

A cosmic nebula with a bright red core and blue stars. The nebula is a complex, swirling structure of gas and dust, with a prominent red core in the center. The surrounding gas is illuminated by a bright blue star, creating a vibrant blue glow. The background is a dark, starry field with numerous bright blue stars of varying sizes and colors. The overall scene is a stunning display of celestial beauty.

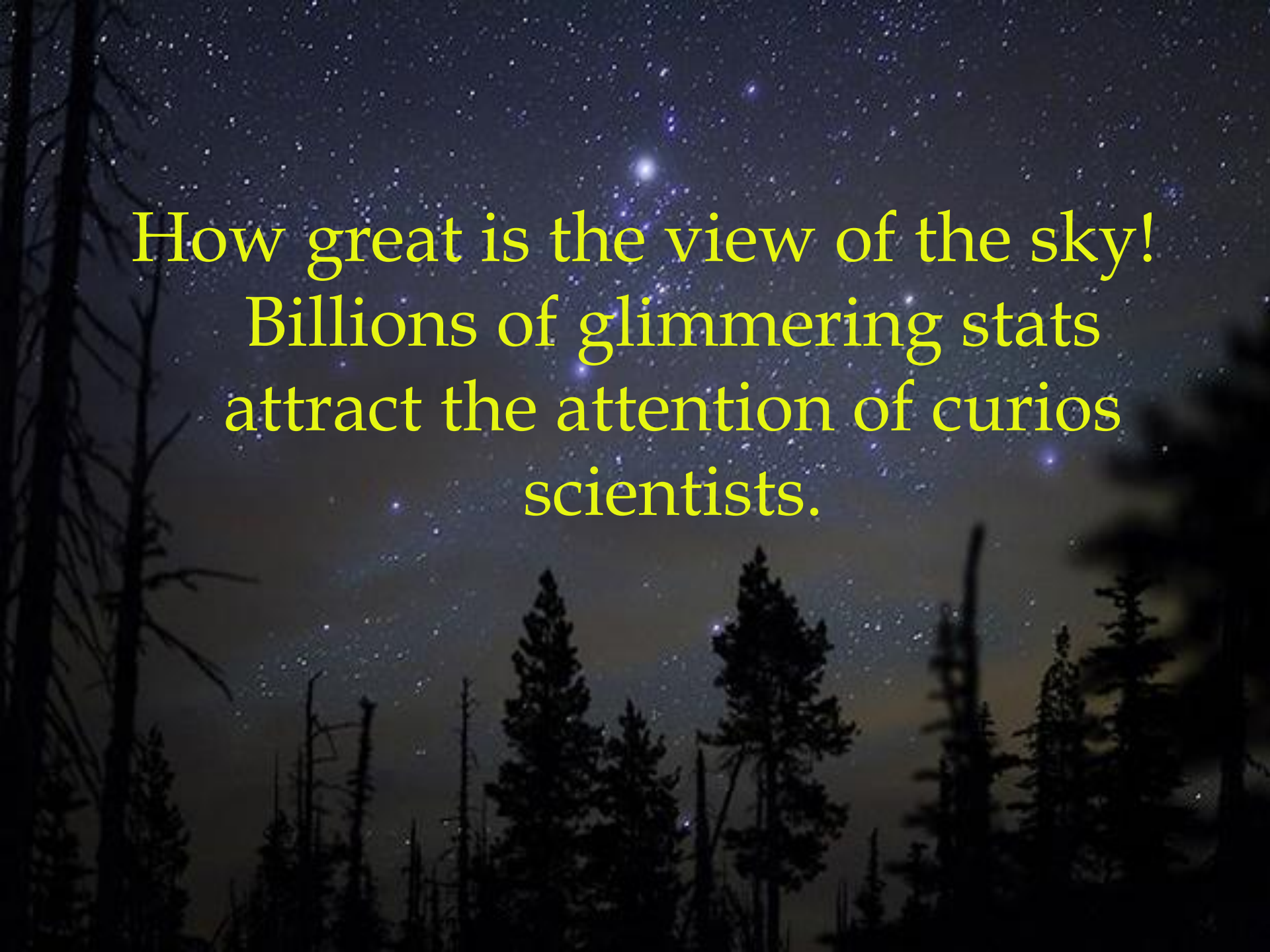
# Development of ideas about the universe from ancient times to the XX century.

Author: Murakhovskaya O.A.

"Any animal won't look at the heavens...

Only that ridiculous creature – human can waste the time gazing up into the sky".

Herbert Wells

A night sky filled with stars, with the silhouettes of evergreen trees in the foreground. The text is centered in the upper half of the image.

How great is the view of the sky!  
Billions of glimmering stars  
attract the attention of curious  
scientists.

For thousands of years people had been spending nights by the bonfire gazing up into the starry sky and then they noticed that stars were in the constant positions to each other.



**Why is it glowing  
dots do not fall  
every night,  
taking their place  
on the celestial  
sphere? Why is  
the sun and moon  
appear always on  
the one hand, and  
disappear on the  
other?**




**Some people just watched, others tried to give everything in its most authentic, in their opinion, the explanation. Later, people learned to write and thus leave their children for the observation that they did not start all over again.**



Man found out a few remarkable figures of constellations.



A night sky with the Milky Way galaxy visible, silhouettes of trees in the foreground, and a dark landscape below.

The first lunar  
calendar was already  
composed 2000 years  
ago.



Ancient people connected agriculture with the seasons which were dependent on the positions of stars, the Sun, the Moon...

The first ancient astronomers and scientists were priests.



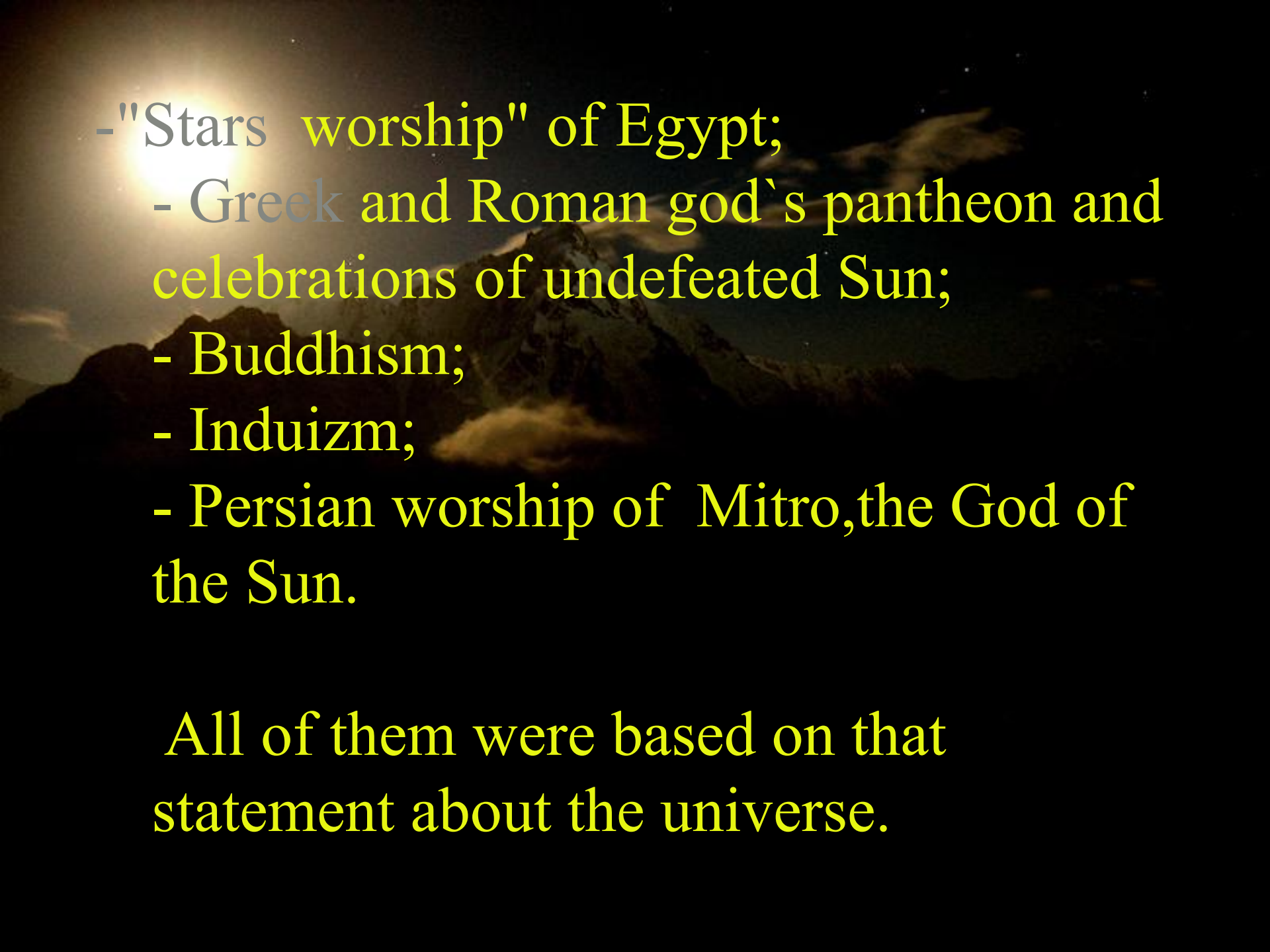
# Religious views

The main gods of all ancient religions of the world were inextricably connected with the Sun, planets and celestial phenomena.



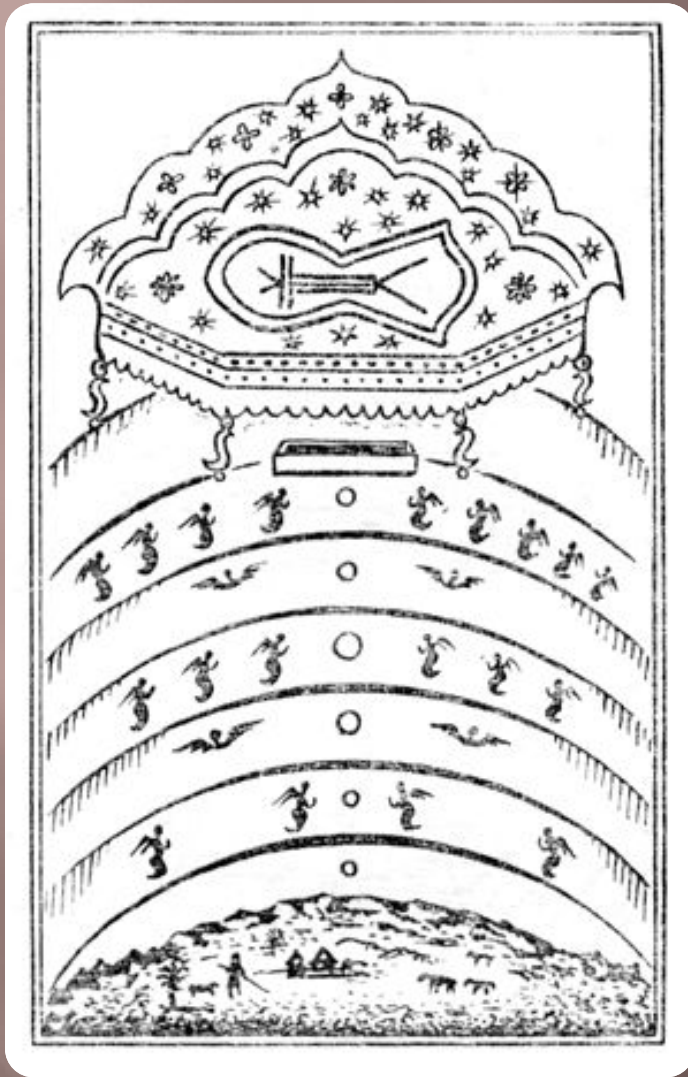
World religions are based on the statement that the universe is a living creature - the ancestor of everything alive. The visible in the sky planets are identified with the gods representing the definite spheres our life.



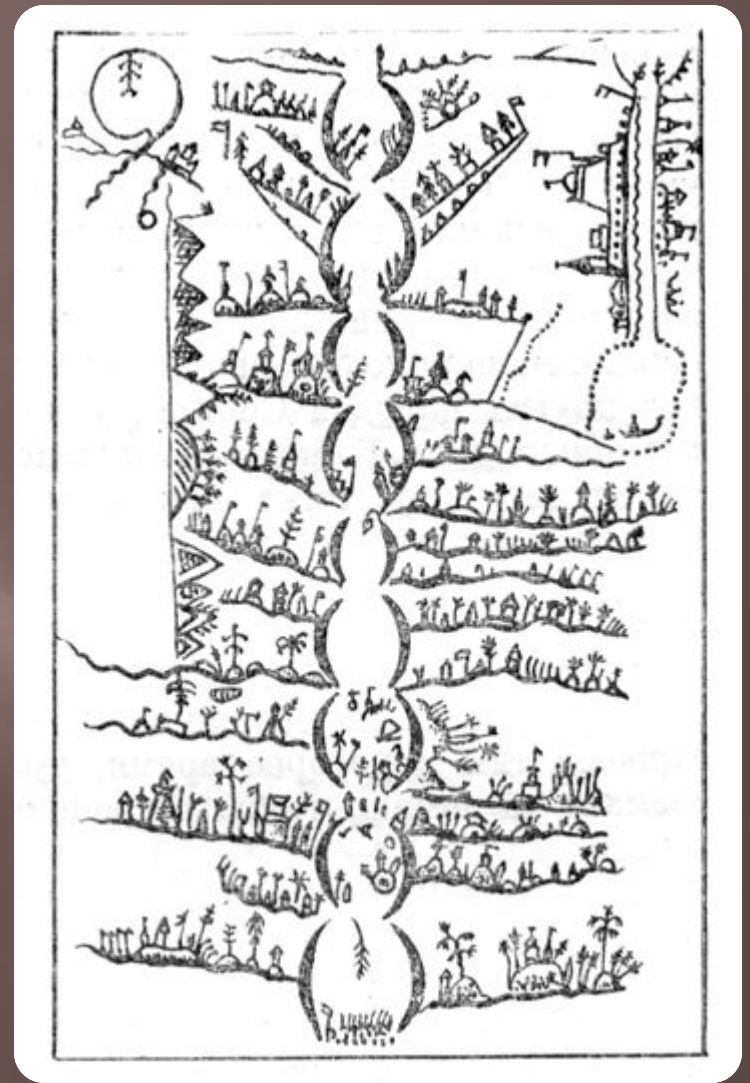
- 
- "Stars worship" of Egypt;
  - Greek and Roman god's pantheon and celebrations of undefeated Sun;
  - Buddhism;
  - Induizm;
  - Persian worship of Mitro, the God of the Sun.

All of them were based on that statement about the universe.

**The belief that the universe is like a multistage construction, common in the biblical, Babylonian and Islamic cosmologies.**

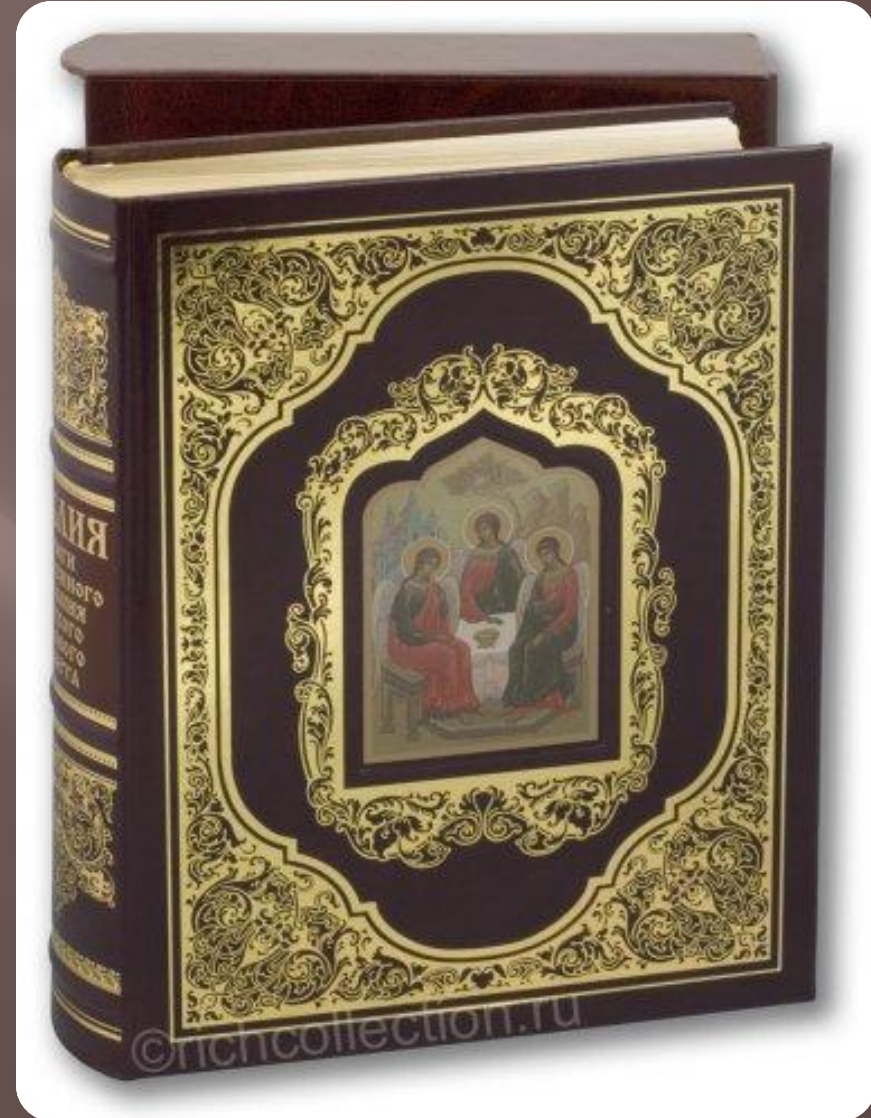


**Seven heavenly spheres of Muslim views**



**Drawing of the upper world Dayak tribe ngadzhu**

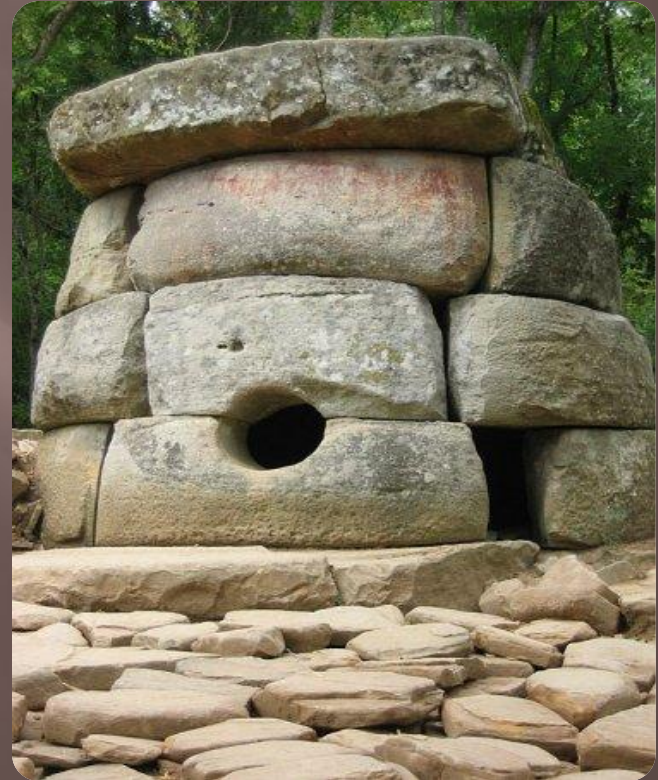
All of them were based on that statement about the universe. The annual change of the position of the Sun in the sky is mentioned in the Bible, in the Old Testament in the Iove`s book.



# The first Ancient Observatory – megaliths



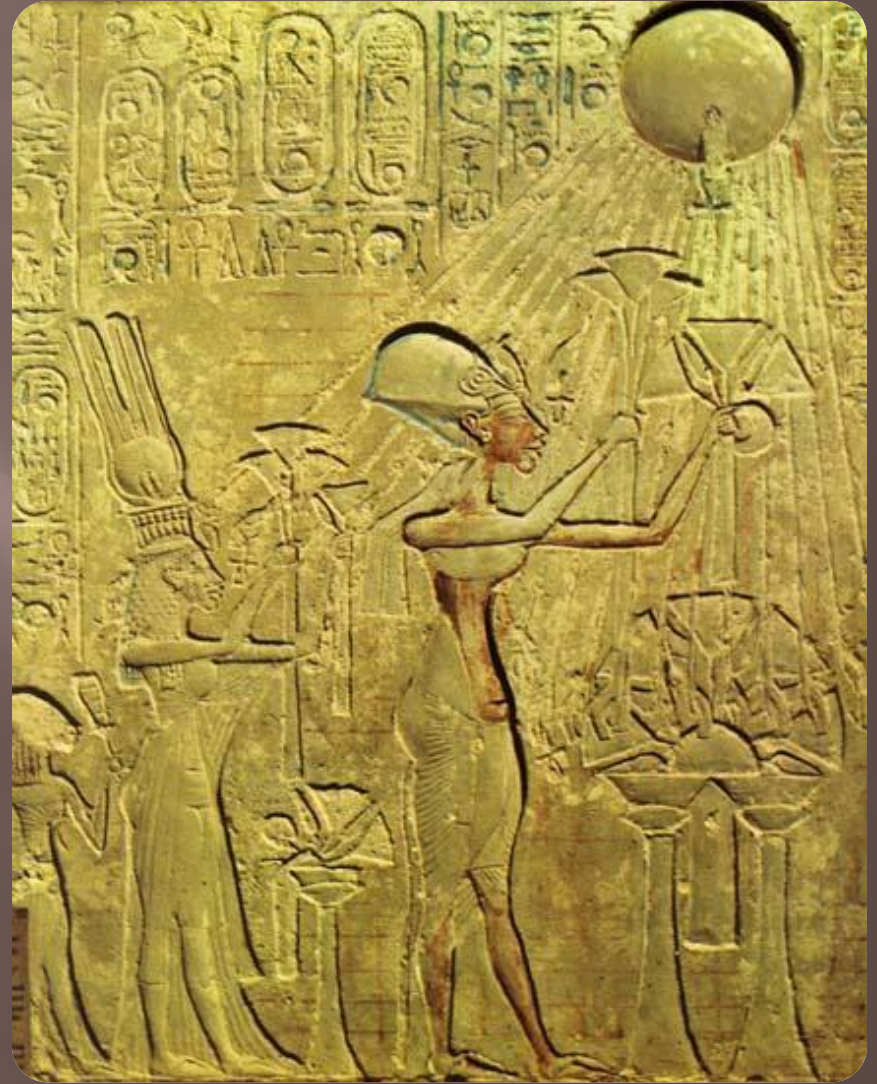
**Menhirs**



**Dolmen**



Sunworshippers  
believed they had  
to please the Sun  
if they didn't want  
it to stop to  
illuminating the  
Earth.



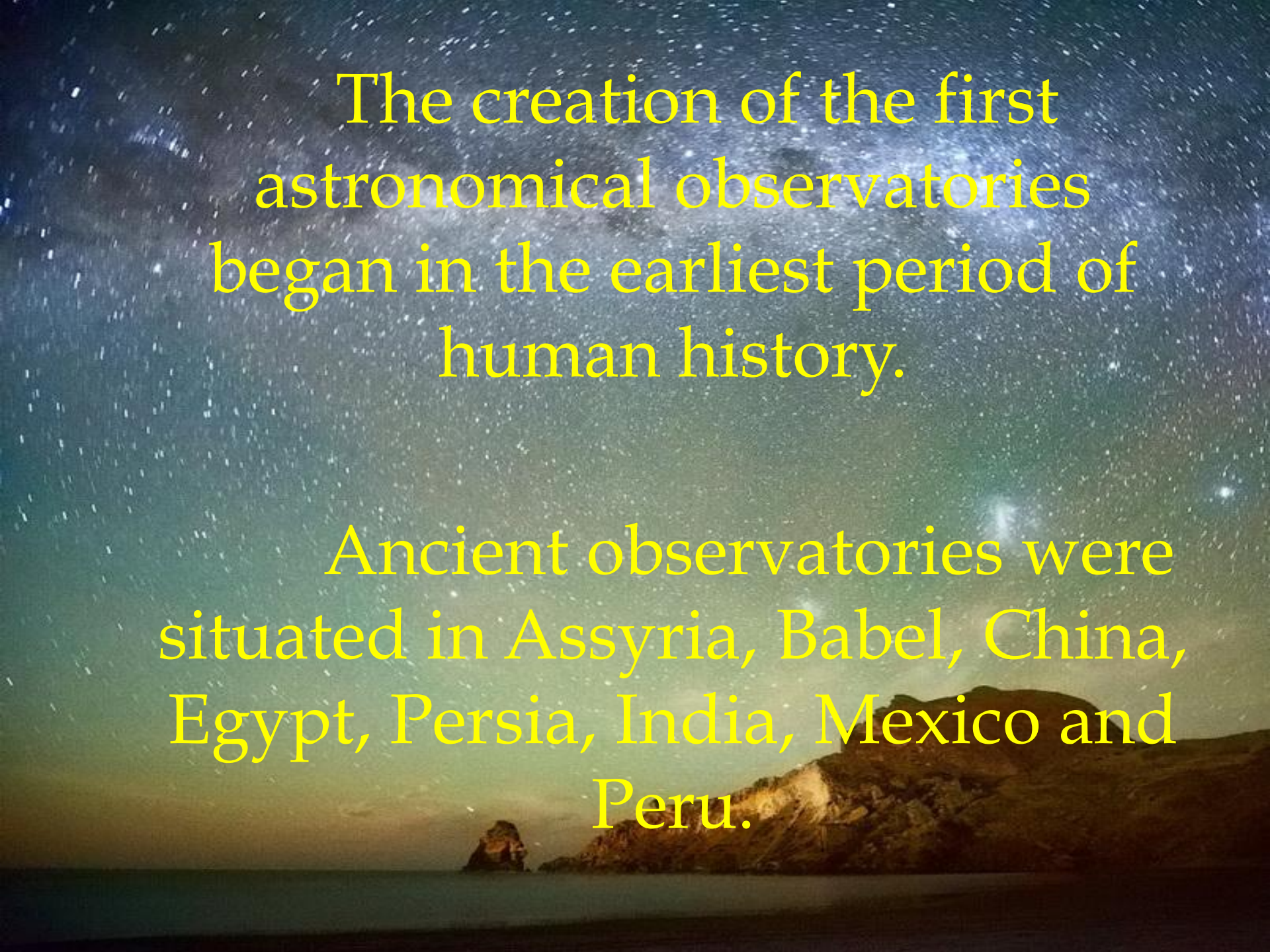
So appeared the first temples which had circle-shaped foundation. They played the role of the first calendar, clock and observatories.



Stonehenge, England, 4000 BC

A night sky with a full moon in the upper left quadrant. The sky is dark blue with scattered white stars and some wispy clouds. The text is overlaid in a yellow, serif font.

These temples were the  
first calendars  
and clock  
and observatories.



The creation of the first astronomical observatories began in the earliest period of human history.

Ancient observatories were situated in Assyria, Babel, China, Egypt, Persia, India, Mexico and Peru.

# Ancient Observatory



**"Horse-stone", Ukraine**

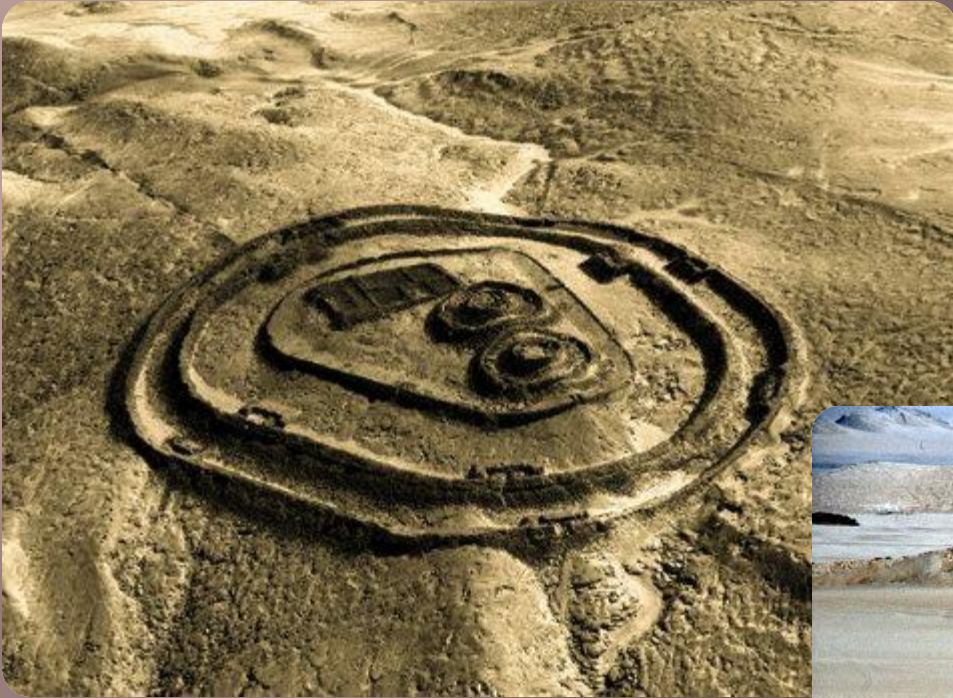
# Stownhadge



Instruments for measurement were huge stones



# Solar Observatory in Peru



# Observatory on Lake Ladoga





# Ancient Brazilian Observatory (2000 BC)



# Kochaski, Ecuador



# Arkaim



# Chichen Itza, Mexico



# Observatory Jantar Mantar, India



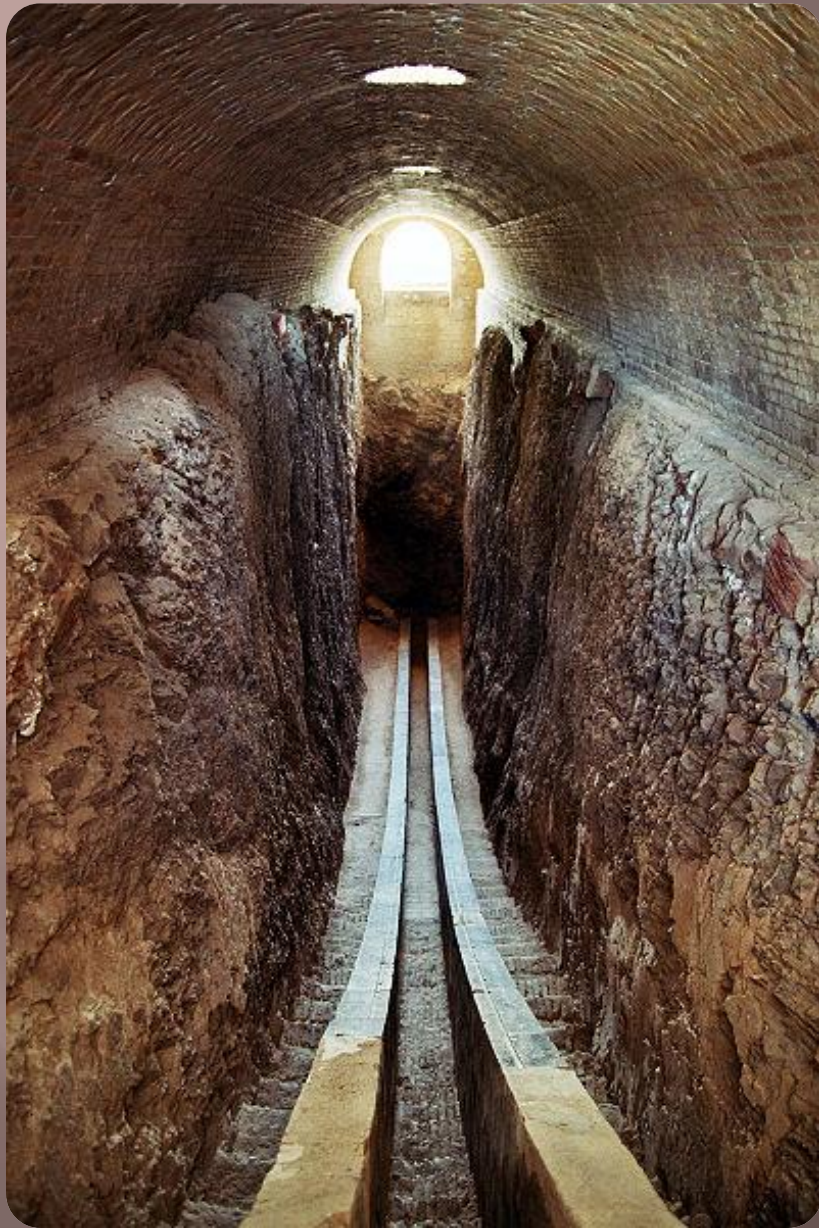
# Ancient Beijing Observatory in 1442



# Ulugbek Observatory



In the city of Samarkand (Uzbekistan) in the 15 th century astronomer and scientist Ulugbek creates the famous observatory. The scientist was sky catalog, which describes the 1018 stars.



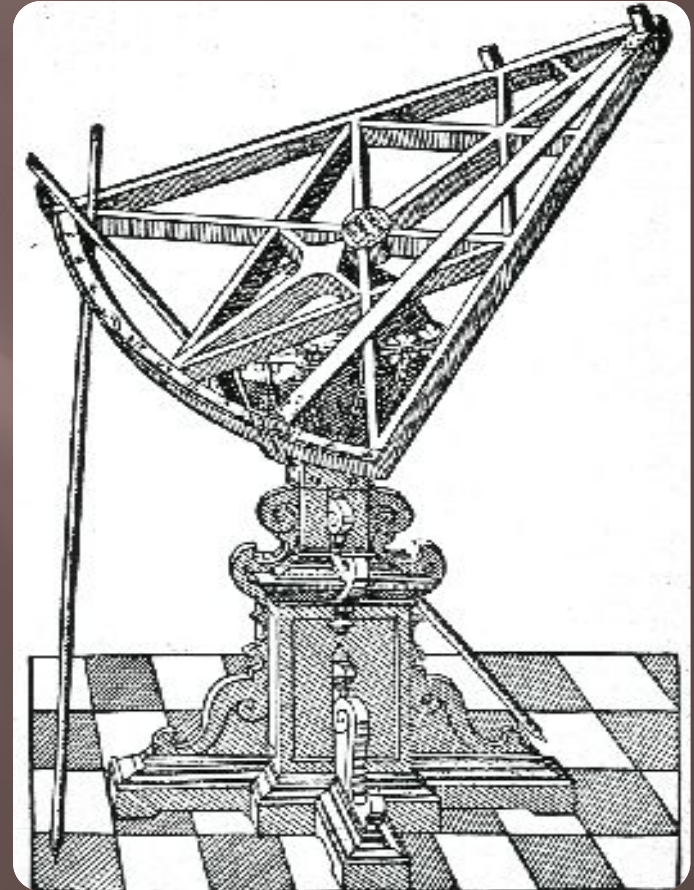
**The main instrument of the observatory - a giant (in a radius of 40 meters) **quadrant** to measure the angular distances of stars and other luminaries.**



Astronomers had used modern for that period of time devices until they invented a spyglass and a telescope.



Octant



Sextant

# The first observatory of the modern type were built in Europe since 13 century



State Observatory of Paris in 1667

Greenwich Observatory in England in 1675



By the end of 17th century the russian archbishop Kholmogorsky Afanasy used the bell-tower of the stone cathedral as an observation tower in 1692.



From 1700 to 1716 the Sukhareva tower had been serving as an observatory and school of mathematical and "sailor" sciences where Jacob Bruce worked, he was the brother-in-arms of Peter I. In the observatory there were spyglasses, sextants, quadrants and more than 2m in diameter globe of the starry sky brought from Holland.



# Pulkovo Observatory



The largest in Russia Pulkovskaya observatory was founded in 1839. It was equipped with most perfect instruments in particular with the biggest in the world 38-cm refractor. The main directions of work are the definitions the stars coordinate and celestial constants such as precession, nutation, aberration and refraction as well as discovering and measuring of double stars.

# AS IS ENORMOUS CONTRIBUTION TO THE DEVELOPMENT OF SCIENCE OF THE STRUCTURE OF THE UNIVERSE OF GREEK AND ROMAN SCHOLARS

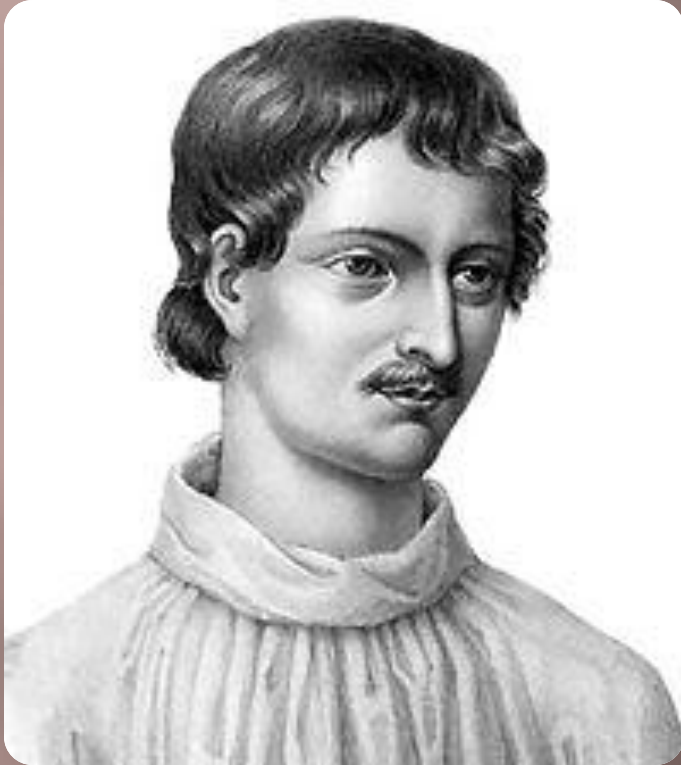
- Anaxagoras (the birth of universe – «onest mixture»),
- Pythagor (divided the mathematical harmony of space)
- Aristotel (the person «stopping the Earth»)
- Fales Miletskii,
- Platon
- Archimedes (measuring of sky)
- Evaox (the first theory of planets` motion)
- Eratosfen (the measurement of the Earth)
- Klavdii Ptolemei.

# Johannes Kepler



formulated 3 laws of the planetary motion and the law of planetary kinematics; he derived the «Kepler`s equation» for determining the position of celestial bodies.

# Dzherdano Bruno



worked out the theory  
about 5 elements and  
supposed possibility of the  
life on other planets.



# Tycho Brahe



made exact solar tables and measured the year length with the mistake less than a second; observed ultranew star in the Cassiopeia constellation; stuck to idea of extraterrestrial origin of comets, recognised the slope change of the moon orbit to ecliptic.

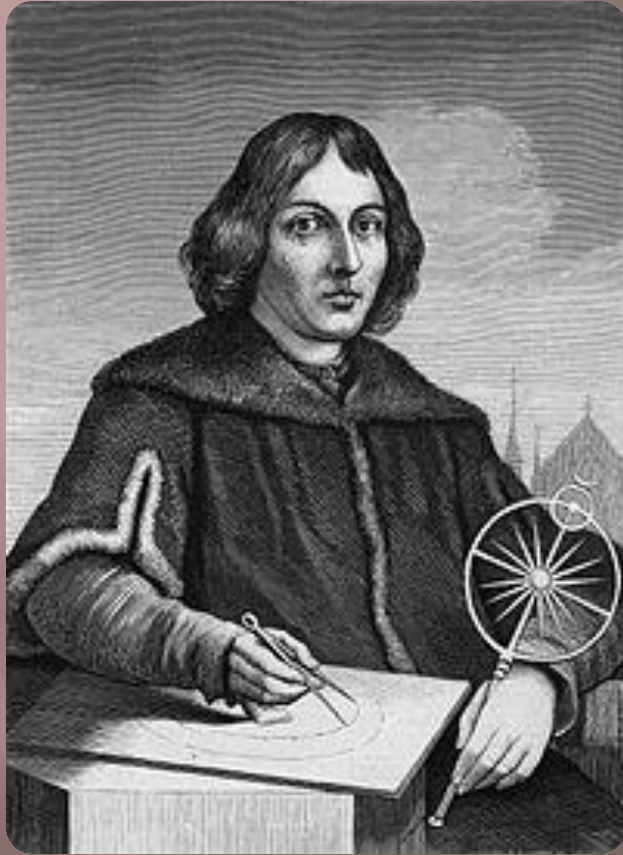
# Galileo



In 1608, Galileo and his simple telescope brought the heavens into focus, setting the stage for modern astronomy.

# Nicolaus Copernicus

was the author of the heliocentric system and began the first scientific revolution



# Edmund Halley



discovered the large Jupiter and Saturn inequality; derived orbits of 24 comets; discovered stars` motion and explored nebulars.

# Lomonosov, Mikhail Vasilyevich



Discovered the atmosphere and a luminous rim on Venus; built the new optic devices for celestial observations.

# Struve, Vasily Yakovlevich



was an active participant of Pulkovskaya observatory foundation, determined the system of astronomical constants and aberration of light constant; he well-founded the conclusion about existence and the value of the interstellar mergence of light; composed 2 two catalogs of double stars.

# Bredikhin Fedor Aleksandrovich



systematically observed the Sun's  
chromosphere, took photos of  
sunspots; investigated the surface of  
the Moon, Mars and Jupiter;  
explored the chemical composition  
of gas nebulas.

# Konstantin E. Tsiolkovsky



was the founder of modern space exploration and rocket technology; developed rocket schemes for distant action and rockets for interplanetary voyages, worked out the theory of the motion of composite multistage rockets; he was the first man, who developed the idea about artificial satellite Earth.



# Sergei Pavlovich Korolev



was the founder of aerospace technology and the USSR rocket weapon production; the founder of practical space. He was the «father» of practical astronautical science. Korolev headed the creation of the first soviet strategic rocket and was the top designer of the first in the human history artificial satellite of the Earth.



**The new era of space exploration began when the first artificial satellite of the Earth was launched into space.**

# Used internet resources

- ▣ [www.brightstarslarning.com](http://www.brightstarslarning.com)
- ▣ [www.narod.ru](http://www.narod.ru)
- ▣ [www.nashivkosmose.ru](http://www.nashivkosmose.ru)
- ▣ [www.37-77.ru](http://www.37-77.ru)
- ▣ [www.evolutsia.com](http://www.evolutsia.com)
- ▣ [www.for-ua.com](http://www.for-ua.com)
- ▣ [www.holidaym.ru](http://www.holidaym.ru)
- ▣ [www.ufanet.ru](http://www.ufanet.ru)
- ▣ [www.uakub-b.narod.ru](http://www.uakub-b.narod.ru)
- ▣ [www.poedem.ru](http://www.poedem.ru)
- ▣ [www.kabar.ru](http://www.kabar.ru)

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- [www.what-this.ru](http://www.what-this.ru)
  - [www.indostan.ru](http://www.indostan.ru)
  - [www.hellmix.ru](http://www.hellmix.ru)
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  - [www.moonlight-a.ya.ru](http://www.moonlight-a.ya.ru)
  - [www.pfotosight.ru](http://www.pfotosight.ru)
  - [www.forum.kinozal.tv](http://www.forum.kinozal.tv)
  - [www.yandex.ru](http://www.yandex.ru)
  - [www.wikipedia.org](http://www.wikipedia.org)
  - [www.obkom.com](http://www.obkom.com)