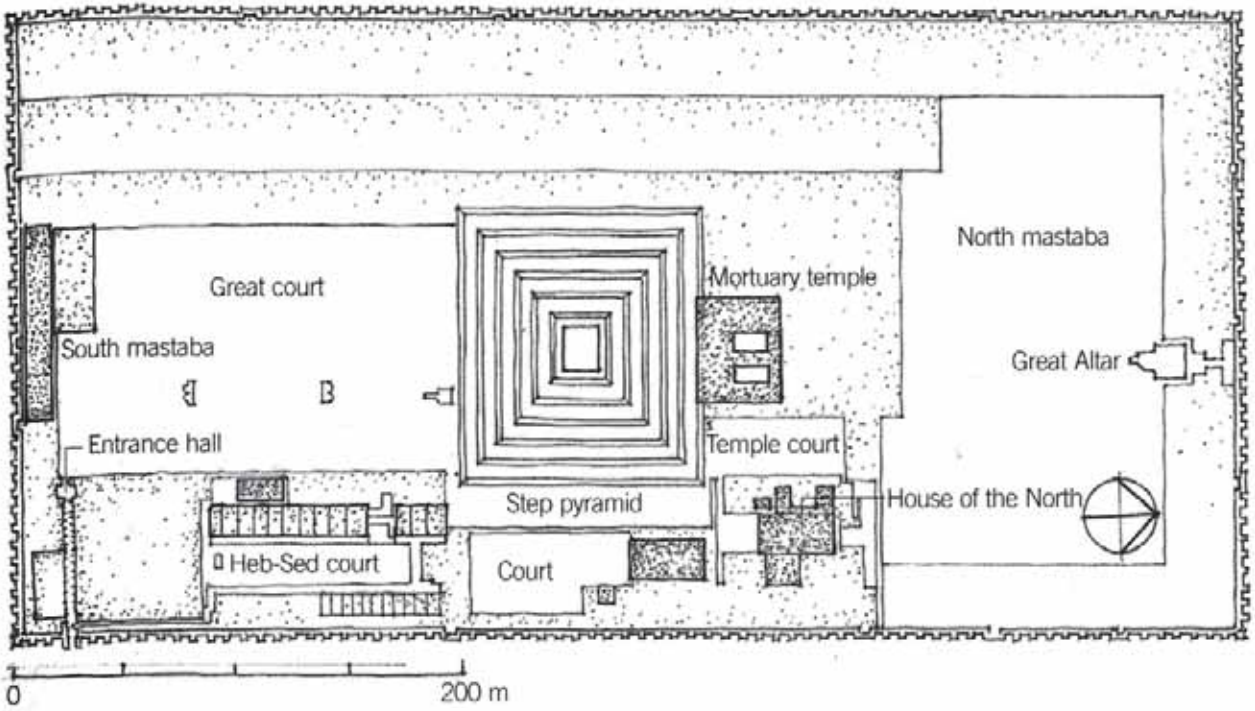
- Tomb for King Djoser [Zoser]

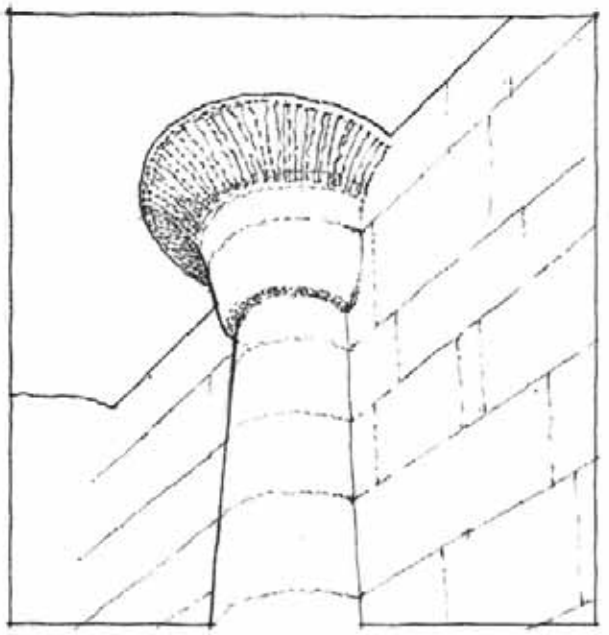
- Image of stone stairway rising to the heavens

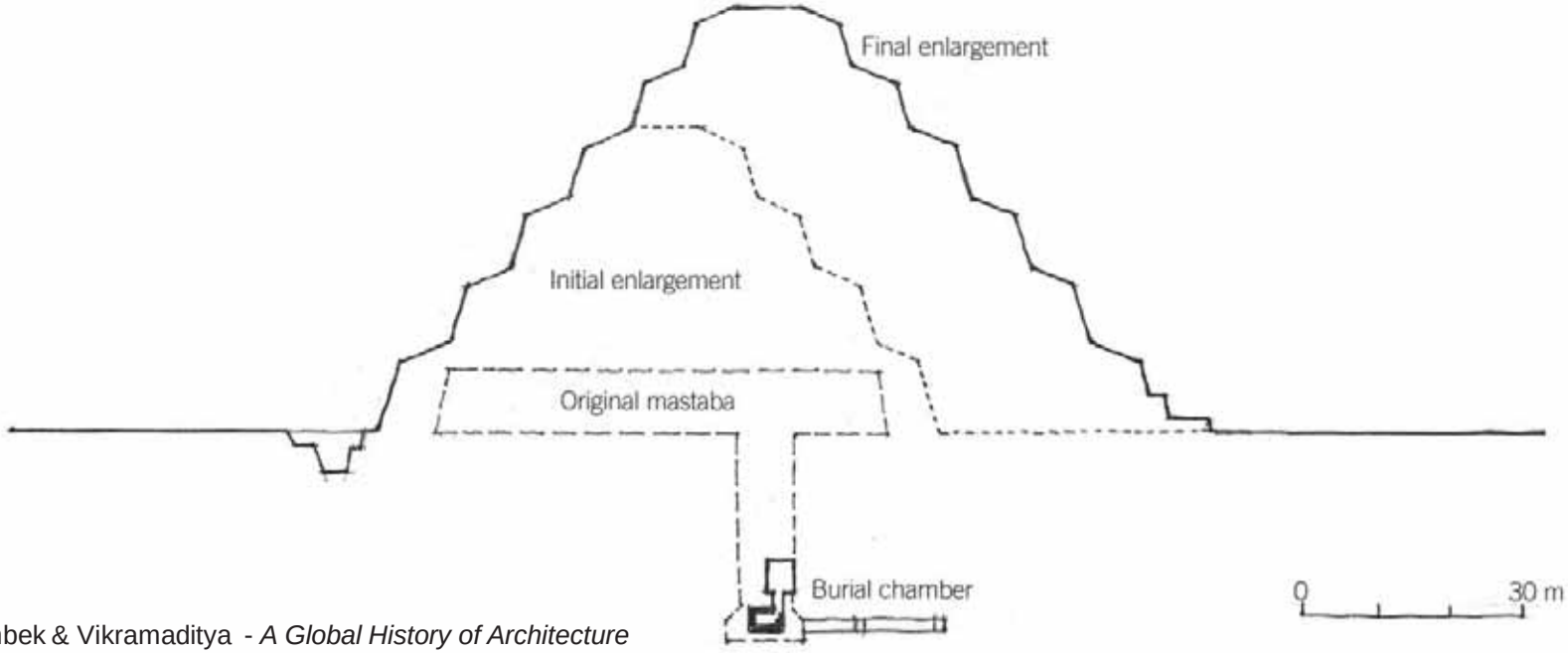
Historylink101.net

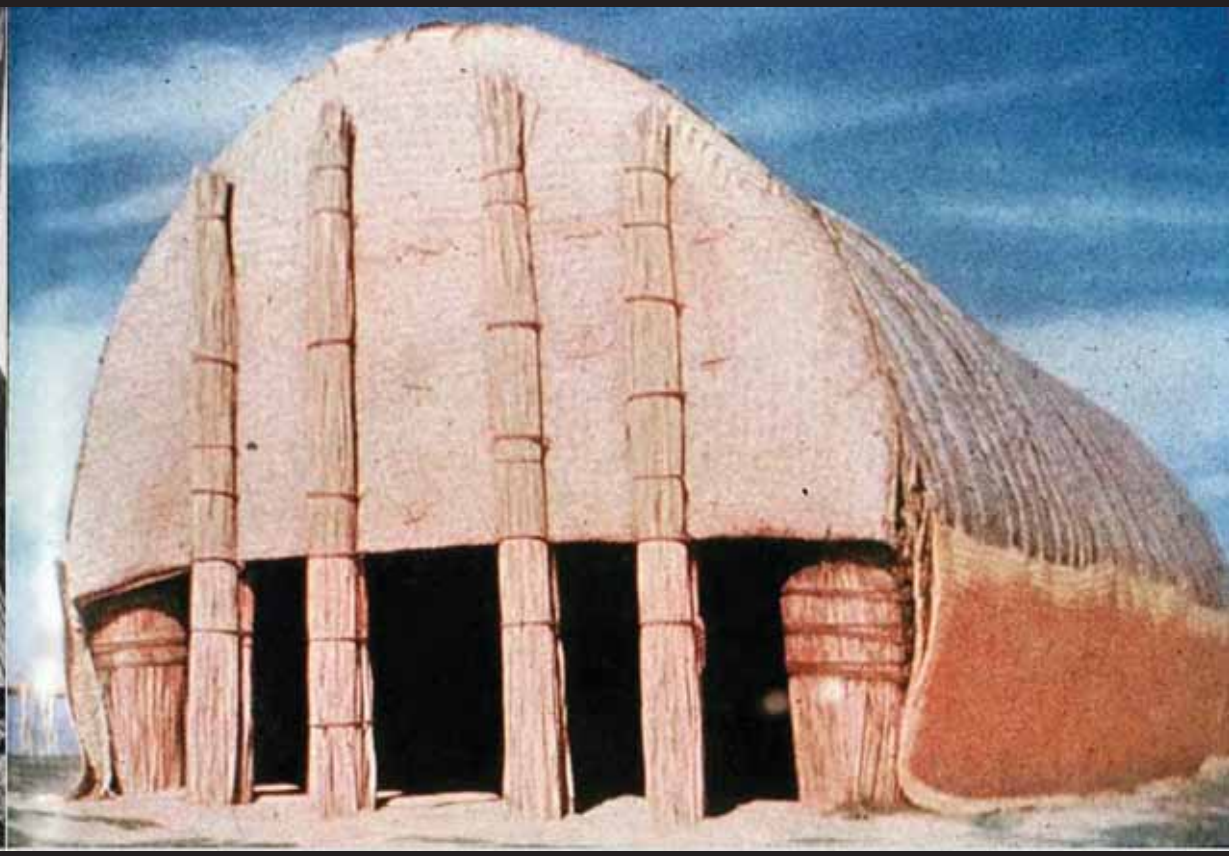


Baines *Atlas of Ancient Egypt*


Great court
South mastaba
Entrance hall
Heb-Sed court
Step pyramid
Court
Mortuary temple
Temple court
North mastaba
Great Altar
House of the North
0
200 m




Final enlargement
Initial enlargement
Original mastaba
Burial chamber
0
30 m



Lewis, Miles - http://www.mileslewis.net/

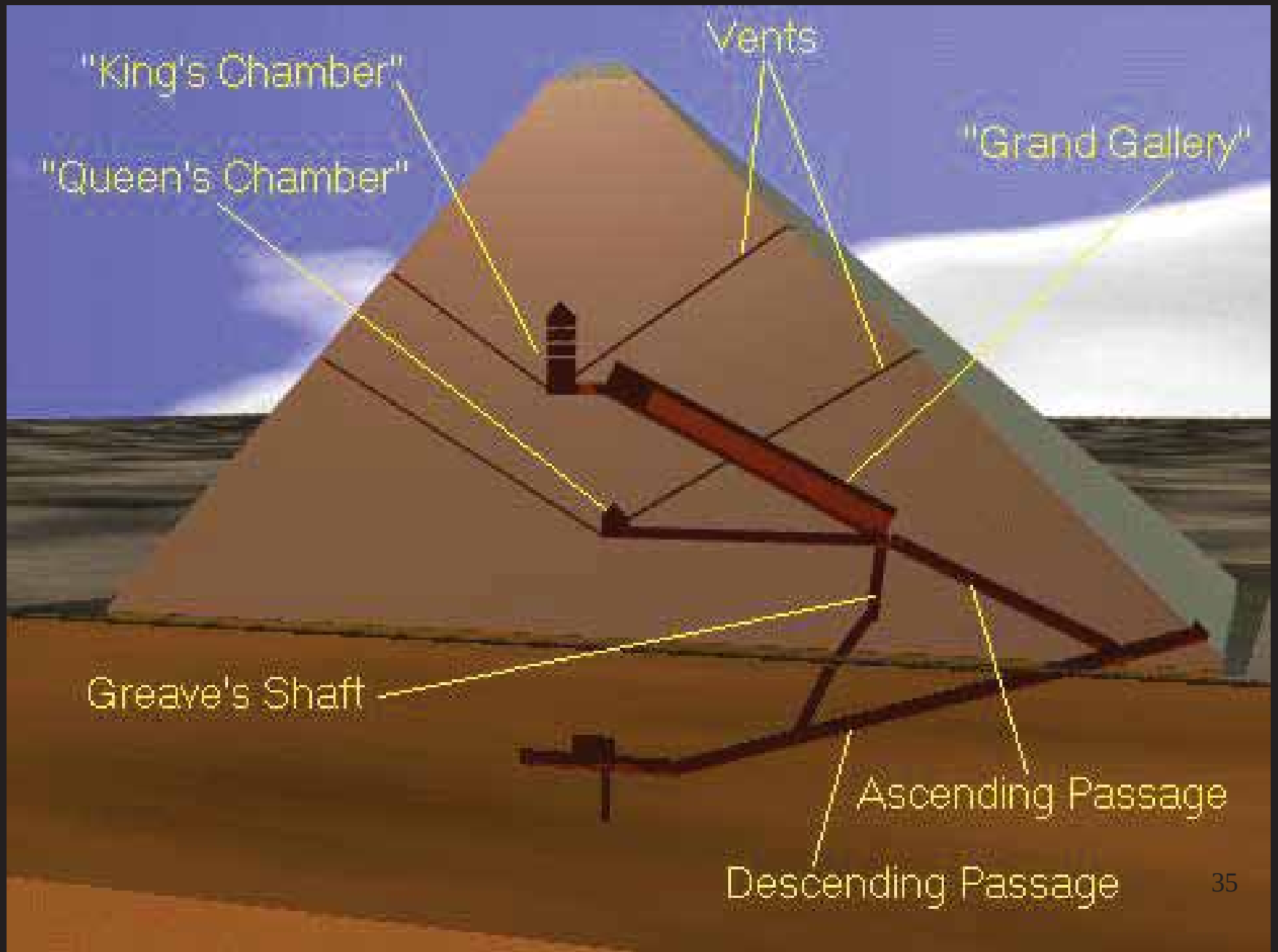
Stepped Pyramid of Djoser [Zoser]: (2778 BC)

Sebi " Cour_du_Heb_Sed" Image from "Pyramid of Djoser" 2005
http://commons.wikimedia.org/wiki/Category:Pyramid_of_Djoser (2/4/2010)

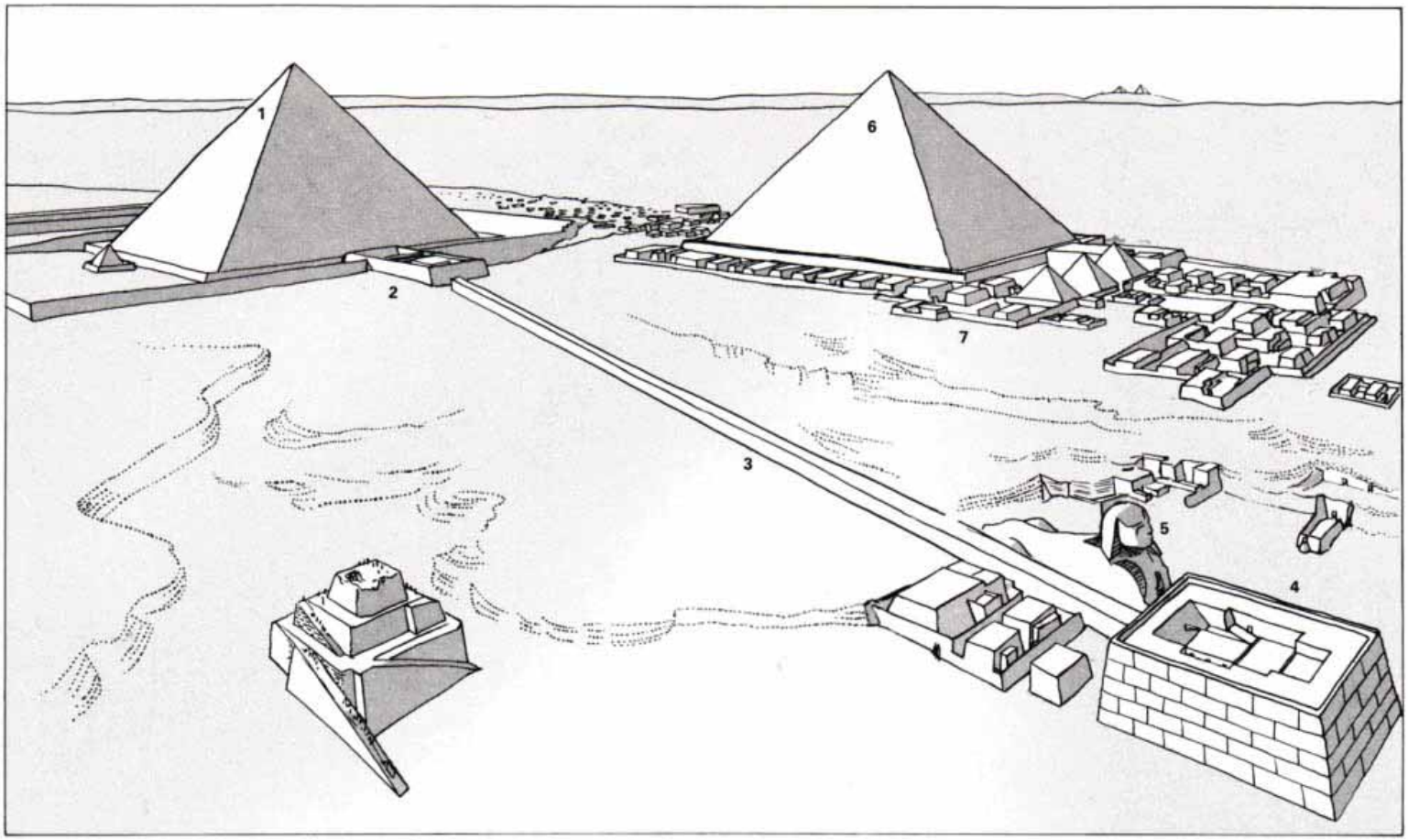
Great Pyramids of Giza: (2560BC)

Henri Stierlin, *Notre Histoire Lue du Ciel: Mouments de l'Aantiquite* (2005)

Pyramid Organization



Great Pyramid: (Cheops, 2589-2566 BC)



3-9 Reconstruction of the Pyramids of Khufu and Khafre. (After Hoelscher.)

1. Pyramid of Khafre
2. Mortuary temple
3. Covered causeway
4. Valley temple
5. Great Sphinx
6. Pyramid of Khufu
7. Pyramids of the royal family and mastabas of nobles

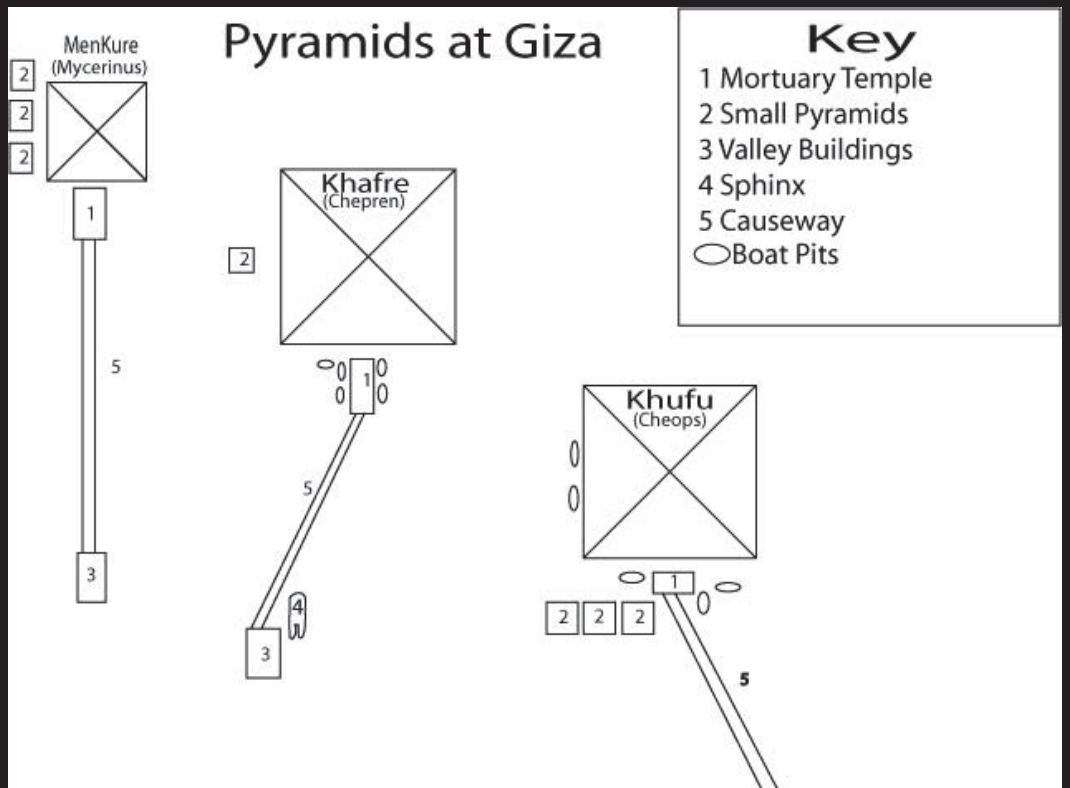
Great Pyramids of Giza: (2560BC)

- Built for Pharaohs Cheops, Chephren and Mycerinus

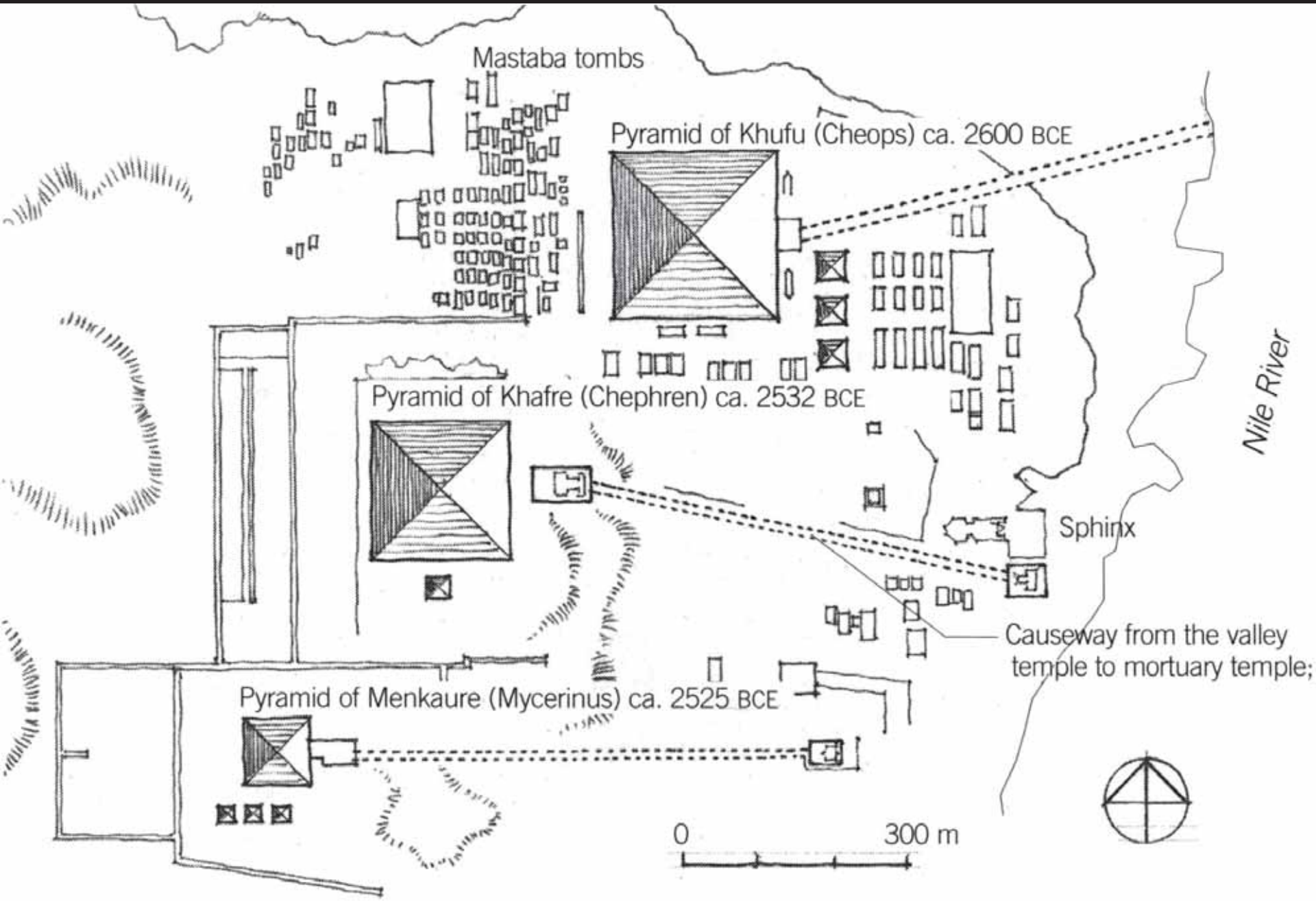
- Four equilateral triangles, base is exactly squared

- Originally encased in white limestone with a gold capstone

- Each side oriented to a point of the compass



Historylink101.net


Mastaba tombs
Pyramid of Khufu (Cheops) ca. 2600 BCE
Pyramid of Khafre (Chephren) ca. 2532 BCE
Nile River
Sphinx
Causeway from the valley temple to mortuary temple;
Pyramid of Menkaure (Mycerinus) ca. 2525 BCE
0
300 m

Man fears Time, yet Time fears the Pyramids

Arab proverb

Great Pyramid: (Cheops, 2589-2566 BC)

- 2,300,000 blocks of granite and limestone
- Each block weighing 2 tons = 4000 lbs
- Stacked 201 tiers = 481’high
- Base is 13 acres square

Ibh, Alex "The Great Pyramid (Kheops pyramid)" Image from "Great Pyramid of Giza" 2005 http://commons.wikimedia.org/wiki/Great_Pyramid_of_Giza (2/3/2010)

Pyramid Construction

- When the Nile flooded each Fall, the farmers became able to help with labor of the pyramids

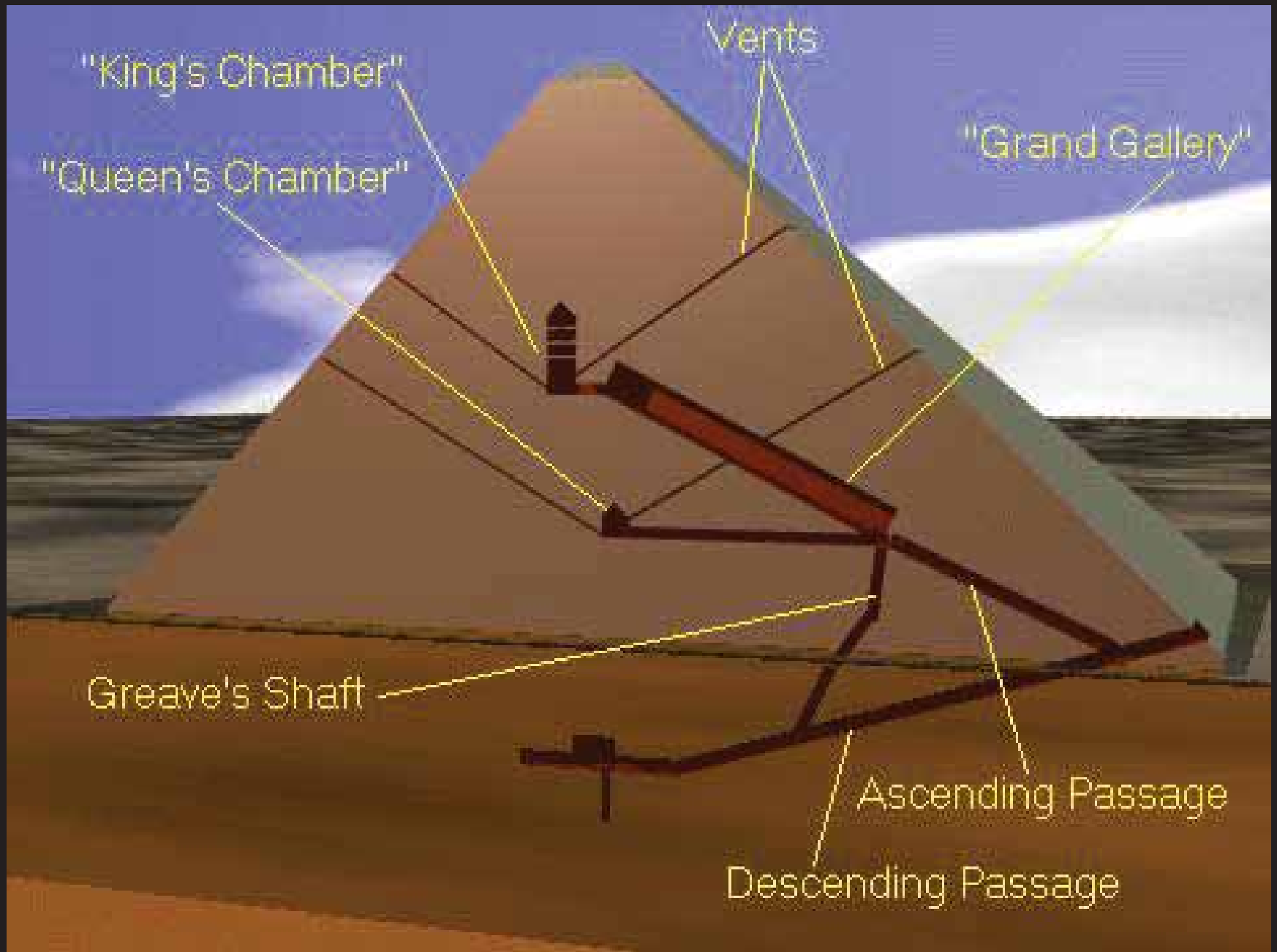
- Used the Nile to float the stones on barges from the quarries

- Also used huge earthen ramps that wrapped around the pyramids. They were removed after completion.

Eqyptvoyager.com

- A partitioned ceiling with triangular arches deflects loads

Pyramid Organization



Great Pyramid: (Cheops, 2589-2566 BC)

Aldin, Nina "Great Pyramid of Giza" Image from "Great Pyramid of Giza" 2005
http://commons.wikimedia.org/wiki/Great_Pyramid_of_Giza (2/3/2010)

Temples: *“House of Death”*

- Pyramids were continually being looted by grave robbers

- Pharaohs created mortuary temple complexes with tombs cut directly in the cliffs

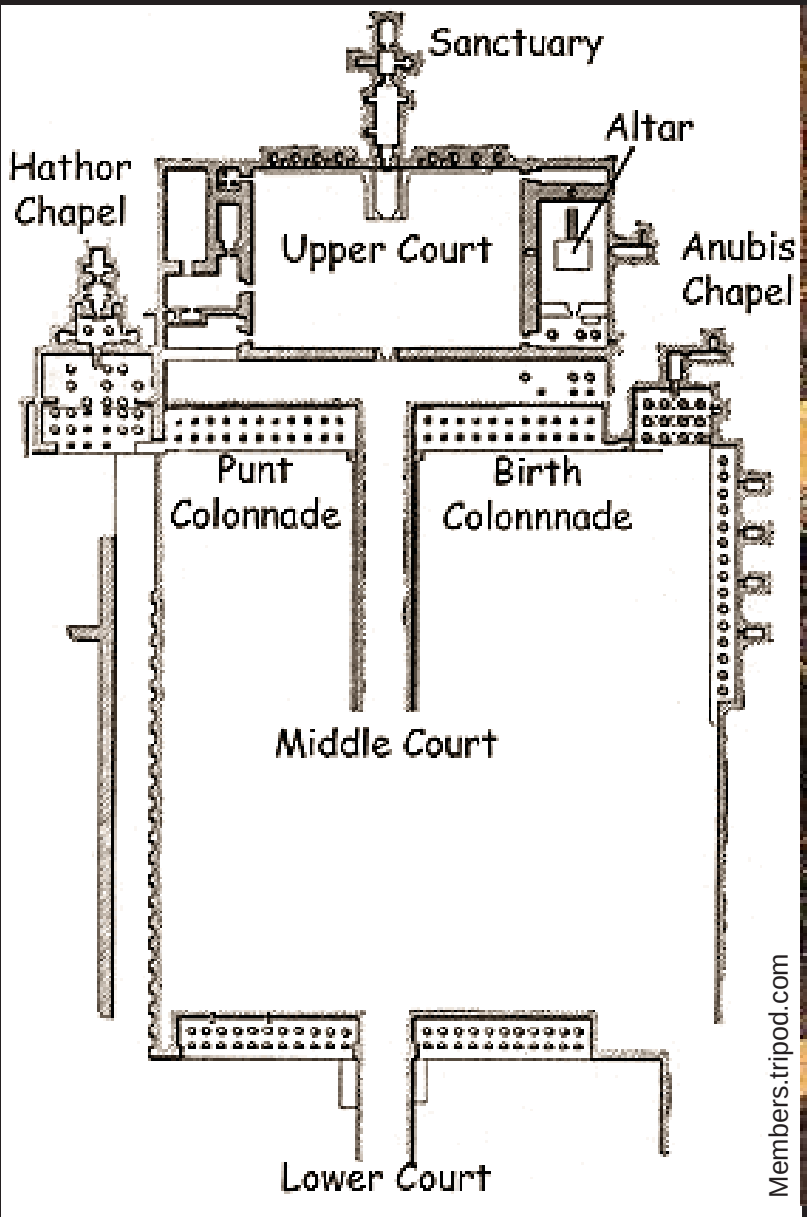
Queen Hatshepsuts Mortuary Temple:

(1450 BC)

- This temple breaks with traditional Ancient Egypt Architecture

- Colonnaded limestone terraces, linked with gentle sloping ramps, set in the mountains

Queen Hatshepsuts Mortuary Temple:
(1450BC)



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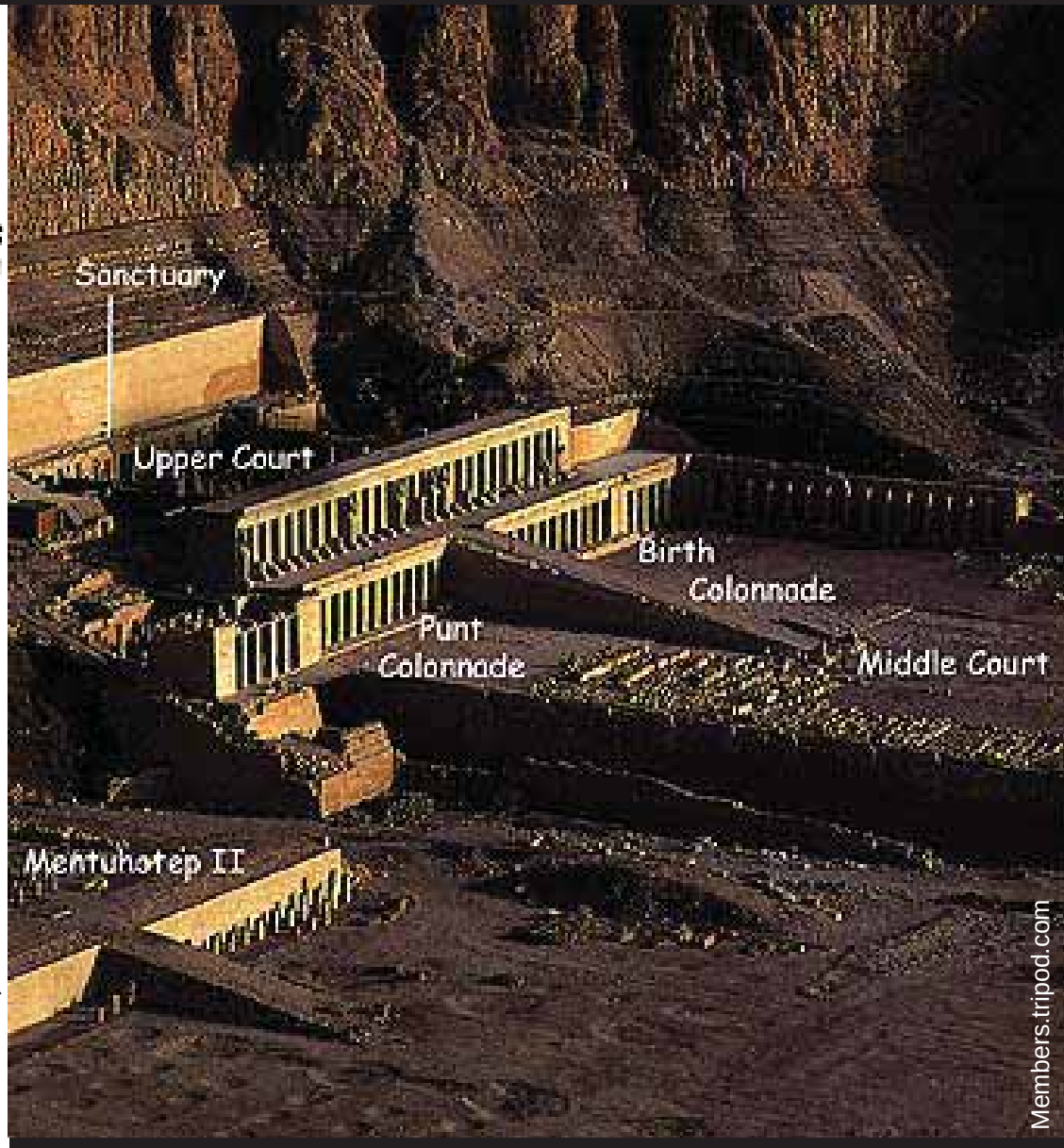

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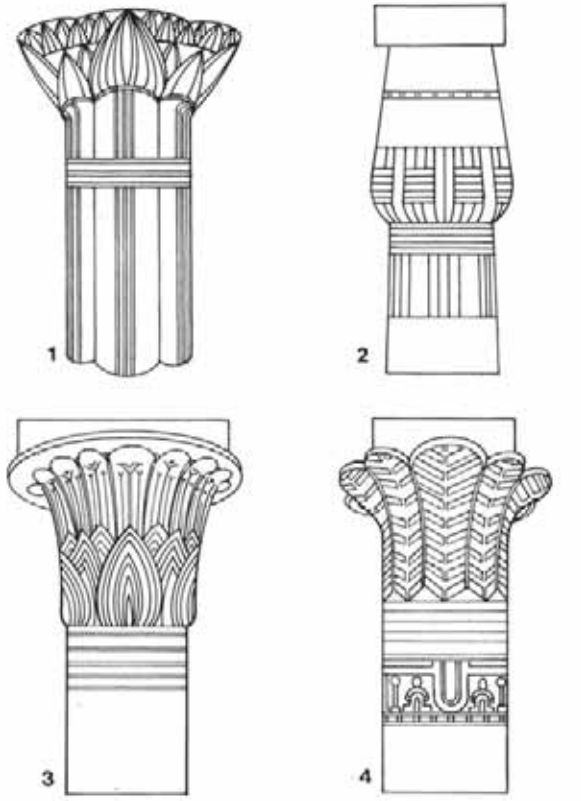
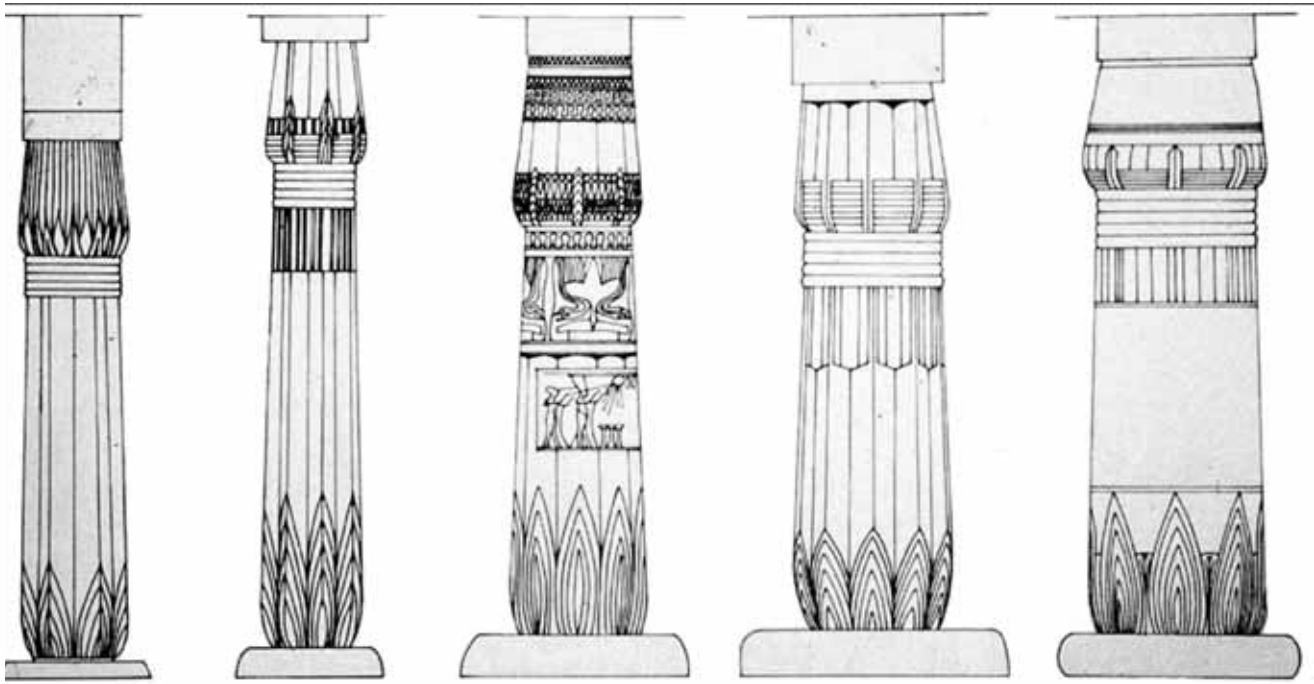
Rémih " Hatshepsut_temple29" Image from "Hatshepsut temple" 2009/13/06, http://commons.wikimedia.org/ (2/3/2010)

Rémih "Hatshepsut temple" 2009/13/06 http://commons.wikimedia.org/ (2/3/2010)

Rémih "Hatshepsut temple" 2009/13/06 http://commons.wikimedia.org/ (2/3/2010)

The first capitals in the world





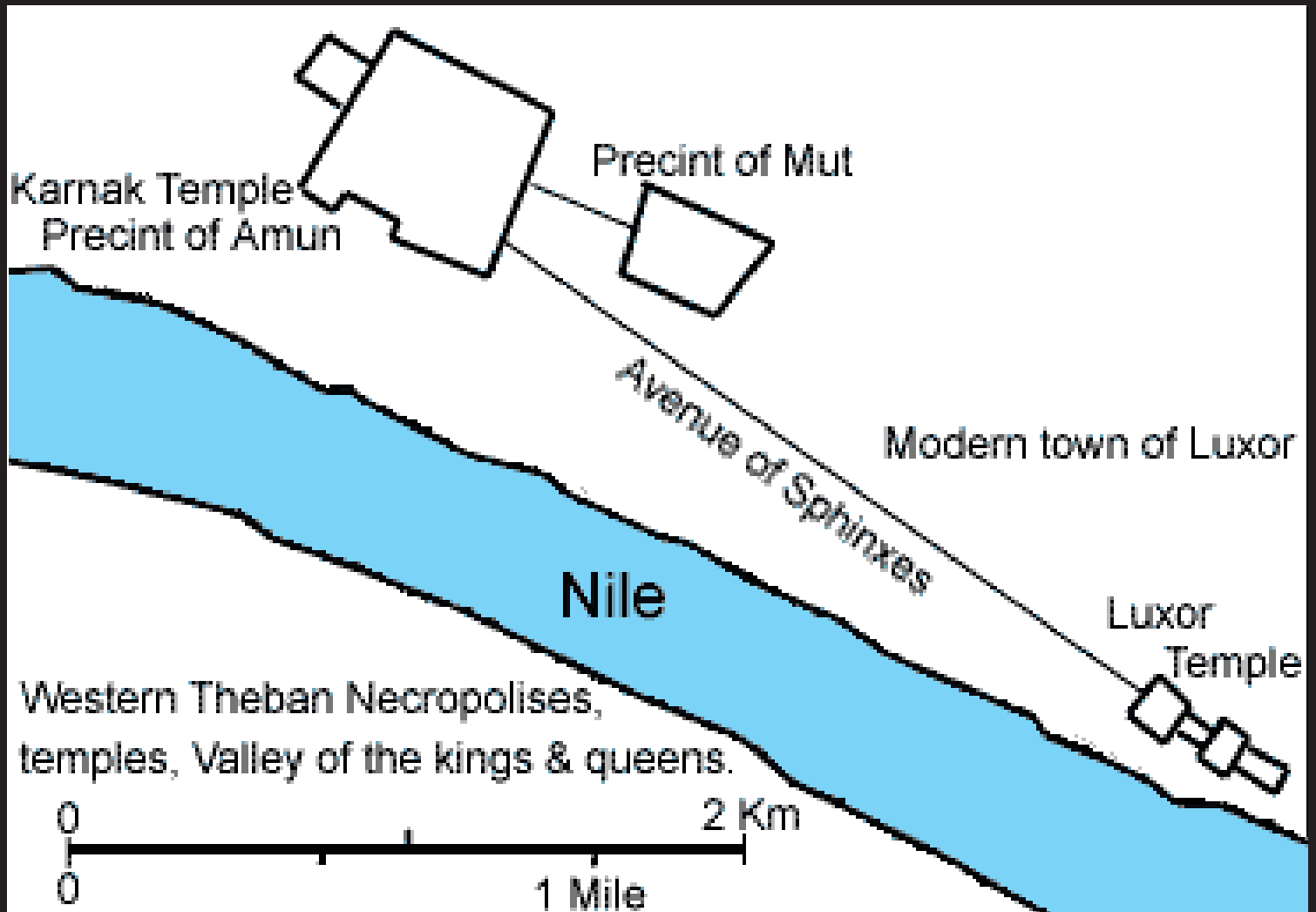
evolution of closed papyrus bud columns in Egypt: (a) 5th Dynasty; (b) 18th Dynasty, Tuthmosis III; (c) Amenhotep IV; (d) 19th Dynasty, Sety I; (e) 20th dynasty, Ramses III

J-L de Cenival, *Living Architecture: Egyptian* (London 1964), p 181

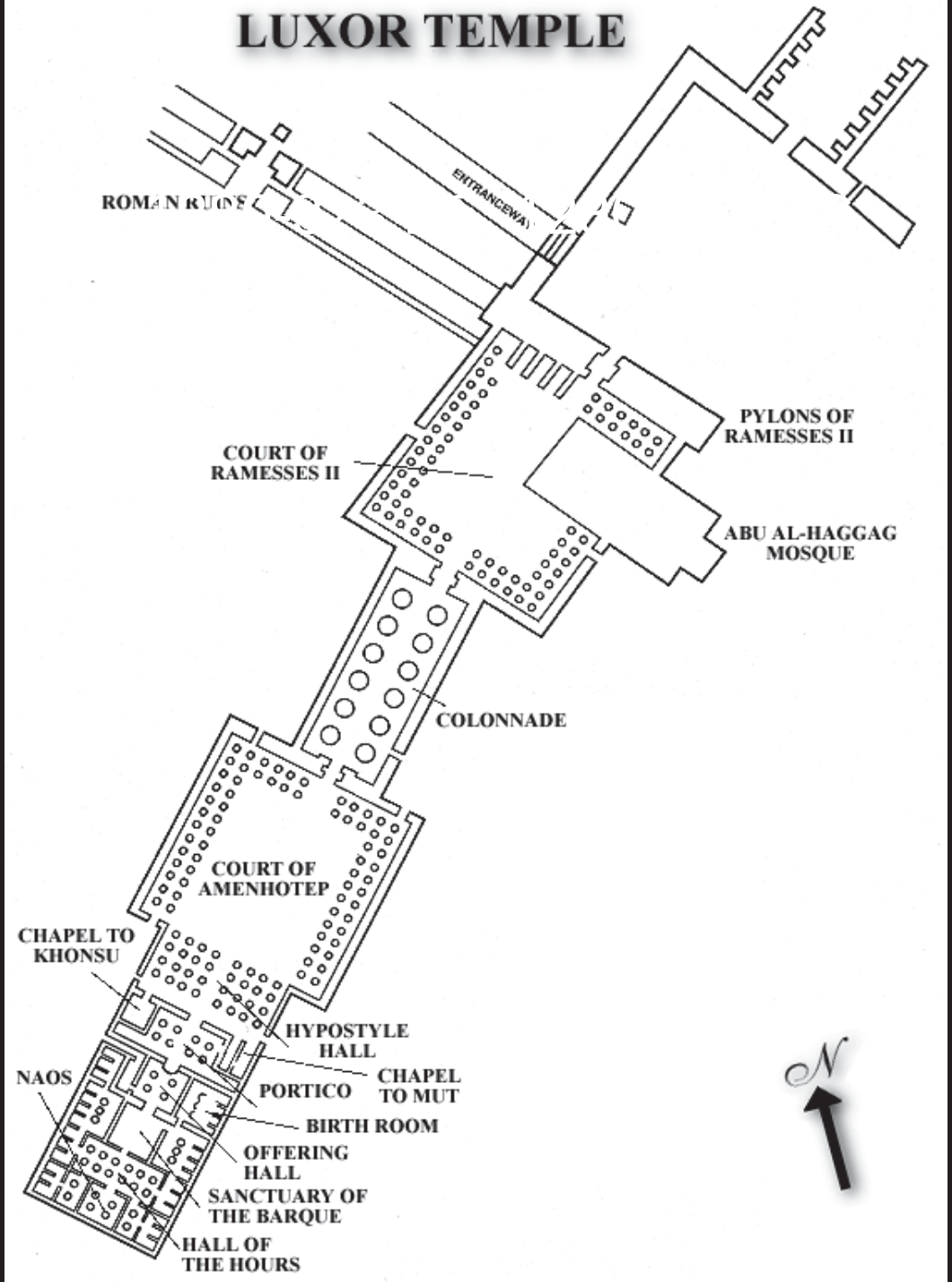
(1) lotus flowers
(2) papyrus buds
(3) papyrus flowers
(4) palm leaves

Later, they have temples built to honor more than one God, which were added to by various Pharaohs. Two main examples are:

- The Temple of Amen-Re at Karnak, c.1270 BC
- The Temple of Amen at Luxor, 1370 - 1300 BC

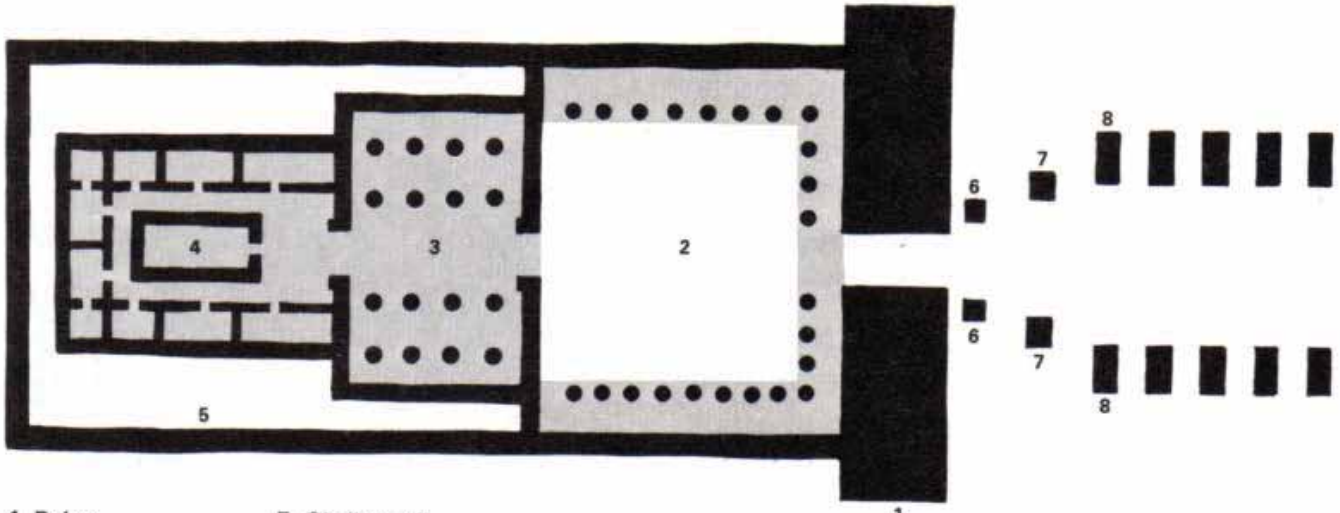


LUXOR TEMPLE



Temple of Amen at Luxor

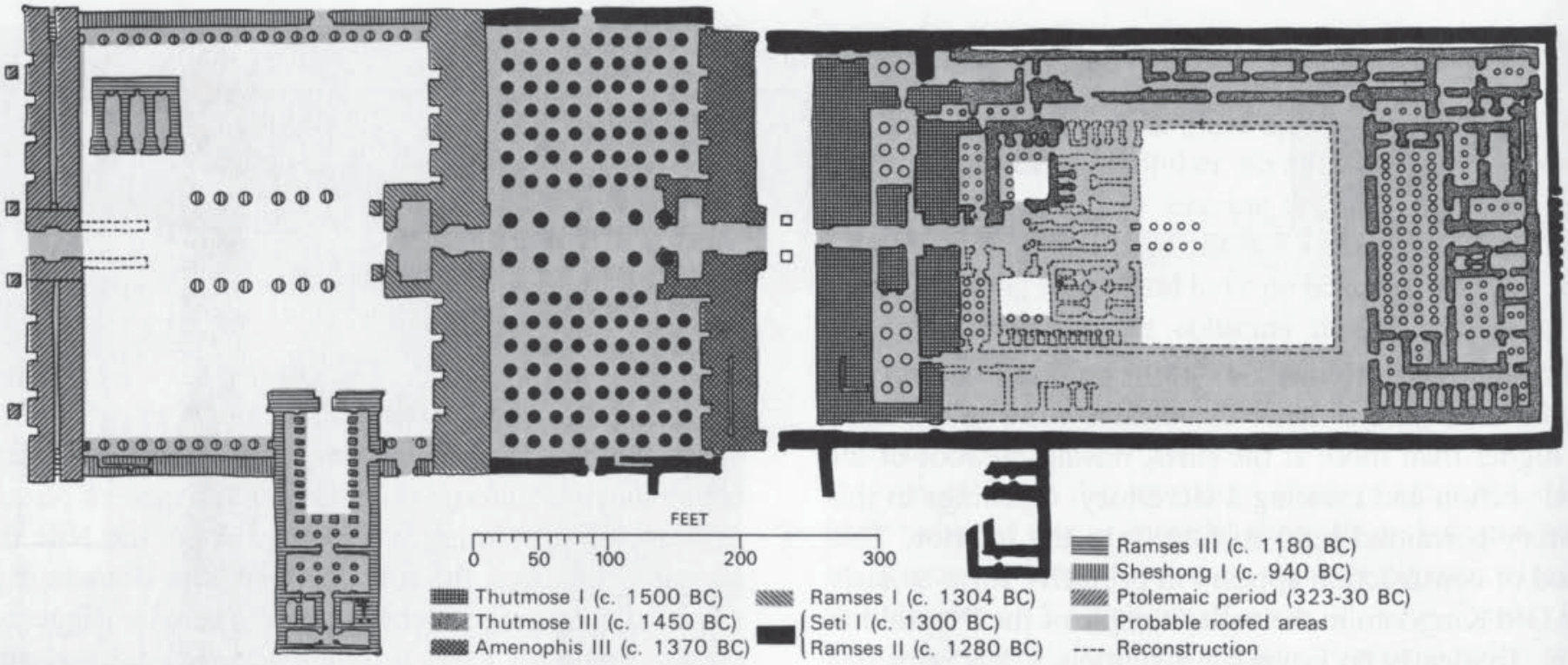
3-24 Plan of a typical pylon temple.



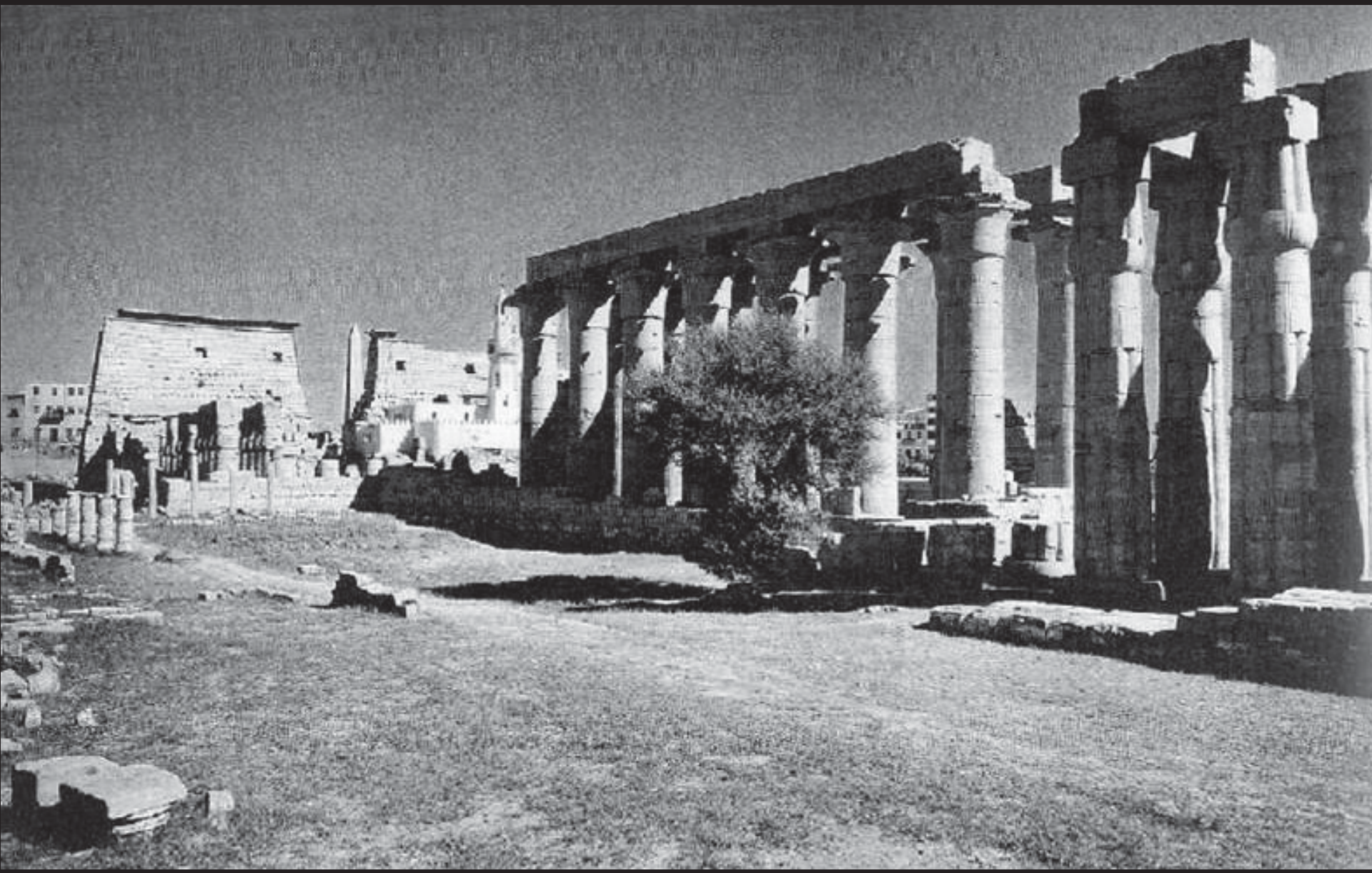
1. Pylon
2. Court
3. Hypostyle hall
4. Sanctuary
5. Girdle wall
6. Colossal statues of the pharaoh
7. Obelisks
8. Avenue of recumbent animals

Probable roofed areas

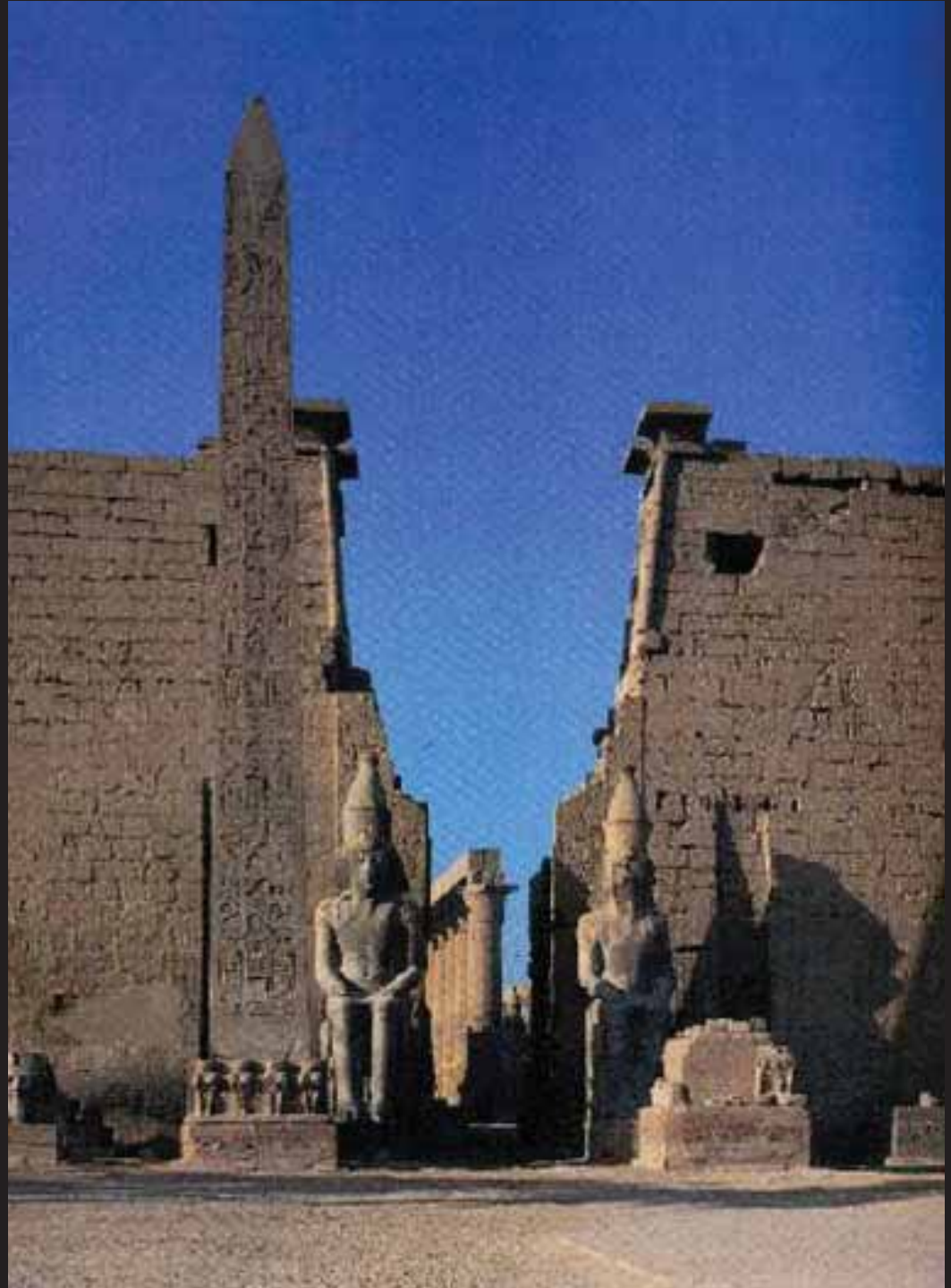
Temple of Amen at Luxor, 1370-1300 BC.

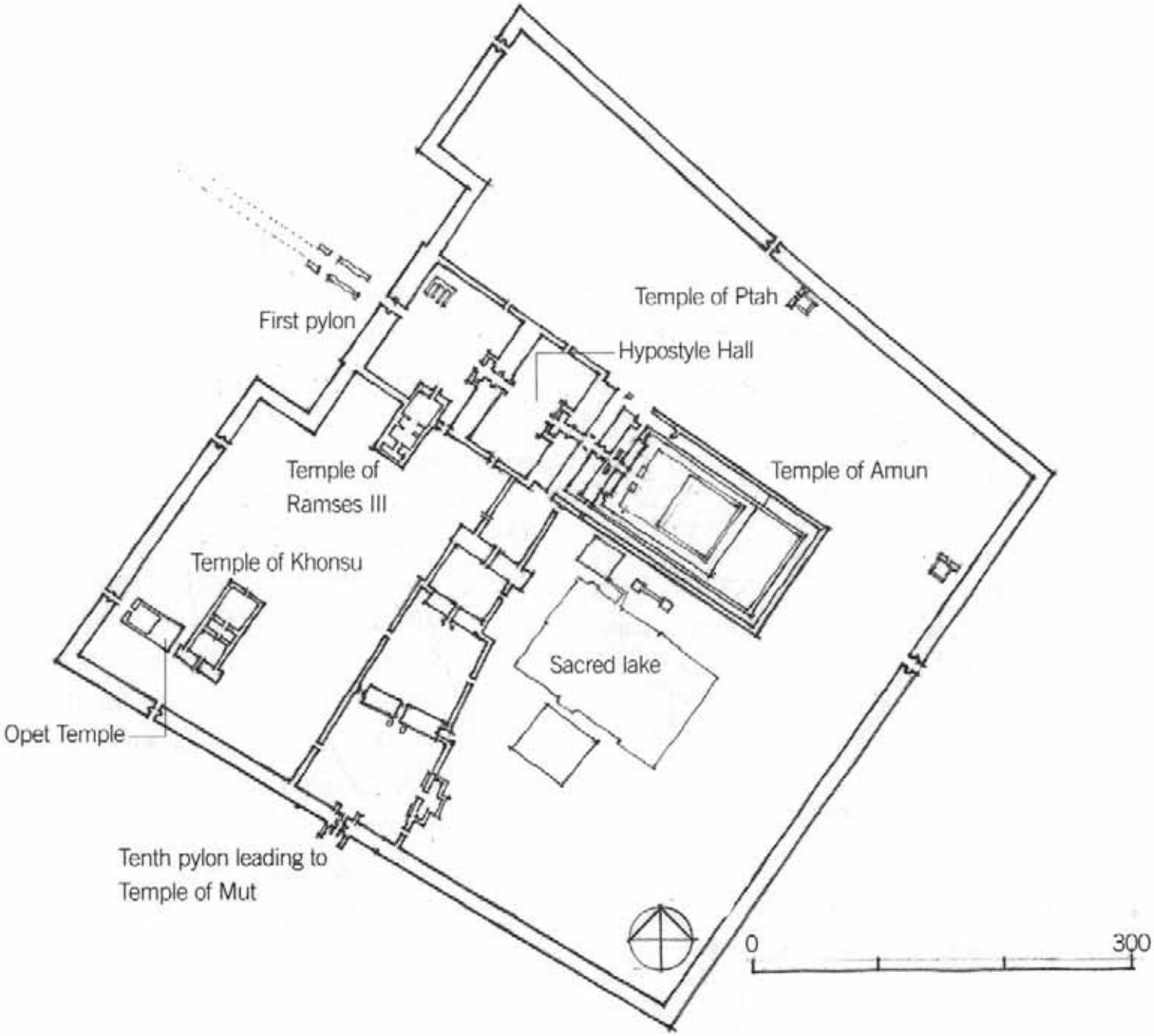


3-26 Plan of the Temple of Amen-Re, Karnak. (After Sir Banister Fletcher.) Dates in parentheses indicate time of construction.



Gardner - *Art Through the Ages*

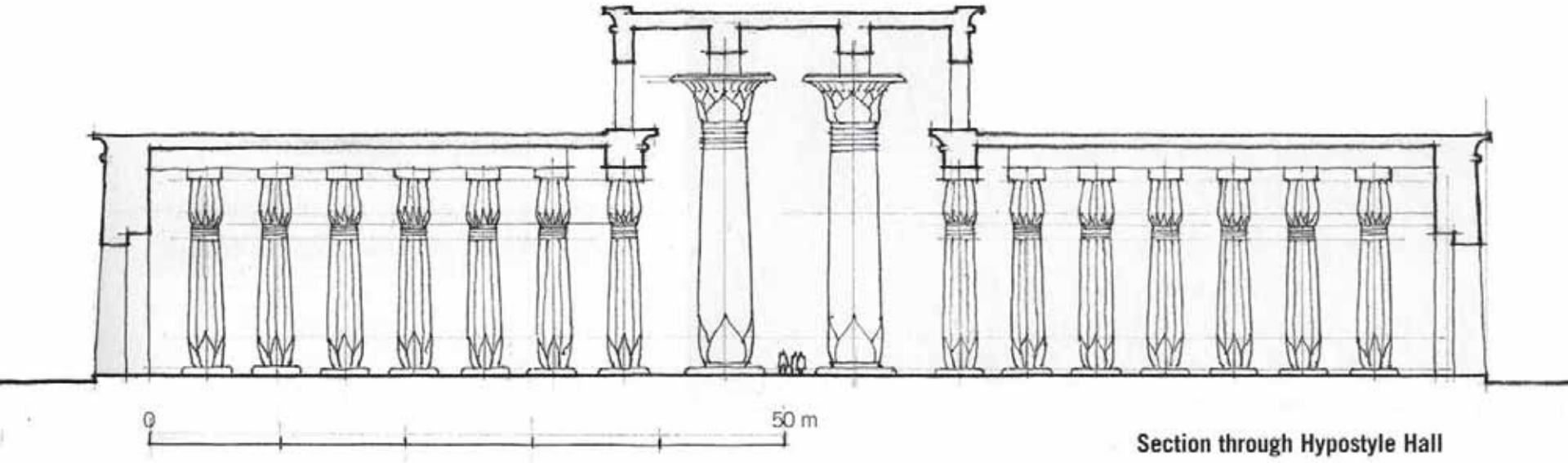




Plan of the Temple Complex at Karnak, dedicated to the divine triad: Amun, Mut, and Khonsu

Temple of Amen-Re, at Karnak;1280-323 BCE

Model of hypostyle Hall, Temple of Amen-Ra Karnac, c. 1280 BCE. Metropolitan Museum Of Art, New York (bequest of Levi Hale Willard).



Section through Hypostyle Hall

Ching & Jarzombek & Vikramaditya - *A Global History of Architecture*

Temple of Amen at Luxor, 1370-1300 BC.

Closed papyrus buds capitals

Hypostyle Hall – “resting on pillars”

Temple of Amen-Re at Karnak,1280-323 BC.

Papyrus flower capitals

12’ thick and 69’ high

Temple of Adu Simbel, at Nubia; 1285-1255 BC.

Sebi "Abu Simbel Temple of Ramesses II" Image from "Abu Simbel temples" 2005/30/05
http://en.wikipedia.org/wiki/File:Abu_Simbel_Temple_May_30_2007.jpg (2/4/2010)

Obelisks:

Pbs.org

Temple of Amen at Luxor

Bluffton.edu

Temple of Amen at Karnak

Pylons:

I-cias.com

Temple of Amen at Luxor

Egypttreasures.gov.eg

Temple of Amen at Karnak

from http://en.wikipedia.org/wiki/Image:Egypt.LuxorTemple.06.jpg, General view of front end, from the corniche
Photo taken by Hajor, Dec.2002. Released under cc.by.sa and/or GFDL