EGYPTIAN ARCHITECTURE

The architecture of the ancient civilization that flourished along the Nile River in northwestern Africa from before 3000 BCE up to its annexation by Rome in 30 BCE.

TEMPLE PLANS

- Buildings are planned along a central axis.
- Courts and halls were designed to produce an impressive internal effect.
- **Hypostyle hall**: The grandest achievement of Egyptian axial planning.

WALLS

- Sloped inwards towards the top, giving a massive appearance.
- Columns were not often used externally.
- Massive blanks walls crowned with Gorge cornice and roll and hollow molding.

OPENINGS

- Colonnades and doorways were spanned by massive lintels.

ROOFS

- Religious buildings: heavy stone slabs side by side.
- Flat roofs
- Served for ceremonies and processions.
- Arch rings were seldom single laid one on top the other up to nine.
- Arches sloped backwards to evade temporary timberwork.
COLUMNS

- Seldom exceed six (6) times the diameter in height.
- Elaborated with painting and low relief carving.
- Three types of columns:
  - Circular shaft
  - Clustered shaft
  - Fluted (Proto-Doric) shaft

MAJOR TYPES OF COLUMNS AND CAPITALS

PLANT STYLE COLUMNS

Fluted Column

- This early form of column first appears in the Step Pyramid enclosure of Djoser, but the form mostly died out by the New Kingdom. However, their use continued in Nubia.

- These columns resembled and represented bundled reeds or plant stems, but during later periods, sometimes took the form of a polygonal column shaft.

Palmiform Columns

- One of the earliest styles of columns in Egypt temple architecture.
Lotiform Columns

- Lotiform columns were perhaps used in non-secular buildings then in the temples.
  - The simple, lotus bud form of the column is enjoyed widespread use in the Old and Middle Kingdom temples.
  - Its use declined during the New Kingdom, but again found popularity during the Graeco-Roman Period.
  - This column usually has ribbed shafts representing the the stems of the Lotus, and capitals in the form of a closed (bud) or open lotus flower.

- Examples of this type of column were found, for example, in the 5th Dynasty pyramid mortuary complex of Unas.

Papyriform Columns

- There are several variations in this type of column. Some have circular shafts representing a single plant, while others have ribbed shafts that represent a plants with multiple stems. The capitals could be closed (buds) or open in a wide, bell-shaped form.

- During the New Kingdom, the shafts of most papyriform columns taper upwards from bases decorated with triangular patterns representing stylized stem sheaths.
  - The earliest examples we know of the circular shaft style columns can be found in Djoser's Step Pyramid enclosure at Saqqara.
  - However, these are not free standing columns, but incorporated into other structures.
Coniform Columns

- This column style apparently quickly died out after their use in Djoser's Step Pyramid enclosure wall. It has not been found in later temples.
- The style is characterized by a fluted shaft surmounted by a capital representing the branches of a conifer tree.

Tent Pole Columns

- Though it is probably known of other applications of this style from documentation, apparently the only surviving, known examples are found in the Festival Temple of Tuthmosis III at Karnak.
  - It is possible that very early examples of the style were also constructed of brick.
  - There is little doubt that this type of column made of stone was rare.
  - The column is basically a representation in stone of the wooden "poles" used to support light structures such as tents, and sometimes shrines, kiosks or ships cabins.
- Why this tent pole design was used is perhaps somewhat of a mystery, though they certainly reflect back on the earliest of Egypt's structures and their wood counterparts.
  - It is sometimes believe that the specific columns in Tuthmosis III temple were modeled after actual wooden poles of his military tent.
Campaniform Columns

- Considerable variety existed in this style of columns.
  - They sometimes took the shape of a floral column or pillar.
  - Some had circular, ribbed or square shafts (pillars).
  - They all had some form of flower shaped capital.

- Two of the best known of these are located in the Hall of Annals of Tuthmosis III at Karnak. At this temple, the structures take the shape of a pillar.
  - They including two styles of column, with one representing the heraldic plant of Lower (northern) Egypt, the Papyrus, and the other type representing the symbolic plant of Upper (southern) Egypt, the Lotus.
  - They are positioned symbolically on the northern and southern sides of the hall.
  - Such placement was not unusual, and we see many examples of columns positioned in the north and south of courtyards with northern and southern motifs.
  - These specific types of column are rare, but their more stylized forms appeared most frequently in the Graeco-Roman Period.

Composite Columns

- Common during the Graeco-Roman Period.
- Probably an evolutionary extension of the campaniform columns with capitals decorations including floral designs of any number of real or even imagined plants.
- Variation could be endless, and they became so utterly stylized that the original floral motifs could hardly be recognized.
  - Continued to evolve in Greece and Rome, becoming very different then the Egyptian variety.

NONE-PLANT STYLE COLUMNS

While natural plant columns were the most common in Egypt, other column and pillar types could represent deities or their attributes. Examples of these include:

Hathoric Columns

- Usually instantly recognizable by their capital in the shape of the cow headed goddess, Hathor.
  - Often had a simple, round shaft.
All examples of this type of pillar are engaged, meaning that they are part of another architectural element.

Appear to have originated in the Middle Kingdom, and take the form of a statue of the god Osiris on the pillar's front surface.

**MOULDINGS**
- Consisted of the torus or roll moldings.
- Capped or substituted by the cobra or the Kheker cresting.

**ORNAMENTS**
- Egyptians were masters in the use of colors
- Hieroglyphics: sacred writings
**Mastabas**

(Arabic - a long bench) An ancient Egyptian tomb made of mud brick, rectangular in plan with flat roof and sloping sides, from which a shaft lead to underground burial and offering chambers.

- **Ancient Kingdom**: two tombs for the kings and nobles (in the Upper Egypt and in the Lower Egypt).
  - One tomb is the true burial chamber, the other a *cenotaph*.

**Cenotaph**

A tomb or monument built for person(s) buried elsewhere.

- **Dynasty I**: the more elaborate graves had come to pretend domestic structures in plan.
  - The whole structure was constructed in a broad pit below ground.
  - The entire area was covered by a rectangular, flat-topped mound of the spoil from excavation retained in place by very thick walls.

**The Mastabas at Gizeh**

- **Dynasty V and VI**: More elaborate offering room or chapel.
  - For the lavish and luxurious tombs, a group of rooms were within or adjacent to the mastaba mound.
  - Columned halls and walls were lined with vividly colored reliefs.
  - A *Stele* was included in the offering.

**Stele (Stela/Stelae)**

An upright stone slab or pillar (sometimes carved or inscribed surface used as a monument or marker or as a commemorative tablet in the face of a tomb or temple. wood)
PYRAMIDS
A massive structure having a rectangular base and four smooth, steeply sloping sides facing the cardinal points and meeting at an apex, used in ancient Egypt as a tomb to contain the burial chamber and the mummy of the pharaoh.

- Usually part of a complex of building within a walled enclosure, including mastabas for members of the royal family, an offering chapel and a mortuary temple.

The Gizah Pyramid Complex

The Great Pyramid (Pyramid of Khufu/Cheops)

- 146.4 m (480’) high
- 230.6 m (756’) square
- 51° 50’ 40” angle
- 13 acres in area
- 4 sides face the cardinal points
- The average weight of block is 2500 kg (2 ½ tons).
- Built solidly of local stone, originally cased in finely dressed Tura limestone blocks.
- Blocks are bedded in a thin lime-mortar, used as a lubricant during fixing rather than as an adhesive, and are lay with amazingly fine joints.
The Ascending Passage

- Located approximately one third of the way down the Descending Passage, the similarly sized and angled Ascending Passage climbs 146 feet through the core masonry.
- Plugged at the bottom by granite blocks, which fit with a high degree of accuracy, this passage was accessed by tunneling through the adjacent, but softer limestone core.
- Here too, passage joints appear to be designed to draw attention to a number of anomalies - in this case three equally spaced, vertical Girdle Stones, which the passage actually passes completely through on its ascent to the Grand gallery.
The Descending Passage

- This four-foot square, perfectly straight and almost featureless passage plunges through the core of the pyramid and into the bedrock, at an angle of about 26.5° with a deviation of less than a quarter of an inch over more than three hundred and forty feet.

- Plugged at the bottom by granite blocks, which fit with a high degree of accuracy, this passage was accessed by tunneling through the adjacent, but softer limestone core.

- About 40 feet down the passage, joints in the core masonry suddenly change from perpendicular to the passage axis to sharply angled.

- Almost a hundred feet down, the masonry joints change once again and the floor of the passage changes to a harder stone.
  - The bottom of the similar Ascending Passage is blocked by three huge granite plugs, which were originally concealed by part of the Descending Passage ceiling.
  - This area is extensively damaged, with the softer core masonry broken away to bypass the granite plugs.

- Farther down the Descending Passage, a roughly carved opening in its west wall leads to an equally rough, almost vertical Well Shaft which makes its way up through the bedrock and back into the core masonry to emerge at the top of the Ascending Passage.

The Subterranean Chamber

- Evidently generally unfinished, the ceiling and walls of this chamber on the other hand appear to be finished, but the floor is a complex jumble of highs and lows which resemble, at the western end, mountain ranges separated by a deep valley, and, at the eastern end, a flat plain with a deep, rectangular pit in the floor (a model railroad would not look out of place here).
Prior to reaching the Subterranean Chamber, the horizontal entrance passage passes through an approximately six foot square ante-room carved into its ceiling and west wall (that is to say, the floor and east wall of the passage continue more or less undisturbed).
  o Ceiling is angled & extremely rough, and, were it not for the precise carving of the walls and the uniform shape of the room itself, one might be tempted to assume that this area simply collapsed during excavations.

Beyond the Subterranean Chamber, a much smaller horizontal passage extends for over fifty feet.
  o This passage is as straight as any other in the pyramid but features a curious kink to the west just before returning to its original heading and then terminating in a dead end.

The top end of the Well Shaft was discovered soon after the pyramid was first opened in 820 AD, but it was almost completely filled with rubble and not properly explored until it was cleared in the 19th century.

The Grotto consists of two small rooms, which house only an enigmatic pit and a large block known as the Grotto Stone (which has now tumbled into the pit).
  o The Grotto Stone is reputed to contain a number of bore holes in one end (now evidently inaccessible) which may or may not contribute to our ultimate understanding of the pyramid, or at least this area of it.

The Queen’s Chamber

Back at the junction of the Ascending Passage and the Grand Gallery, a Horizontal Passage continues south through a vertical wall that was designed to be concealed by a ramp set into the lower extreme of the gallery floor (but evidently never installed).

Similar in size to the angled passages for most of its length, the Horizontal Passage suddenly increases in height via a stepped floor prior to entering the Queen’s Chamber.
• Almost square with a gabled roof, the Queen’s Chamber features a large “Niche” in its east wall.

• The Queen’s Chamber also features small Air Shafts which extend out and up from the north and south walls but which do not penetrate to the exterior (and, until opened in the late nineteenth century, remained concealed behind the perfectly smooth chamber walls).

The Grand Gallery

• At its top, the Ascending Passage suddenly opens into The Grand Gallery.

• 13-foot long, 28-foot high passage that continues upward, at the same 26.5° angle as the Ascending Passage, into the very heart of the pyramid.

• Consists of a narrow channeled floor between two high steps or ramps, and corbelled (stepped inward) walls that reduce its seven-foot width just above the ramps to less than four feet at the curious stepped ceiling.

• Half way up the side walls, and for the full length of the Gallery, small grooves run parallel to the corbelling.

• The base of each wall meets the ramps, 28 sets of angled depressions and stone inserts line the Gallery at equal intervals.

• At the top of this giant ramp, lies the three-foot high Great Step, which must be surmounted to gain access to the pyramid’s most enigmatic, celebrated and studied feature.
The Antechamber

- About 5 Royal Cubit long, 2 Royal Cubit wide and a little over 5 Royal Cubit high.
- Its side walls have 4 pairs of vertical grooves, each about 4 Royal Cubit high.
- This large rectangular room was constructed using huge granite blocks, some weighing an estimated 70 tons.
- The floor, also consisting of granite blocks, is actually seated between the walls, which extend to approximately five inches below the floor line.

The King’s Chamber

- A detailed inspection of the King’s Chamber indicates it was constructed entirely separate from the pyramid’s core, and that it can move independently, presumably to avoid being crushed or damaged by subsidence or earth tremors.
- Small (approximately 8” square) “Air Shafts” extend from the north and south walls of the King’s Chamber, penetrating to the exterior of the structure as it now stands. (It remains unclear if these shafts penetrated the original casing).
- Above the King’s Chamber, five Construction or Relieving Chambers appear to have been designed to protect the main chamber from the weight of the masonry above.
The Coffer

- Carved out of a single block of red Aswan granite and hollowed out on the inners sides.
- The four sides are about 6 inches thick and the base is about 7 inches thick. There is also a lip along the inside edge of the top that hints of a lid, but no lid has ever been found.

The Pyramid of Khafra (Chephren)

- 216 m (708’) side
- 143 m (470’) high
- 53°20’ angle
- It appears larger than the Great Pyramid of Khufu as it is built on an elevation that was about 10 meters or 33 feet higher than that of King Khufu’s pyramid.
- Have two entrances and two descending passages on the north side, one leading to the burial chamber from the ground, and the other opening 16 meters or 52.5 feet higher.
• **The Offering Chapel**  
  Positioned axially on the east face

• **The Mortuary Temple**  
  Same position with the offering chapel  
  o 113.3 m (372’) from east to west  
  o 47.2 m (155’) wide

• **The Valley Temple**  
  o 44.8 m (147’) square and battered outside and vertical within.  
  o In this building and on its roof, various ceremonies of purification, mummification and ‘opening of the mouth’ were conducted.

• **The Great Sphinx**  
  o Traditionally believed to be the figure of Khafra.  
  o A colossal enigmatic monster of a lion body with a human head carved from a spur of rock left during the quarrying.  
  o 73.2 m (240’) long and 20 m (66’) maximum height  
  o The face being 4.1 m (13.6’) across.

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The Pyramid of Menkaura (Mykerinos)

• 109 m (356’) square  
• 66.5 m (218’) high  
• 51° 20”25” angle  
• Much of the casing is preserved, mainly of Tura limestone but includes 16 base courses in granite.
The Step Pyramid of Djoser (Zoser), Sakkara (c. 2680 (?) BCE)

- Built by Imhotep to Pharaoh Djoser
- 60m (198 ft) high
- Rectangular in plan of about 83 m X 75 (272’ X 244’).
- Began as a complete mastaba 7.9 m (26 ft) high, unusual in having a square plan, with sides of 63 m (207 ft).
  - It was then twice extended, first by a regular addition of 4.3 m (14 ft) to each of its sloping sides and next by an extension eastwards of 8.5 m (28 ft).
  - Final addition was 2 more steps to the height, making six in all.
  - Entrance ramp 21.5 m (70’) above its base (originally a tunnel).
- The pit: originally 7.3 m (24’) side and 8.5 m (28’) wide then deepened to 28 m (92’) at the pyramid stage of development.
  - 11 pits separate from the main subterranean system: 32 m (106’) deep

The pyramid at Mevдум

- Attributed to Pharaoh Huni, last king of Dynasty III.
- 144.5 m (474’) square on base.
- 90 m (295’) high.
- 51º slope of sides
- Completed as a ‘true pyramid’ but originally a 7-stepped structure, contrived by building 6 thick layers of masonry, each faced with Tura limestone.
  - Addition of 7th and 8th layers and finally all the steps were packed out and the sides made smooth with finely dressed Tura stone.

The Bent Pyramid (The South Pyramid of Sneferu), Dahshur (2723 BCE)

- The angle of inclination of the sides changes about halfway from 54.15º in the lower part to 43º in toe upper, where it shows hasty completion.
- 187 m (620’) in square plan
- 102 m (335’) high
- Has 2 entirely independent tomb chambers, reached one from the north side and one from the west.
  - The ‘tomb-chambers (?)’ are covered by corbelled roofs with gradually in-stepping courses from all 4 sides.
EGYPTIAN ARCHITECTURE

The North Pyramid of Sneferu, Dahshur
- 43.36° slope
- ade after the abandonment of the Bent Pyramid, the actual place of burial of Sneferu.

The Pyramid of Sahura, Abusir
- Dynasty V
- Remarkable for the triple series of enormous paired stone false-arches that cover its tomb chamber.
- Mortuary temple: freestanding granite columns, with reeded or plain shafts, and lotus, papyrus or palm capitals were used.

Rock-cut Tomb/Temple
A tomb or temple hewn out of native rock, presenting only an architectural front with dark interior chambers, of which the sections are supported by masses of stone left in the form of solid Pillar.

Syrinx
A narrow rock-cut corridor in an ancient Egyptian tomb.

The Tombs of the Kings (The Valley of the Kings), Thebes
- A valley in Egypt where, for a period of nearly 500 years from the 16th to 11th century BC, tombs were constructed for the kings and powerful nobles of the New Kingdom (the Eighteenth through Twentieth Dynasties of Ancient Egypt).
- The valley stands on the west bank of the Nile, across from Thebes (modern Luxor), within the heart of the Theban Necropolis.
- The wadi consists of two valleys, East Valley (where the majority of the royal tombs situated) and West Valley.
- With the 2005 discovery of a new chamber, and the 2008 discovery of 2 further tomb entrances, the valley is known to contain 63 tombs and chambers (ranging in size from a simple pit to a complex tomb with over 120
chambers), and was the principal burial place of the major royal figures of the Egyptian New Kingdom, together with those of a number privileged nobles.

- The royal tombs are decorated with scenes from Egyptian mythology and give clues to the beliefs and funerary rituals of the period.

- All of the tombs seem to have been opened and robbed in antiquity, but they still give an idea of the opulence and power of the rulers of this time.

### Temples

**Cult Temple**

An ancient Egyptian temple for the worship of the deity, as distinguished from a mortuary temple.

**Mortuary Temple**

An ancient Egyptian temple for offering and worship of a deceased person, usually a deified king.

**Temple Function and Evolution**

- Homes of the gods.

- Every temple was dedicated to a god or goddess and he or she was worshipped there by the temple priests.

- The vast temple complexes of the New Kingdom grew out of humble beginnings.
  
  - The local population built a small mud-brick shrine for their own, local deity, chose priests out of their midst to serve it, and brought offerings in return for favors and protection.
  
  - They expanded it slowly over the centuries by adding new wings but eventually the state began to administer them, replacing mud-brick structures by stone buildings.

- The involvement of the general public in the temple ceremonies became small.

- Ordinary people had no access to the inner regions of the temples which could only be entered after elaborate purification rituals.

- Temple buildings in the New Kingdom were made of stone. Their walls covered with colored scenes carved onto the stone, showing the Pharaoh fighting in battles and performing rituals with the gods.

- Temples were single buildings or great complexes.
• The most essential component for any temple was the innermost shrine, where the statue of the god was kept.

• The activities of the temple revolved around the worship and celebration of the god’s cult, and religious festivals.

• Around many Temples were sacred lakes or sacred pools. These pools allowed both the priests and followers to attend and perform their religious rites in a state of purity.

• Temples owned land, livestock and received donations and taxes, in order to support the large armies of priests and servants.

Model of the Universe

• During the New Kingdom, the cult temple building was a symbolic model of the universe.

• Built along an east-west axis, following the sun’s course through the day and surrounded by a brick wall built in alternating concave and convex sections.

  o Symbolized the Primeval Waters out of which Creation had risen.

  o A processional path led up to the pylon towers, which were a reminiscent of the early, predynastic reed shrine that once had stood at the back of just such a guarded enclosure as the mud brick wall.

  o The great portal which was set in between the pylons lead into one or several open courtyards in line, thereafter followed one or several covered pillared halls until finally the darkened sanctum where the naos which held the cult statue of the deity was reached.

  o The floor slanted gradually upwards from the outer courts to the sanctum, symbolizing the primeval mound which had emerged from the chaotic waters when the world was created.

• Often the temple site was chosen where a natural incline could be found. The roof of the halls symbolized the sky and was decorated with stars and protective deities in the form of flying birds.

• The pillars and columns represented palm trees, lotus and papyrus plants and along the walls the reliefs depicted all kind of marsh vegetation.

• In some places the outer courts and halls were flooded with water during the yearly inundation of the Nile, something which must have helped to strengthen the symbolic message in the temple layout.

Five Components of Egyptian Temples

1. Pylons
• Monumental gateways to an ancient Egyptian temple, consisting either of a pair of tall, truncated pyramids and a doorway between them or of one such masonry mass pierced with a doorway, often decorated with painted relief.

• These are the large gates of the temple, carved and painted with scenes of the Pharaoh, gods and goddesses. In front of the pylon were obelisks and statues of the Pharaohs.

**Obelisk** A tall pillar of square section tapering upwards and ending in a pyramid.

2. Outer Court

• A large open hall, which decorated walls showing scenes of the Pharaoh and the gods. It had a transitional purpose, serving as an interface between the outside world and the sanctified regions deeper within the temple.

• People were only allowed to enter the Outer Courtyard on festival days.

• Sometimes there was a second pylon leading to the Hypostyle hall deeper in.
Propylon
A free standing gateway having the form of a pylon and preceding the main gateway.

3. Hypostyle Hall

- A large colonnaded hall entirely roofed except for the central aisle which was lit by windows. Scenes of religious rituals were carved into the walls.
- The capital of the massive column often in the shape of the papyrus flower. Only priests and the Pharaohs were allowed to enter the hypostyle hall, which was used for religious rituals.

4. Sanctuary

- The most special and important part of the temple, a relatively small room.
- Only the High Priest and the Pharaoh could ever enter.
- In the middle of the sanctuary stood the shrine of the god.

5. Sacred Lake

- Most temple precincts included a sacred lake.
- Archaeologists have excavated a number of these in temples of the New Kingdom.
- The priests used water from the sacred lake to perform rituals in the temple.
The Great Temple of Abu-Simbel (c. 1301 BCE)

- Built by Rameses II

- The most stupendous and impressive of all rock-cut temples (Fletcher).
  - Facade: 36 m (119’) wide and 32 m (105’) high, formed as a pylon.
  - 4 rock-cut seated colossal statues of Rameses II, over 20 m (65’) high.

- The hall: 9 m (30’) high
  - Have 8 Osiris pillars and vividly colored reliefs.
  - The central hall is the sanctuary and containing 4 statues of gods and a support for a sacred boat.

The Small Temple, Abu-Simbel (c. 1301 BCE)

- Built by Rameses II, close to the Great Temple, dedicated to his wife Queen Nefertari and the goddess Hathor.

- Façade: 27.4 m (90’) wide and 12.2 m (30’) high

  - Comprises with 6 niches recessed in the face of the rock and containing 6 colossal statues, 10 m (33’) high, 2 represents Rameses and 1 Nefertari on each side of the portal.

The Funerary Temple of Mentuhetep, Deir el Bahari, Thebes (2065 BCE)

- A mortuary temple directly related to its corridor tomb.
- Double-terraced at the base of steep cliffs.
- A small, completely solid pyramid stood on the upper terrace.
The Mortuary Temple of Queen Hatshepsut, Deir el-Bahari (1520 BCE)
- Inspired by Mentuhetep’s temple at the foot of the same precipice and dedicated to Ammon.
- Built by her chief architect Senmut (Lover?).
- Terraced with ramps leading up to the chief sanctuary and the burial place in a corridor tomb hollowed into the cliff.
- Limestone columns flank the great court and support the ceilings of the halls each have 16 flutes.
  - Resembled the Greek Doric style and are comparable to the Greek in the refinement of proportions.

The Great Temple of Amun, Karnak, Thebes (1530-323 BCE)
- The largest and grandest of all Egyptian temples
  - Acquired size through additions of pylons, courts, and halls in front of existing ones through the works of many kings.
  - Temple orientation:
    - The 2 principal rectangular structures built back-to-back on a se-nw axis, signify solstitial orientation.
    - Life within the temple was regulated by the rising and setting of the sun, the cycles of the planets, and the rising of the Nile.
    - The 21-hectare (53 acre) sacred precinct dedicated to Amun-Ra was erected over a period of 1,200 years, monumentally recording the pharaoh’s dynastic struggle for immortality.
- The Great Hypostyle Hall
  - 134 columns
  - The world’s largest columnar structure
  - Capitals were of papyrus flowers and bud capitals
  - The central columns rise above the sides to form the clerestory window grills in the walls to illuminate the nave.