

The Astronomy of Pre-dynastic Egypt

Nabta Playa



Nabta Playa

- ▶ 110 km west of Abul Simbu
- ▶ Now, one of the driest area on Earth: less than 1 mm precipitation per year.
- ▶ Beginning in 8500 BCE summer monsoon rains brought water to the internally drained basin.
- ▶ Abandoned around 3500 BCE



Astronomy and the Search for Ultimate Meaning

- ▶ The field of archaeoastronomy has undergone major transformations from its earliest roots when goals were largely limited to searches for astronomical alignments. Today, a major concern is the cultural context of the astronomy that is suggested by those alignments and, going beyond context, to search for meaning. What were people thinking when they designed and built massive construction projects aligned to the heavens?

Mythic Thinking and Holistic Vision

- ▶ I suggest the reason is that certain members of a culture engage in, what we might identify, as mythic thinking, is to develop a holistic interpretation of the wider world in which they found themselves. Mythic thinking has been described as the intuitive understanding of wholeness. Without some sort of narrative involving the interconnectedness between people and the larger world, experiences would remain chaotic and fragmentary, a collection of seemingly unrelated events.

NABTA PLAYA

Nomadic cattle herders occupied the shores of the lake during the summer monsoon rains between approximately 9000-4000 B.C. when the monsoon moved from central Africa into southern Egypt

Early Neolithic:

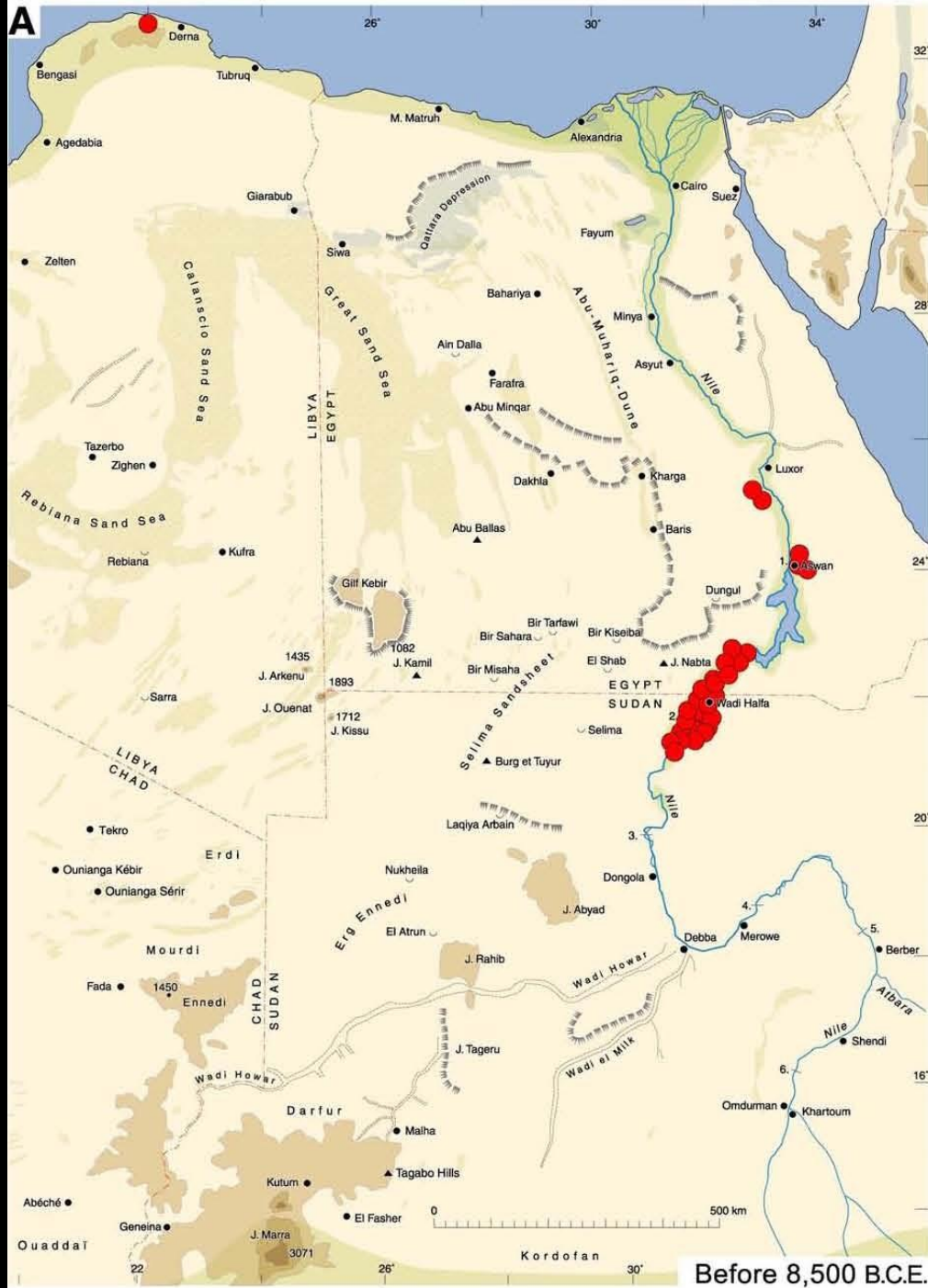
**Scattered ostrich eggshells and charcoal:
6700-6600 B.C.**

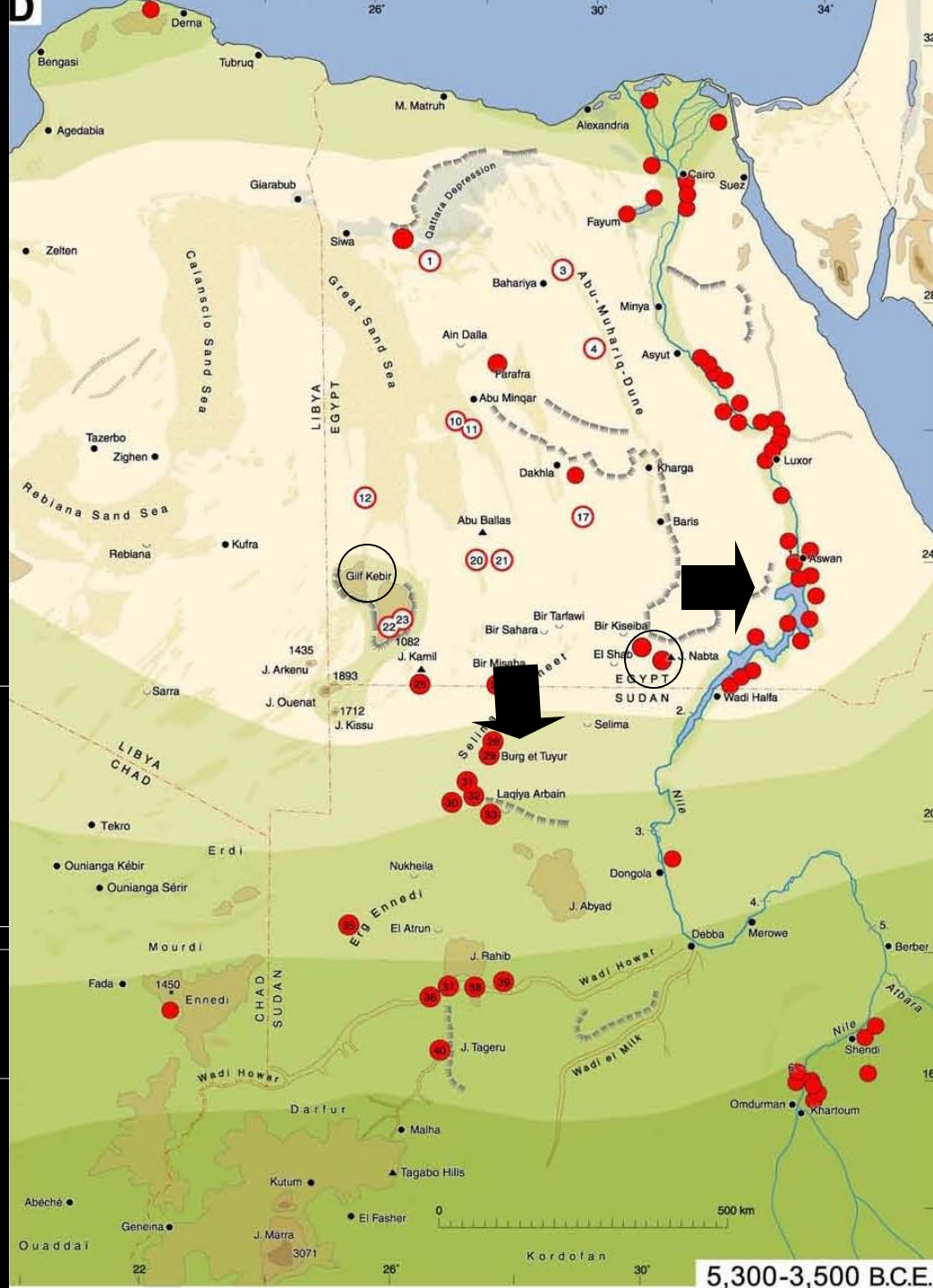
Late Neolithic:

**Wood from burial chamber surrounding the articulated skeleton of a cow:
5300 B.C.**

**Charcoal from hearths in the vicinity of the calendar circle:
4800 B.C.**

**Charcoal from the megalithic tomb:
3600 B.C.**





5,300-3,500 B.C.E.

Environmental Determinates

- ▶ Survival in the desert relied upon returning to water and forage found in small isolated refuges, reached only by skillful navigation across the sands. The north, marked by a gap in the heavens around which stars revolved would have been one aid for navigation.
- ▶ The brightest stars (Arcturus, Sirius, alpha Centuri) would have been other aids, which must have been seen like other worldly powerful beings to whom they were indebted.
- ▶ Water arrived in the Playa when the monsoon rains reached the southern Sahara around the time of June solstice.

Blow-out on north side

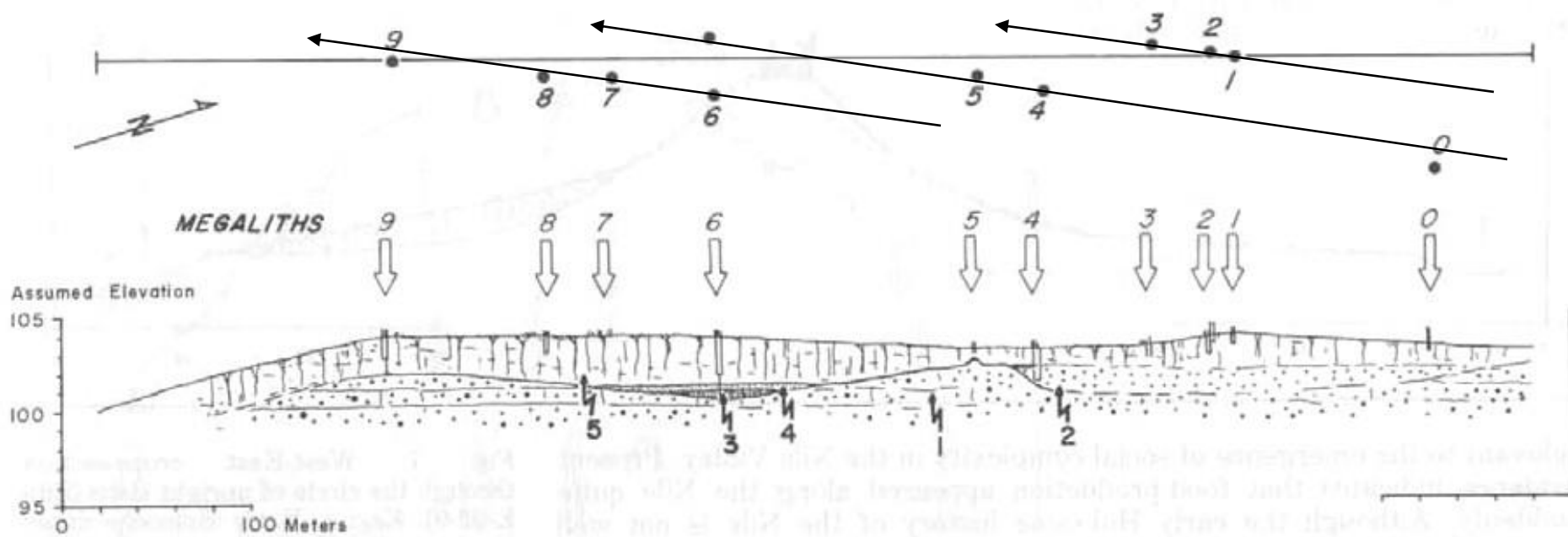




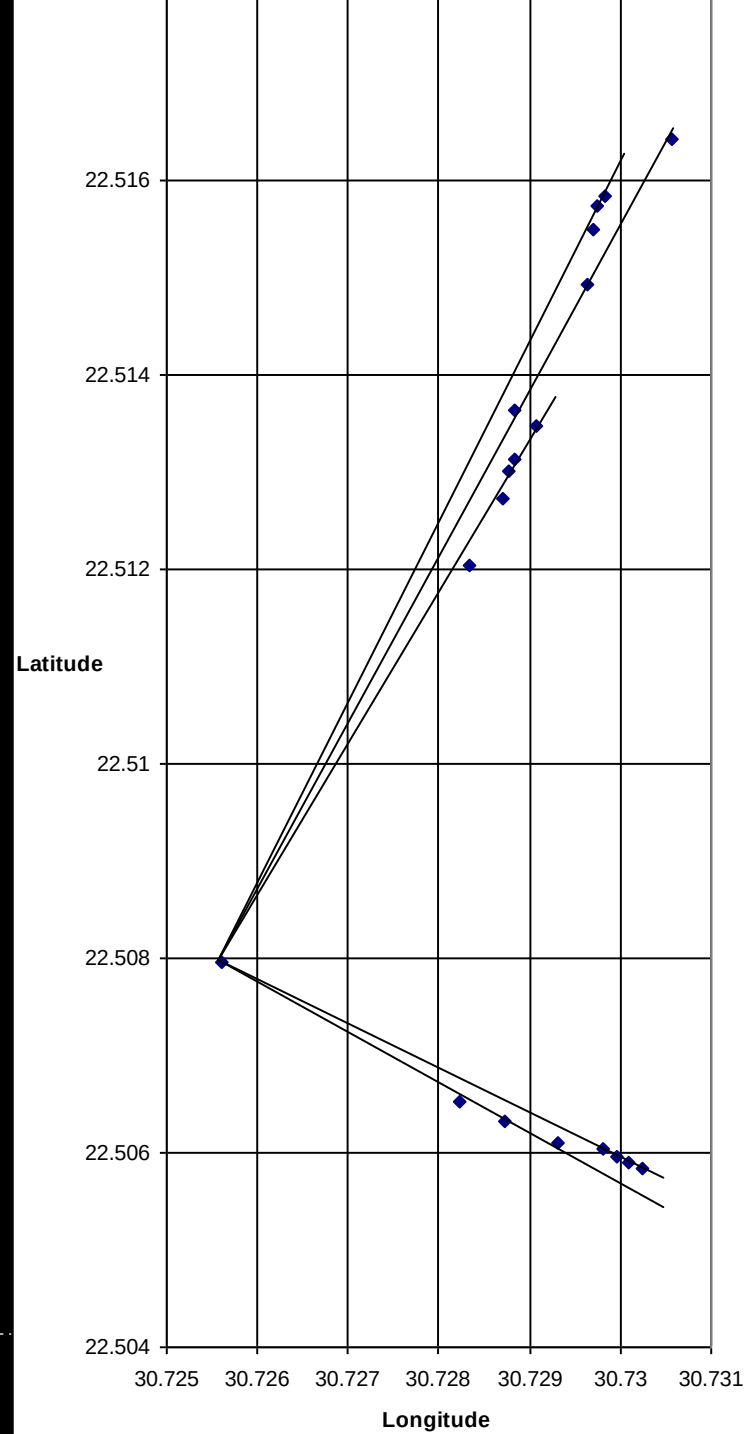
Fields of megaliths

- ▶ Five alignments of stele radiating outward from the megalithic structure covering a buried cow sculpture.
- ▶ Sculptured with anthropomorphic rounded shoulders.
- ▶ Face north circumpolar region
- ▶ Groupings may represent souls of departed members of clans, those who knew and memorized these stars, or terrestrial aspects of the stars.
- ▶ Five radio carbon dates from the quarry are 4500 to 4200 BCE .









Alignments A

Alignment	Azimuth	Star	Dates (BC)
A3	26.3	Arcturus	4530-4320
A2	28.1	Arcturus	4220-4020
A1	30.6	Arcturus	3810-3630

Alignments B

Alignment	Azimuth	Star	Dates(BC)
B2	116.6	Alnilam (Belt of Orion)	4340-4150
		Sirius	3700-3430
		Winter Solstice	
B1	120.1	Sirius	4640-4400
		A Centauri	4500-4240

- ▶ Water entered the playa in the northwest through the Valley of Sacrifices, which contained about ten tumuli with disarticulated pieces of butchered cattle, goats, and sheep.
- ▶ The largest contained an entire articulated young cow, the most precious offering that a herder can make, contained in an elaborated chamber covered by a tamarisk roof.
- ▶ A piece of wood from its roof yielded a radio carbon date of about 5500 years BC. Probably a female just entering adulthood, the animal, lying on its left side, was oriented approximately north-south, with its head in the west.



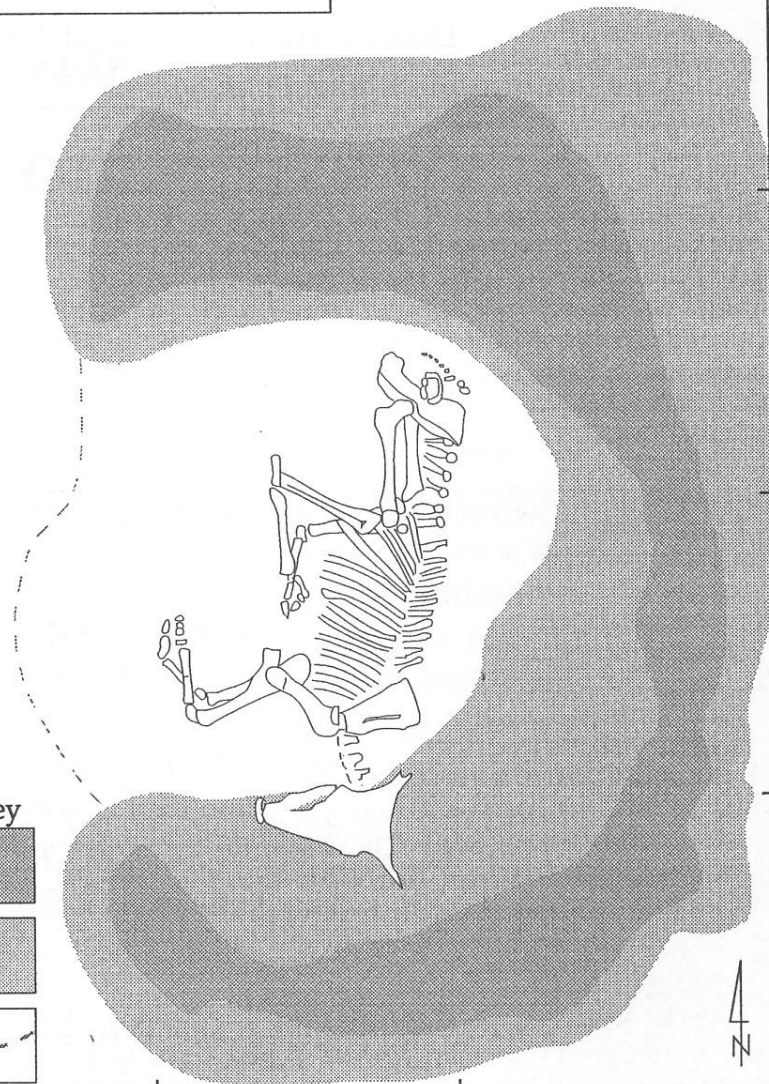
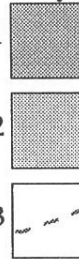
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Key

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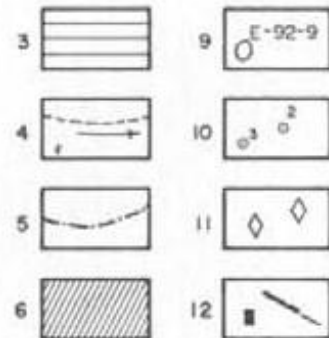
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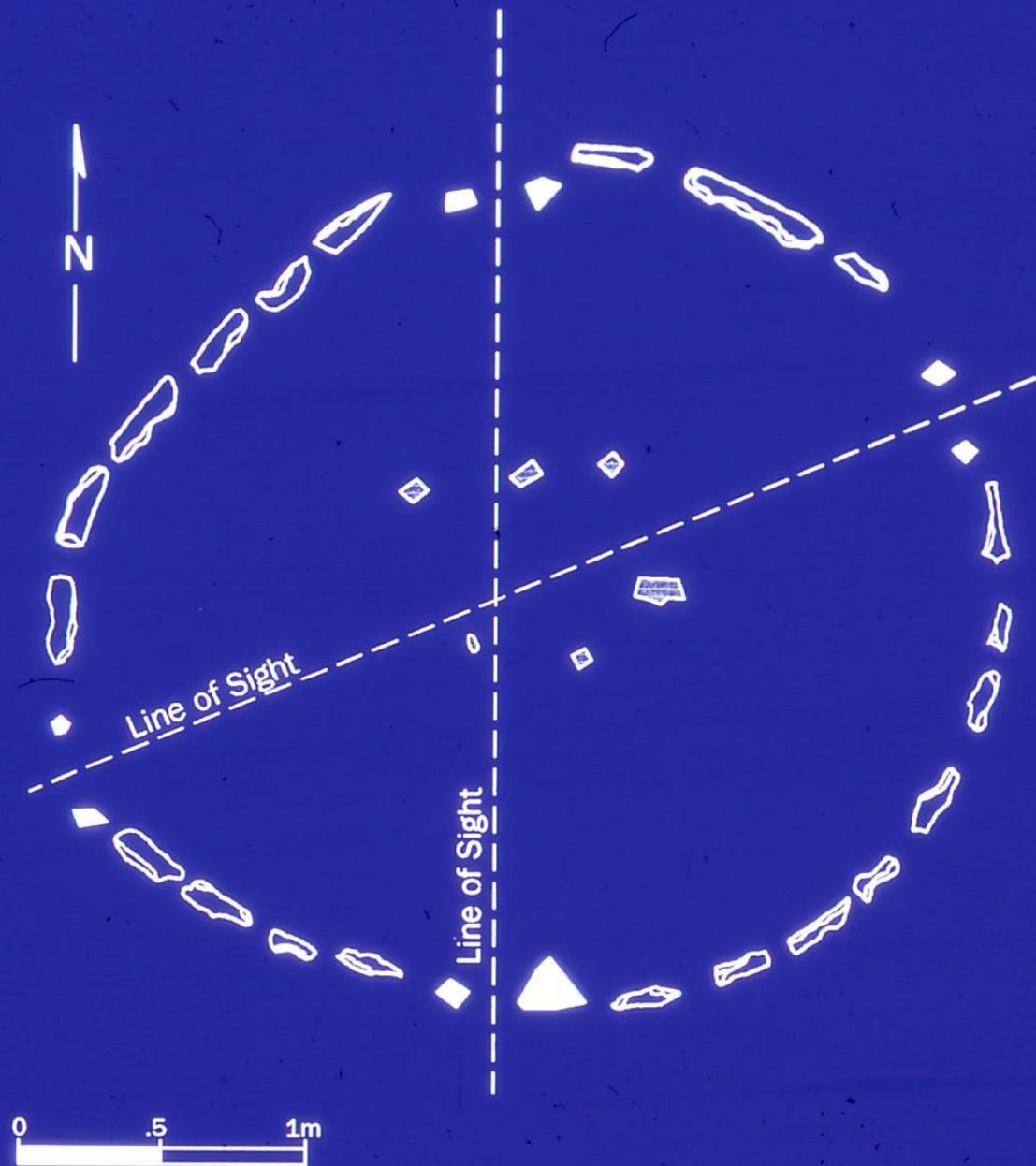
Calendar Circle

4890 BCE





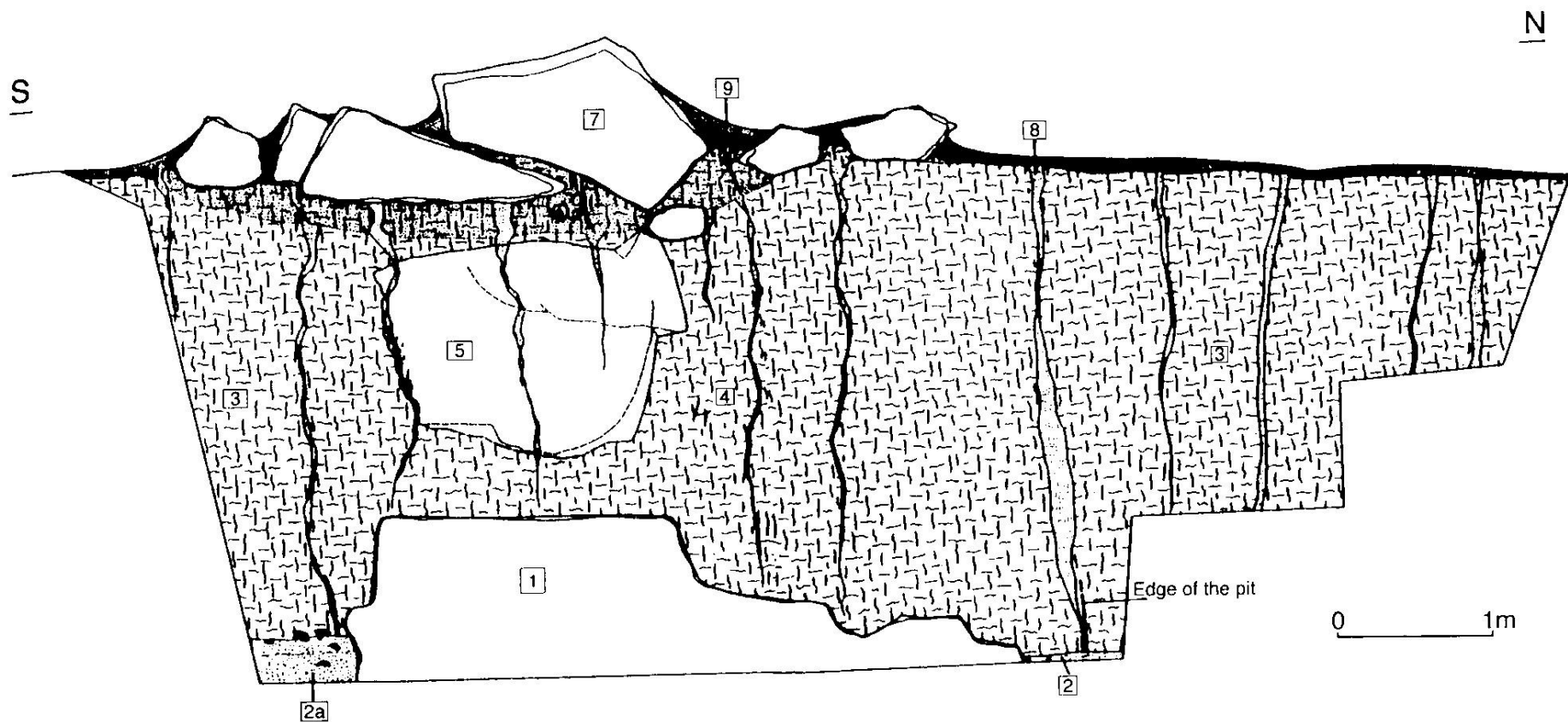






June Solstice: A place for water rituals?

- ▶ The megalithic alignments radiate outward from the largest tumulus.
- ▶ Beneath, the builders of the structure had dug a pit through playa sediments to expose a table rock at a depth of 2.6 m.
- ▶ The pit was partially refilled and a large secondary stone, weighing 2-3 tons, was placed upright above the center of the table rock. The stone has a resemblance to a cow. The cow was thus entangled with water, megaliths, and stars.

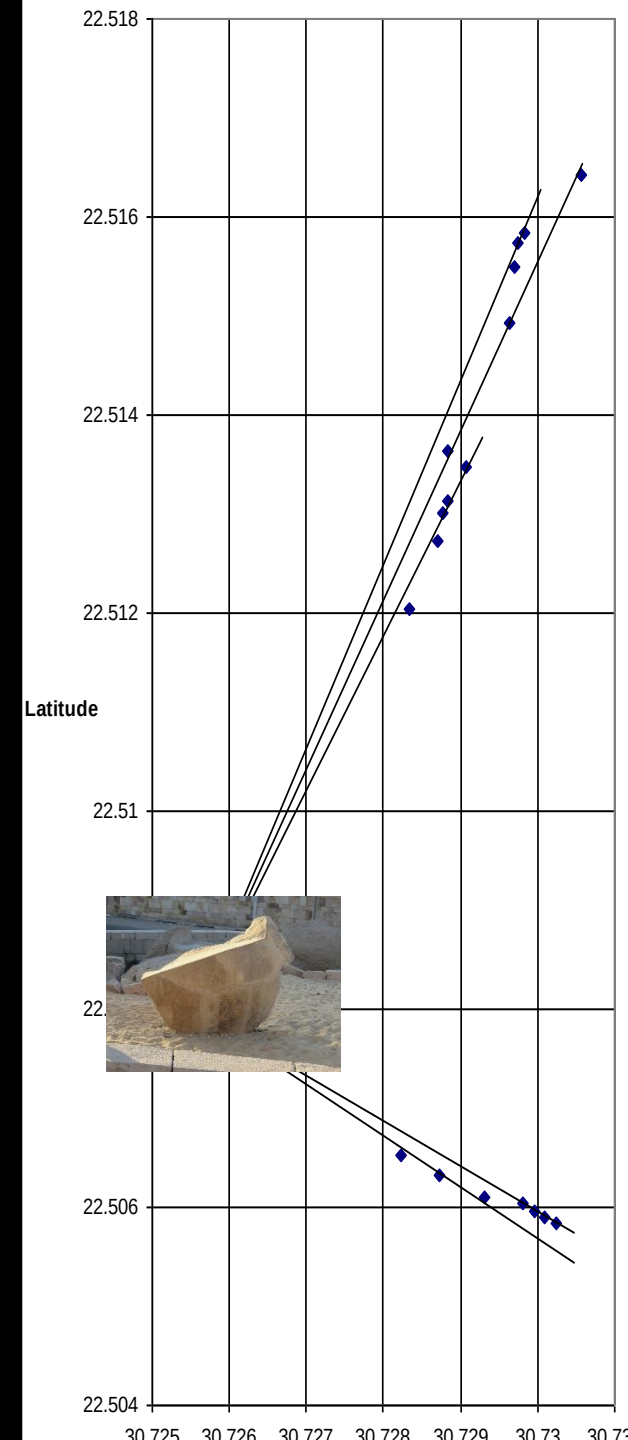






Entangling of the world

1. Guiding stars
2. Cow- fertility
3. Earth- burial
of stone, cow, ancestors
source of life
4. Water in the playa
5. Cycle of the seasons
summer solstice- sun



Burials

- ▶ Cemetary at Gebel Ramlah, 4500 BCE
- ▶ 30 km from Nabta Playa
- ▶ Shells from Nile and Red Sea confirm the wide seasonal movement of the nomads
- ▶ Primary burials- lying on right side, oriented to west, facing south
- ▶ Disarticulated burials- perhaps individuals who died while travelling and their skeletons were brought back for burial
- ▶ Hints of belief in afterlife: considerable effort to restore elements – teeth were replaced in sockets- bones colored with red ochre.



N

TULUP

BEAKER



Slab of mica fashioned into tilapia from Red Sea



Bracelet of mussel shells from Red Sea



Hathor

- ▶ Evidence of influence on Dynastic Egypt of nomadic pastoralists of the Sahara: cattle were not important for the agriculturists of the Nile Valley, whereas they were worshipped by the nomads.







- ▶ Transformation of the cow to the goddess and creator of the sun.
- ▶ The ultimate conflation of sun worship and cattle worship, which appears in Nabta Playa.
- ▶ The sun is entwined by a snake, a hazard of the Nile valley.



- ▶ The evidence for attention to the heavens by these nomads comes in three forms.
- ▶ 1. The repetitive orientation of the faces of the megaliths along a north-south direction, and the cardinal orientations of cattle burials reveals an early symbolic connection to the north, which is what one expects for nomads who need to navigate using the stars.
- ▶ 2. The second bit of evidence for astronomy is found in the stone circle with its two sightlines toward the north and the direction of rising sun near June solstice; the latter associated with monsoon rains and the flooding of the playa.

- ▶ 3. Finally, the alignments of megaliths, which, if intentionally oriented to the brightest stars of Nabta Playa suggest an even more careful attention to the heavens. Honoring those stars is understandable if the nomads relied upon them for navigation across the Sahara.

- ▶ Some of the cognitive features of early Dynastic Egypt, such as cattle worship June solstice, rising stars, and rising of the Nile may have been carried into pre-dynastic cultures in the Nile valley. As the desert dried up, there was perhaps a cyclical movement of nomads between the two ecosystems of the desert and Nile valley in Lower Nubia. Eventually after around 3500 BCE after the desert became hyper-arid, there was a major migration to the middle Nile Valley, lower Nubia.

- ▶ For pastoralists, cattle may have served as walking larders, providing milk and blood. In contrast, the Predynastic and Old Kingdom residents of the Nile valley had an economy that was based primarily on agriculture and small livestock, such as sheep and goats. The growth of the cult of Hathor is remarkable, especially because it seems to incorporate many of the themes expressed at Nabta Playa. The explicit connection between Hathor, flooding of the Nile, and the heliacal rising of the Nile expressed in the Temple of Hathor at Dendera is a testament to the persistent power of a tradition, which may have had its roots in the nomadic pastoralists of the Western desert.



OASIS

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BREWED AND BOTTLED IN BOULDER, COLORADO