

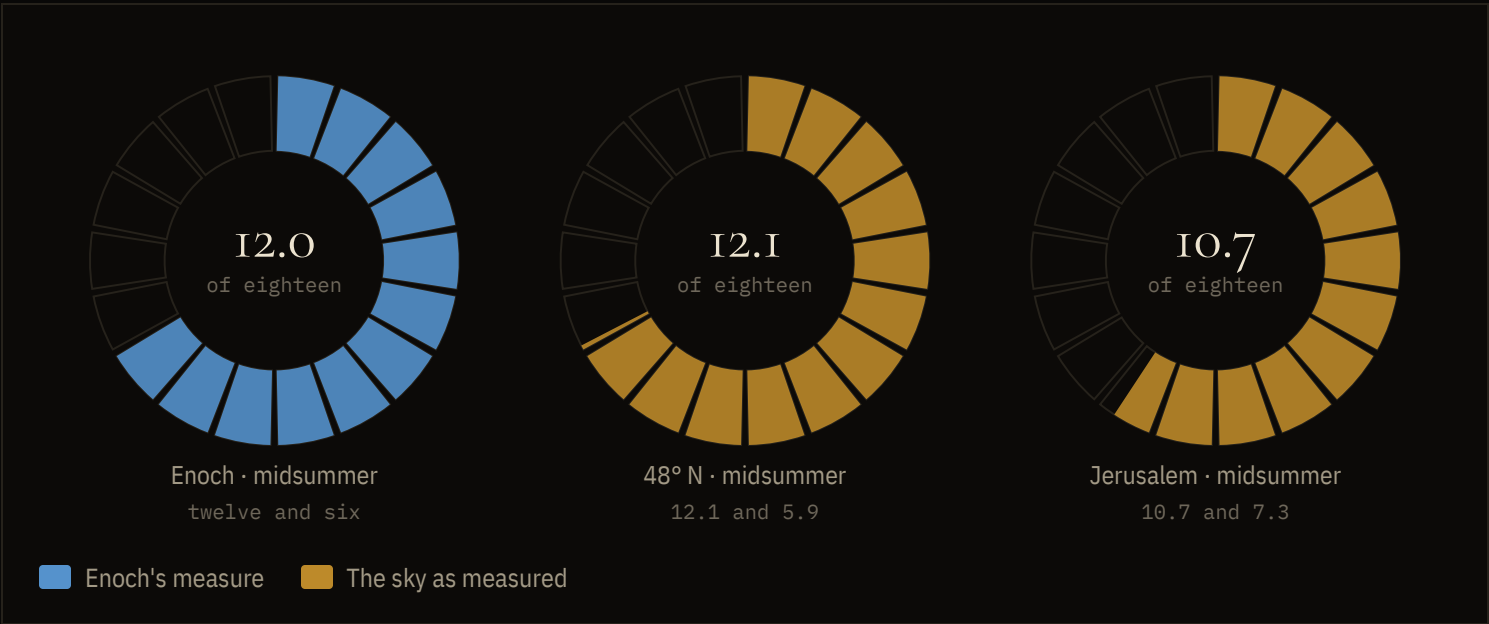
Light, Darkness and Latitude

Enoch describes the year from the ground: the gate the Sun rises in, and how the day divides into light and darkness. The gates and their order hold everywhere. The proportion of light and darkness belongs to where you stand.

I

The day in eighteen parts

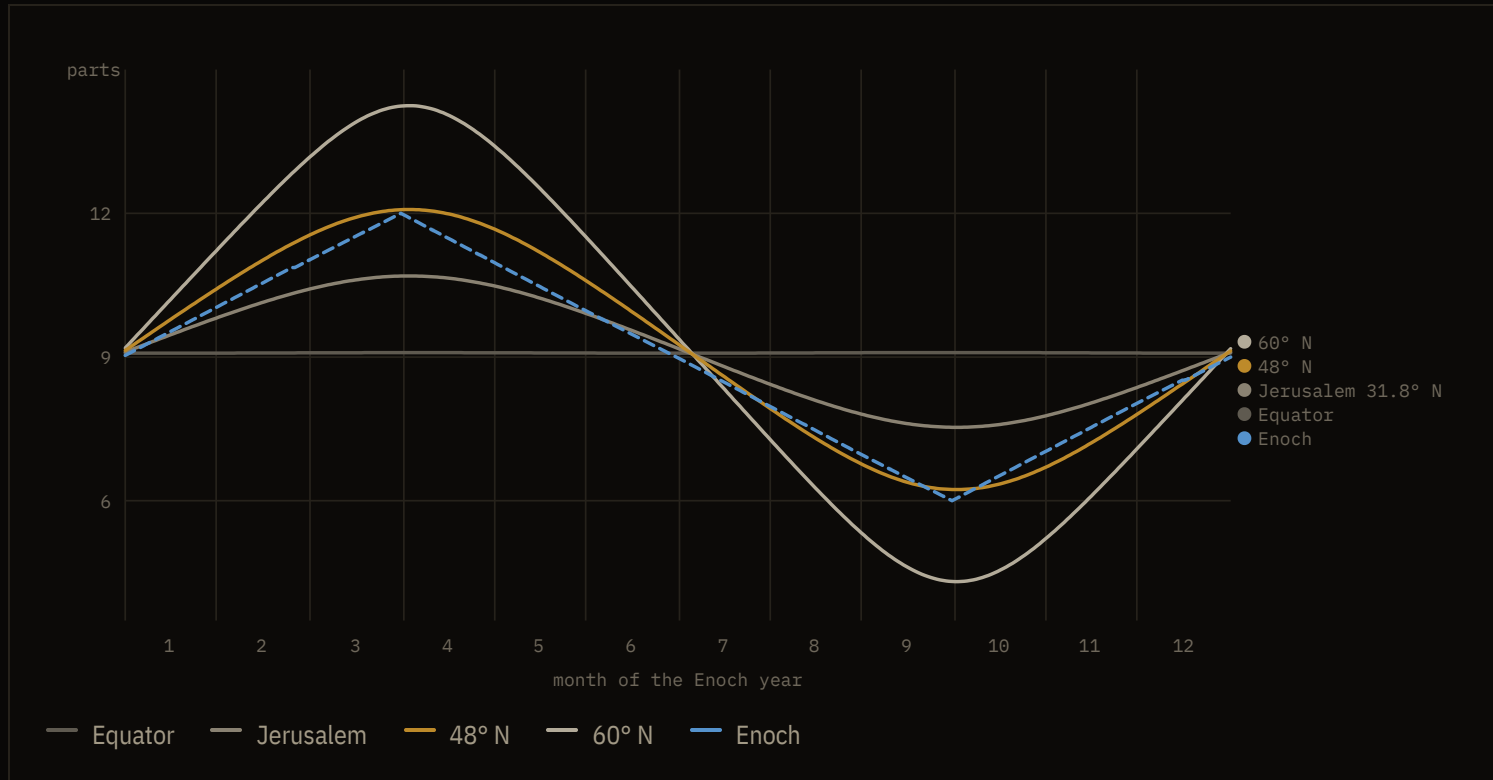
Enoch measures the day from sunrise to sunrise and divides it into eighteen parts. At the opening of the year light and darkness are equal, nine and nine. Each month adds a part of light, to twelve and six at midsummer. Then the light returns, to six and twelve at midwinter. The proportion is the observer's. At 48° north the longest day holds twelve parts. At Jerusalem it holds 10.7.



II

The year by latitude

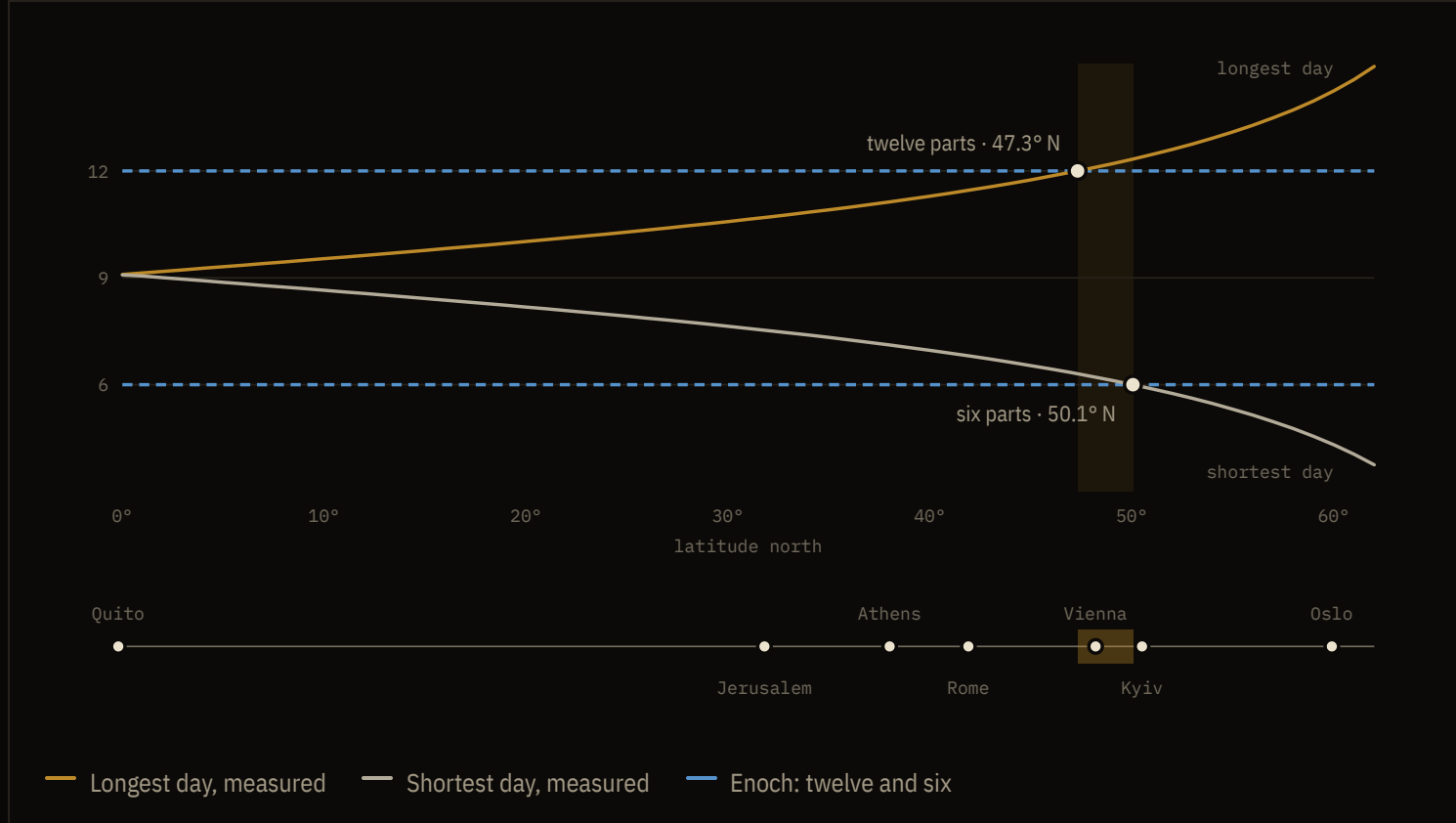
Near the equator, light and darkness stay close to nine and nine all year. Moving north, summer days lengthen and winter days shorten. At 48° north the year follows Enoch's measure.



III

Where the measure holds

Twelve parts of light on the longest day: 47° north. Six parts on the shortest: 50° north. Between them lies the band where Enoch's measure is the sky itself.



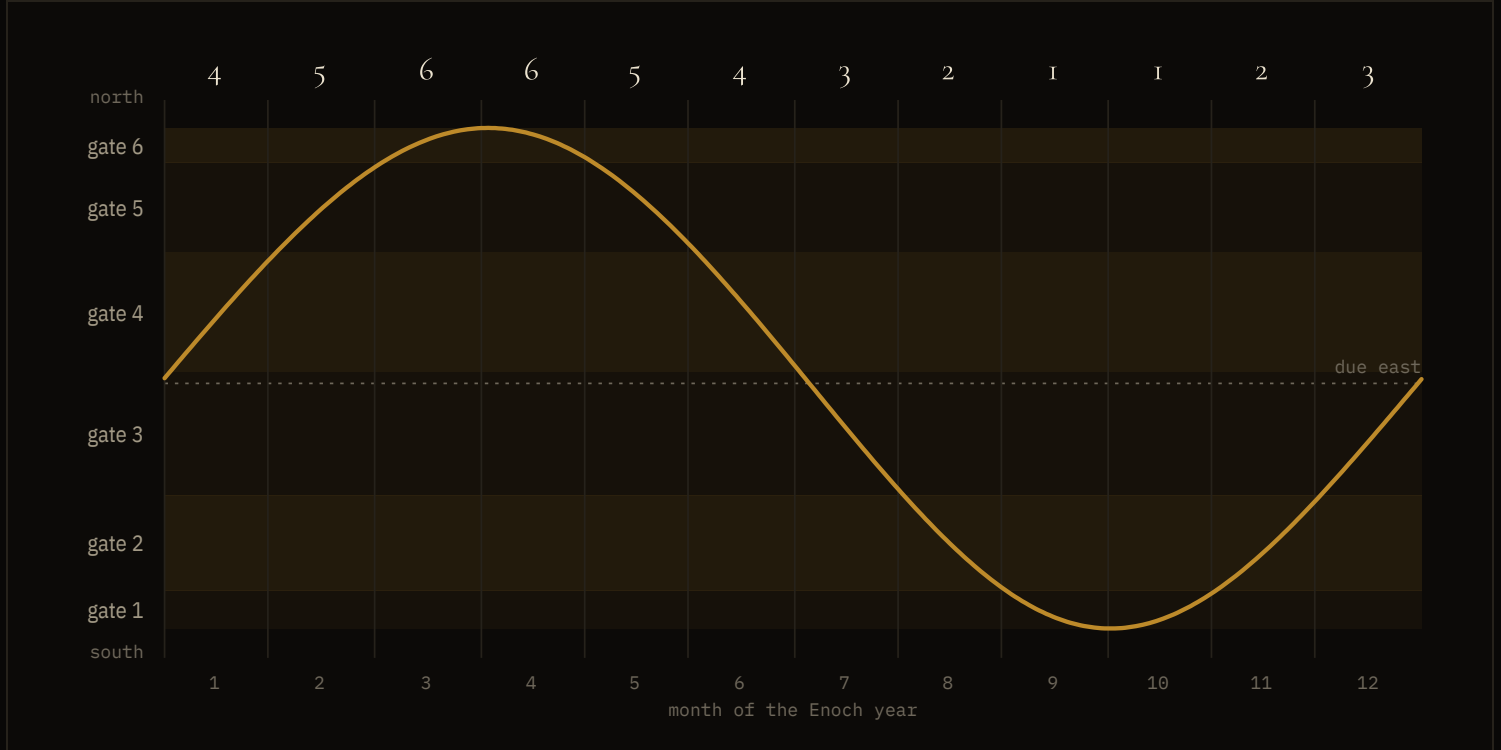
IV

The six gates

“...six in the east and six in the west, and all following each other in accurately corresponding order.” (1 Enoch 72:3)

The year opens in the fourth gate, with the Sun rising due east. The Sun climbs north through the fifth to the sixth, stands there two months, and returns. Then it passes south to the first and back.

4 · 5 · 6 · 6 · 5 · 4 · 3 · 2 · 1 · 1 · 2 · 3

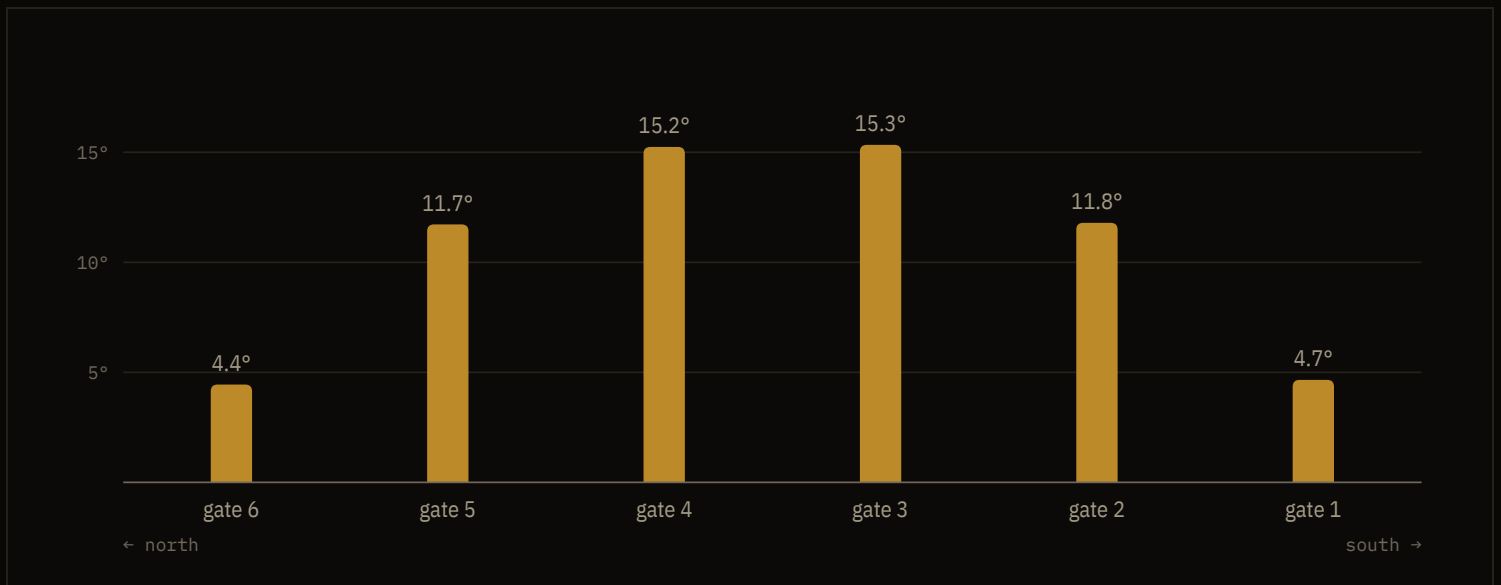


V

Wide gates and narrow gates

Each gate holds the Sun two months, but not the same span of horizon. Near due east the rising point moves quickly, and the middle gates are wide: 15° and 15° at Jerusalem. At the ends it slows and stands, and the sixth and first gates are narrow: 4° and 5° .

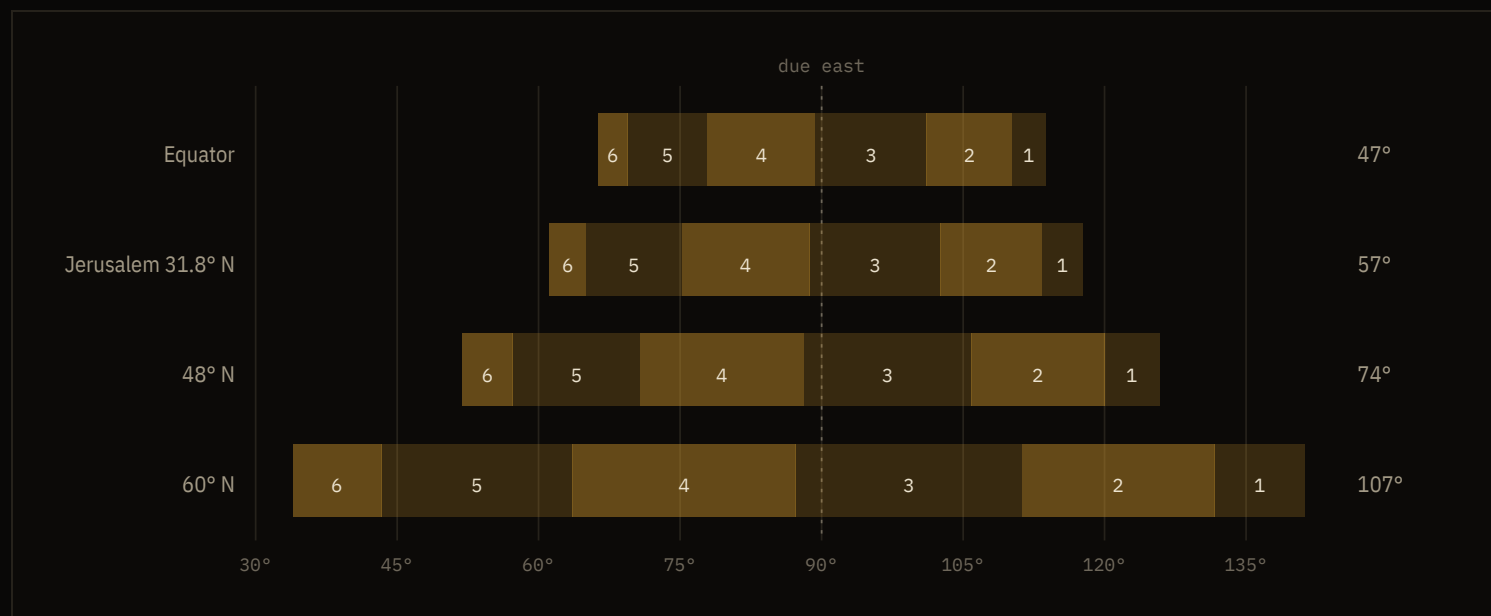
This standing is the *solstice*: *sol*, the sun, *sistere*, to stand.



VI

The gates by latitude

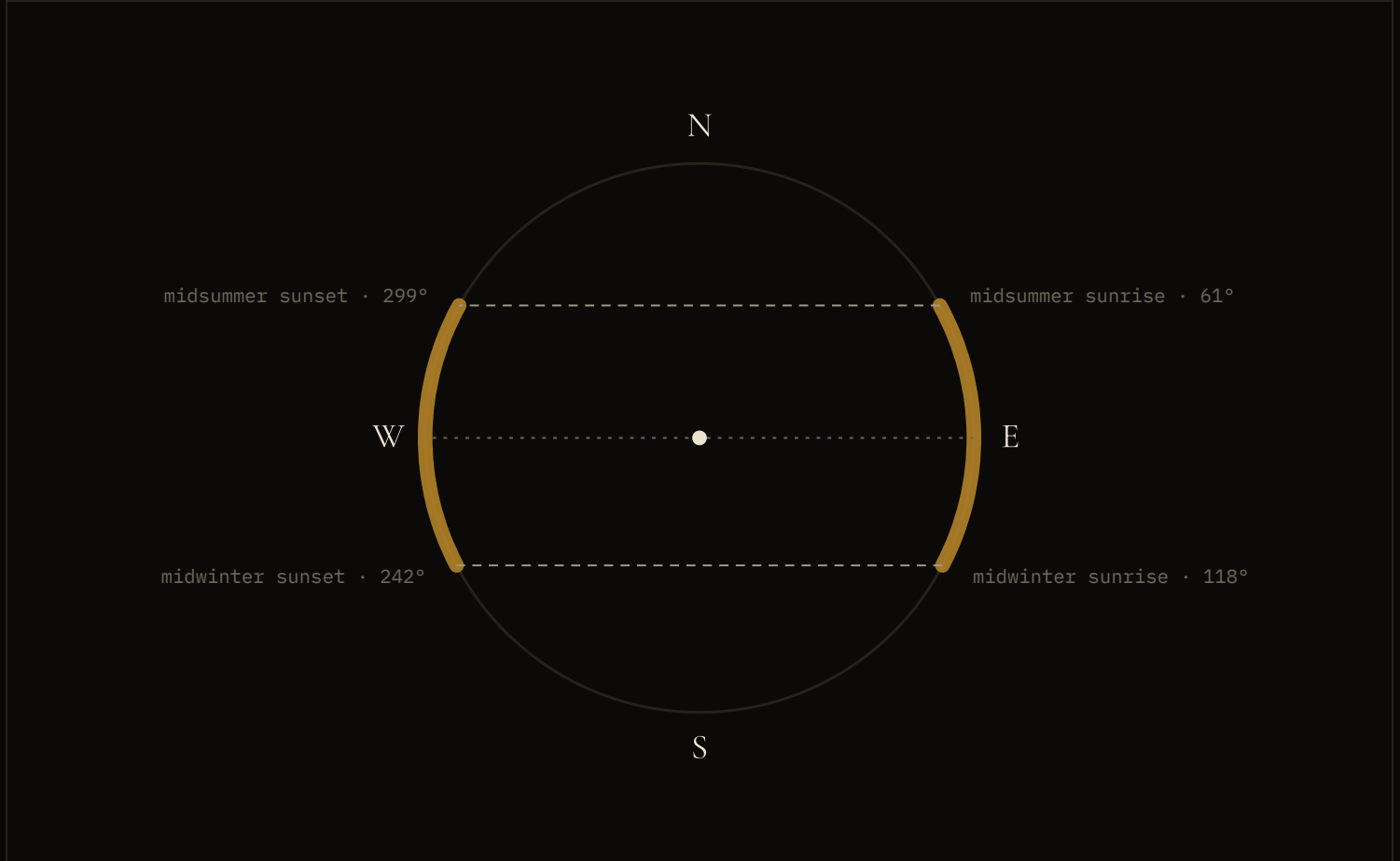
The order of the gates is the same everywhere. Their span is not. At the equator the six gates fill 47° of horizon; at Jerusalem, 57° ; at 48° north, 74° ; at 60° north, 107° . Further north the Sun skims the horizon, until it no longer rises every day.



VII

Rising and setting

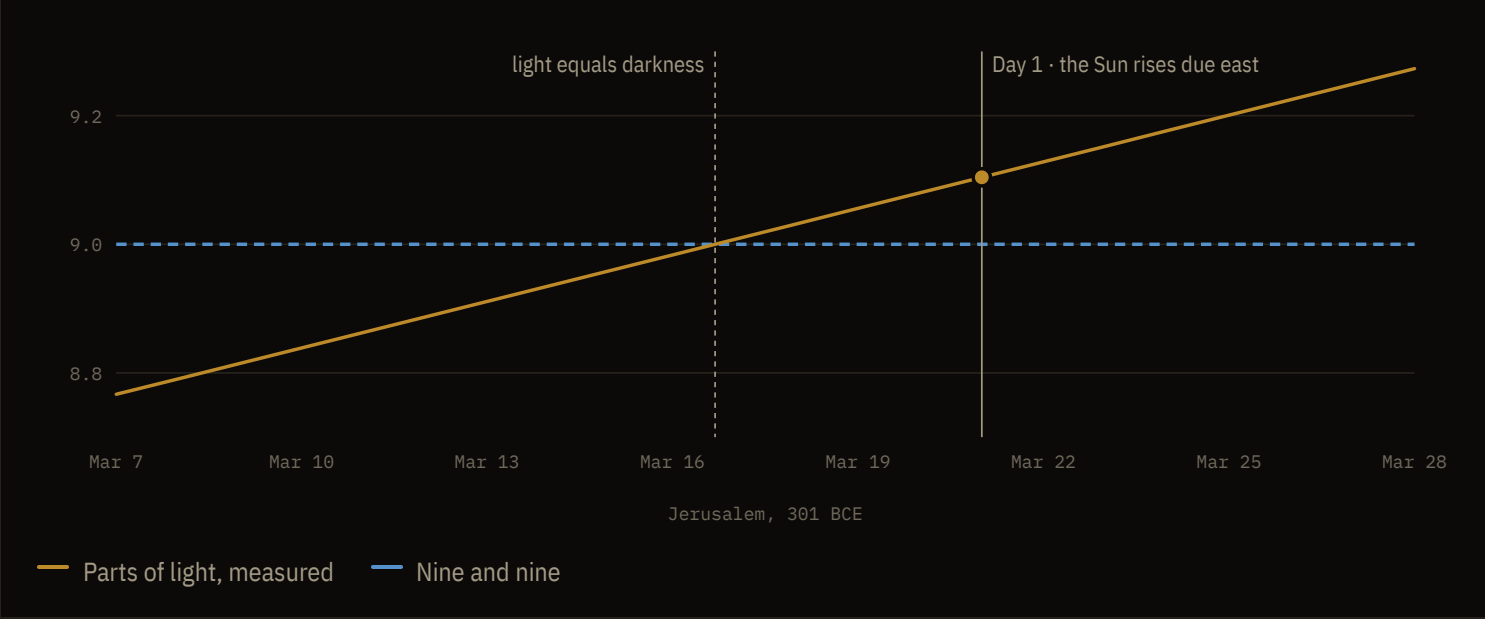
The Sun sets in six western gates, mirroring the six in the east. The midsummer sunrise and the midwinter sunset lie on one line through the observer; so do the midwinter sunrise and the midsummer sunset. These are the **solstitial lines**. Due east to due west is the **equinoctial line**.



VIII

Equal light before the first day

The eye sees light and darkness equal 4 days before the Sun rises due east. The Sun's upper edge appears before its centre, and the air lifts it into view, so the light always slightly outweighs the dark. The day of equal light is the **equilux**; the day the Sun rises due east is the **equinox**.



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Terms

GATE (PORTAL)	One of six spans of the horizon in which the Sun rises, and six in which it sets.
BEARING (AZIMUTH)	Direction around the horizon, in degrees from north: 90° is due east.
LATITUDE	Distance north or south of the equator, in degrees.
SOLSTICE	The Sun standing at the end of its path, in the sixth gate or the first.
EQUINOX	The Sun rising due east and setting due west.
EQUILUX	The day light and darkness are equal to the eye.
SOLSTITIAL LINE	The line from a midsummer sunrise through the observer to the midwinter sunset.

Computed with the Enoch clock's calculator (Swiss Ephemeris; sunrise at the Sun's upper edge, standard refraction, level horizon) for the year 301 BCE. Regenerate: `tools/primer/fetch_light_latitude.py`, `tools/primer/build_light_latitude.py`.