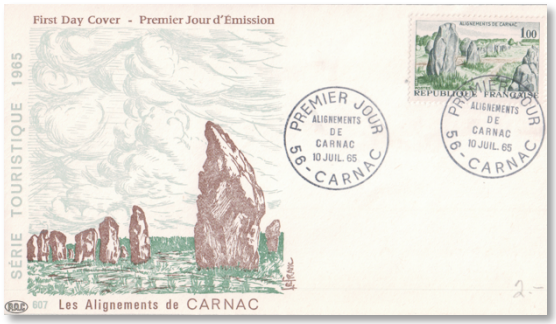
Ancient Watchers of the Skies

Mankind has watched the stars for tens of thousands of years. Even before settling into agricultural communities and city-states, humans have devised instruments and complex structures to watch the movements of the Sun, Moon, stars and planets. Many of these objects, built before about 100AD, and a few famous ancient astronomers, are shown on postage stamps.

Built at least 1000 years before Stonehenge, the stone alignment at **Carnac** in France has over 3000 standing stones. Some of these stone have astronomical alignments, but the site was likely used for religious and ceremonial purposes



Stonehenge in the UK is the most famous of the ancient stone alignments. The large standing stones and surrounding stones were used to mark the movements of the sun and moon. Built about 3000 BCE, Stonehenge was also used as a religious and ceremonial site.

In 1999 a spectacular artifact was discovered in Germany dating to at least 1600 BCE. The **Nebra disk**, as it is called, seems to portray phases of the moon and representation of stars, which may depict the Pleiades cluster. However, the object's discovery (by treasure hunters) was under suspicious circumstances and scholars are still debating what the representations mean.

The Babylonians were expert mathematicians and astronomers. They realized that planets moved among the fixed stars. The passage of Halley's comet was recorded on a **cuneiform tablet** in 164 BCE (the stamp has an erroneous date of 2349 BC).

The Egyptians determined the duration of the year based on the Sun. The Egyptian year was 365 days made up of 12 months with 30 days each (and 5 extra days). The **Great Pyramid at Giza** (c. 2600 BCE) is nearly perfectly aligned with the 4 cardinal points. The alignment was based on the Sun and the Fall equinox, according to recent research.

The fabulous **Inca Solar Observatory** at Cusco, Peru was built about 400 BCE. Along with other stone towers, the structures were used to observe sunrises and sunsets. The observatory also had religious and ceremonial functions.

In 1900, divers off the coast of Antikethera, Greece found a strange complex instrument from an ancient shipwreck. After restoration, the **Antikethera mechanism**, as it is called, is found to be a very sophisticated astronomical device, almost like an ancient analog computer. It can predict the rising and setting of the sun, moon, planets, and bright stars. Dated to 80-200 BCE, it is speculated that Hipparchus may have had a hand in its design and Archimedes was described as having a similar mechanism.

Four of the ancient worlds' most remarkable sky watchers: **Aristarchus of Samos** (310-230 BCE), **Archimedes of Syracuse** (287-212 BCE), **Hipparchus of Rhodes** (190-120 BCE), and **Zhang Heng** (China) (AD 78-139). Aristarchus developed the first heliocentric model; Archimedes invented several astronomical mechanisms; Hipparchus is considered the "father of astronomy" and compiled the first star catalog; Heng was Chief Astronomer and invented a water-powered armillary sphere.

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