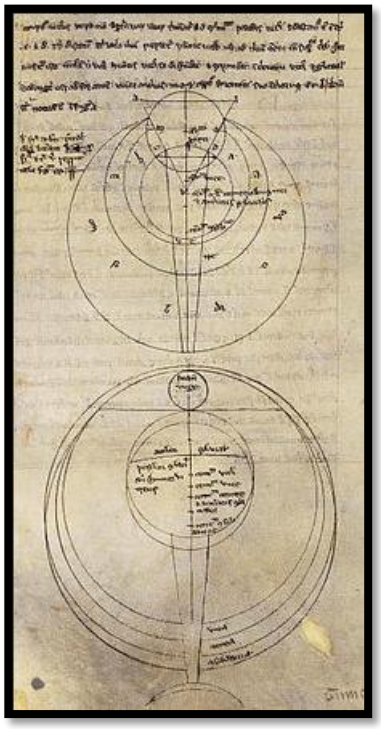
ATRIUM TOUR

ASTRONOMY

Roger Bacon studied astronomy as part of his broader interest in mathematics, optics, and the natural sciences. Bacon's work in astronomy included proposing a calendrical reform, studying the positions and sizes of celestial bodies, and exploring the practical applications of astronomy in everyday life.

Calendar Reform. Bacon believed the calendar of his time was being used incorrectly. The Julian Calendar was the system of dating followed from 46BC onwards. It was this calendar which added one extra day in every four years (giving us our 'leap year') because it had been calculated that the earth takes 365¼ days to complete its circuit around the sun, not a straight 365 days. Unfortunately, this calculation was not entirely accurate. In fact, the sun's circuit is not exactly 365¼ days - it's approximately 11 minutes less. This may seem a very small amount, but over a large number of years the figure builds up. As a result, it emerged that the Julian Calendar was over-correcting by around 8 days each millennium. Since Bacon was a religious man, he felt that they would be celebrating holidays like Christmas and Easter on the wrong dates. Bacon proposed a calendrical reform similar to the later Gregorian calendar, criticizing the Julian calendar for its inaccuracies. He suggested dropping one day every 125 years and ceasing the observance of fixed equinoxes and solstices. Bacon soon calculated a reduction of time that led to the Gregorian calendar 100 years later that subtracted nine days from the calendar.



Bacon's Modern Calendar

Practical Applications. Bacon emphasized the practical utility of astronomy, arguing that it had connections to daily life and could be used for navigation, timekeeping, and even predicting future events.

Empirical Approach: Bacon was a strong advocate for empirical observation and experimentation, which influenced his approach to astronomy and other sciences.

Influence of Optics. Bacon's work in optics, including his understanding of lenses and refraction, likely influenced his astronomical studies and his ideas about the potential of instruments like telescopes. In his Opus Majus, gave a proposal for a telescope:
"For we can so shape transparent bodies, and arrange them in such a way with respect to our sight and objects of vision, that the rays will be reflected and bent in any direction we desire, and under any angle we wish, we may see the object near or at a distance ..."

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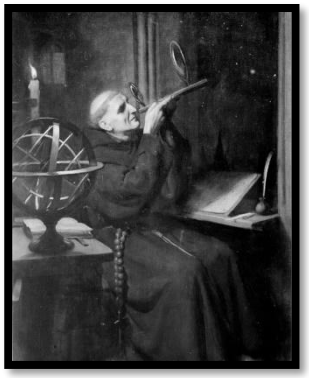
Study of Celestial Bodies. He explored the positions and sizes of celestial objects, contributing to a better understanding of the cosmos. It was reported that Bacon "*... did sometimes use in the night season to ascend this place (his study on Folly Bridge) environed with waters and there to take the altitude and distance of stars and make use of it for his own convenience...*" He believed that the Earth was a sphere and that one could sail round it. He estimated the distance to the stars coming up with the answer 130 million miles. He used a camera obscura (which projects an image through a pinhole) to observe eclipses of the Sun.



Bacon observing the stars

Interesting Fact: Bacon is a lunar impact crater that lies in the rugged southern highlands on the near side of the Moon - this crater was named after Roger Bacon. However, since it was chosen by the German astronomer von Mädler, the crater name became modified from Bacon to Baco. On the Moon, craters are named after deceased scientists, polar explorers, astronauts or cosmonauts.

Lunar Orbiter 4 image

Note: Lunar Orbiter 4 was a robotic U.S. spacecraft, part of the Lunar Orbiter Program designed to orbit the Moon after the three previous orbiters had completed the required needs for Apollo mapping and site selection.