LOCATING

The earliest times
of astronomy

ALREADY IN PREHISTORY

By observing the sky man learned to locate himself in space and in time.

Many traces suggestive of astronomical observations have been found, by which it appears that men were able to measure time before the advent of writing.

Gnomon sundial
***Mont Bego, Vallée des Merveilles (Alpes Maritimes)***

Gnomon

shadow of the gnomon

slab of rock paintings

Credit : Jérôme Magail
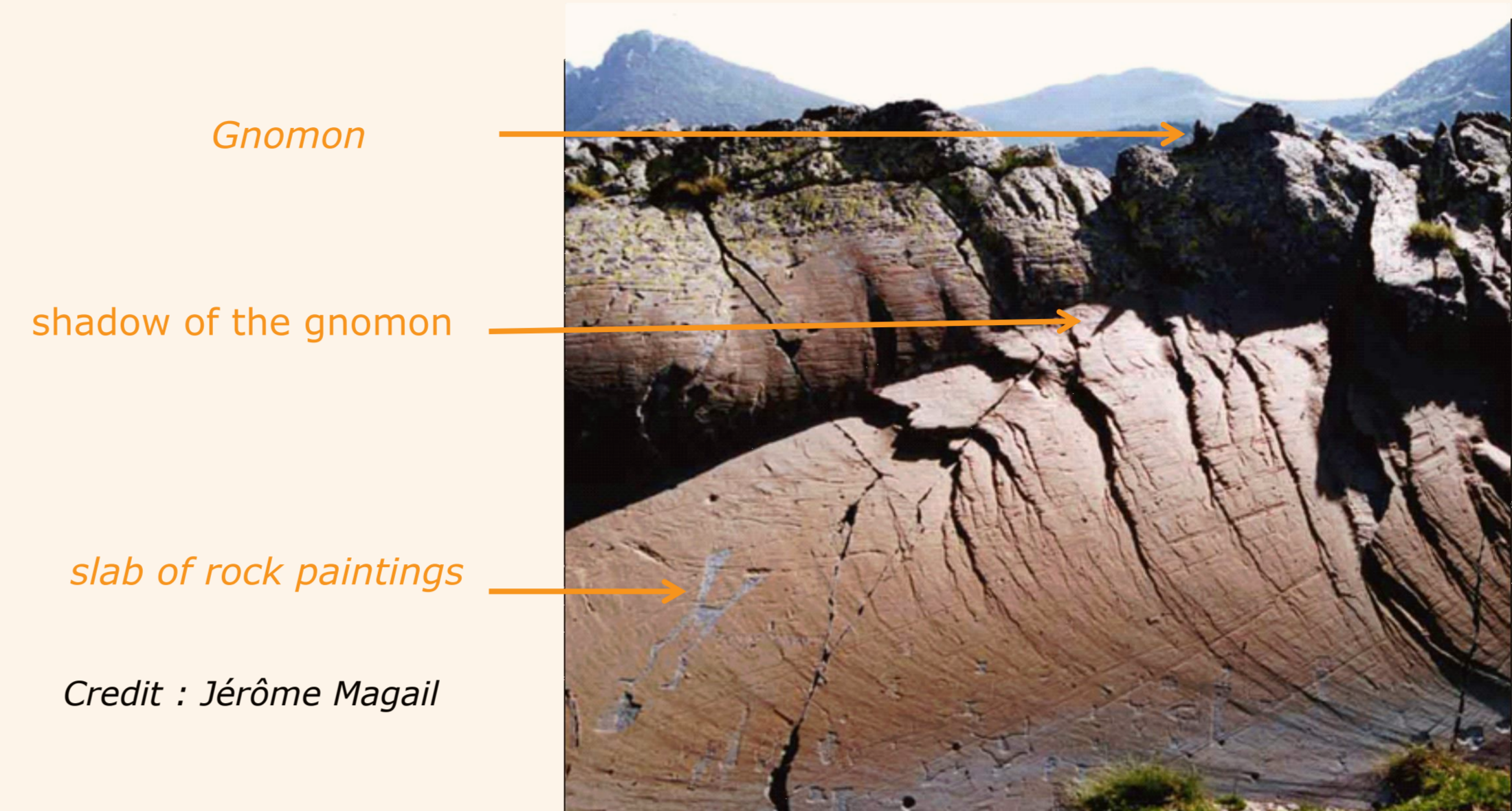
MESOPOTAMIAN ASTRONOMY:
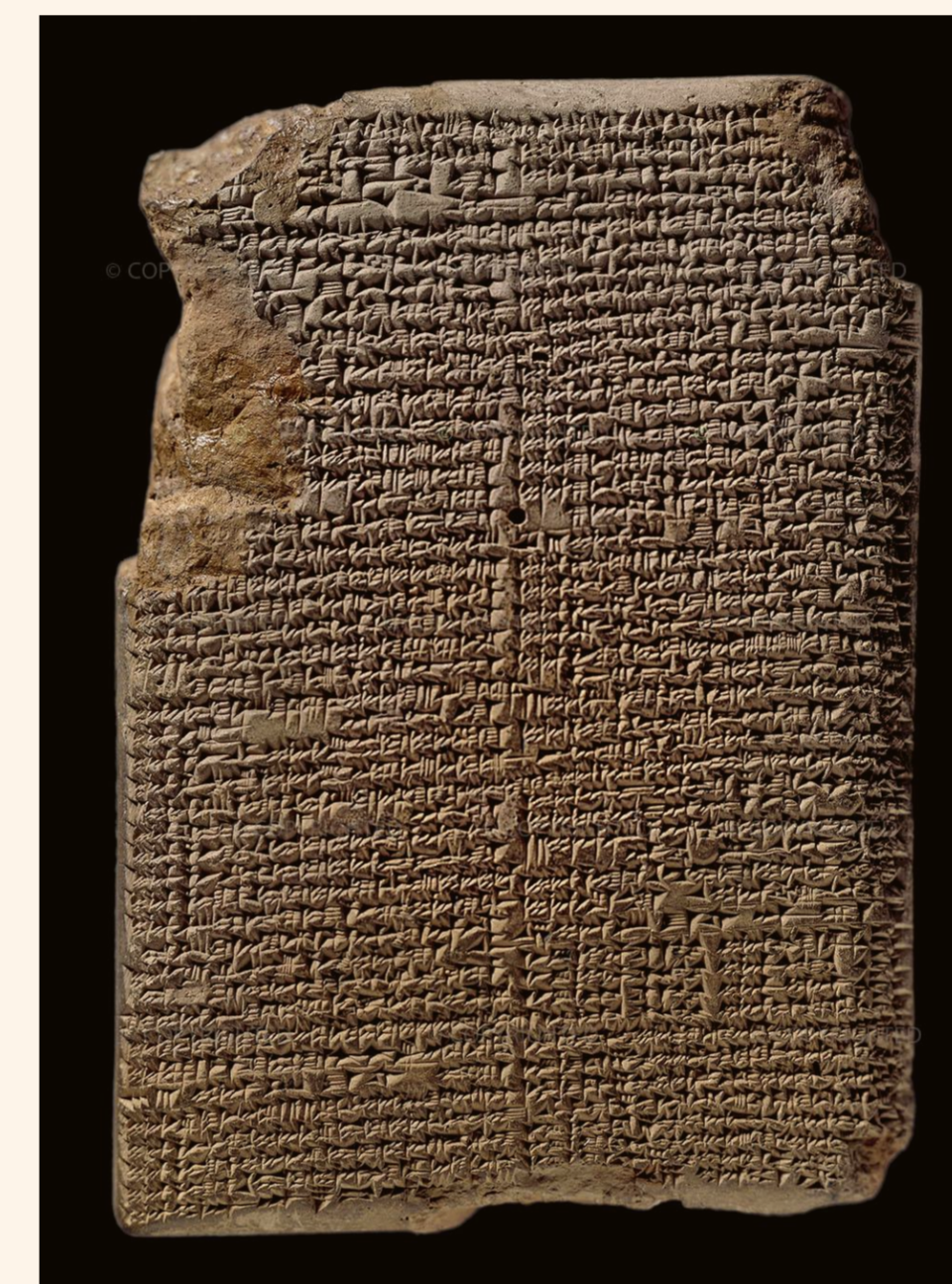### An astronomy based on observation and arithmetic.

We owe the division of the circle into 360° to the Mesopotamians.

The Mesopotamians sought mathematical models to predict celestial phenomena (eclipses, phases of the moon, positions of stars ...).
To locate the stars in the stellar vault, they divided the circle into 360 parts (They calculatedin base 60).
The incredible accuracy of their calculationsis evidenced by this comparison with modern theories for calculating the longitude of Mars
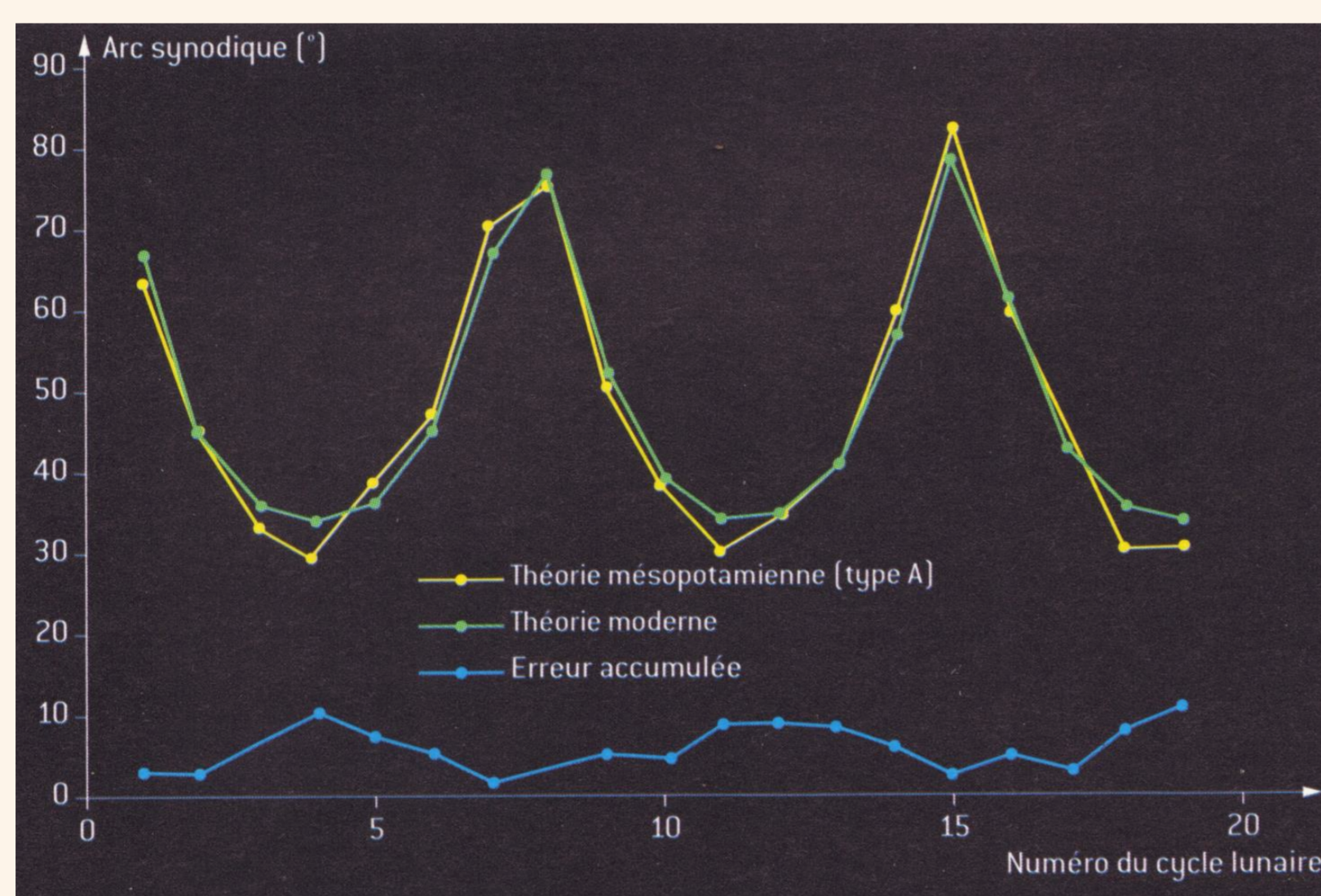
Credit: Yaël Nazé
«L'Astronomie des anciens»

Here is a copy of the 7 BCE Mul Apin tablets, a set of 70 tablets constituting the first major star catalogue. (IInd millennium BCE.)

The oldest astronomical tablet:
The tablet of Venus (17 BC.) on which the risings and settings of the planet Venus are set out over 21 years.

The Egyptians noticed that, after 70 days of absence, the appearance in the dawn sky (the helical rising) of Sirius (the brightest star in the night sky), coincided with the beginning of the Nile flood bringing fertility to the valley.
It is the star Sirius, which thus served as a basis for the development of the first calendars.

Text mentioning the date of reappearance of the star Sirius (1450 BCE)

EGYPTIAN ASTRONOMY:
A practice-based astronomy

A year consists of 12 months of 30 days plus 5 days (epagomenal) or 365 days.
In a year, there are three seasons (the Flooding, the Sowing (winter), the Cropping (summer).
In a season there are four months. In each month there are 3 decades (a period of 10 days).
A day is divided into two parts: 12 hours for daytime and 12 for nighttime.

We owe the year of 365 days and the day of 24 hours to the Egyptians.

The first stellar clocks (indicating hours of the night) date from the start of the second millennium.
A clock is a table whose columns correspond to different decades and whose 12 lines correspond to the 12 hours of night. In each case, we find the symbol of a decan (a star or group of stars) marking the first hour of the night by its rising.

The sidereal* day being shorter than the solar day ** by 4 mins, the stars rise up a little earlier each day.
Hence the diagonal shift observed in the stellar clock opposite

* The sidereal day is the time it takes the planet to make a complete turn on itself (to find itself in the same position relative to the stars).
** The solar day is the time interval between two passages of the Sun at the meridian