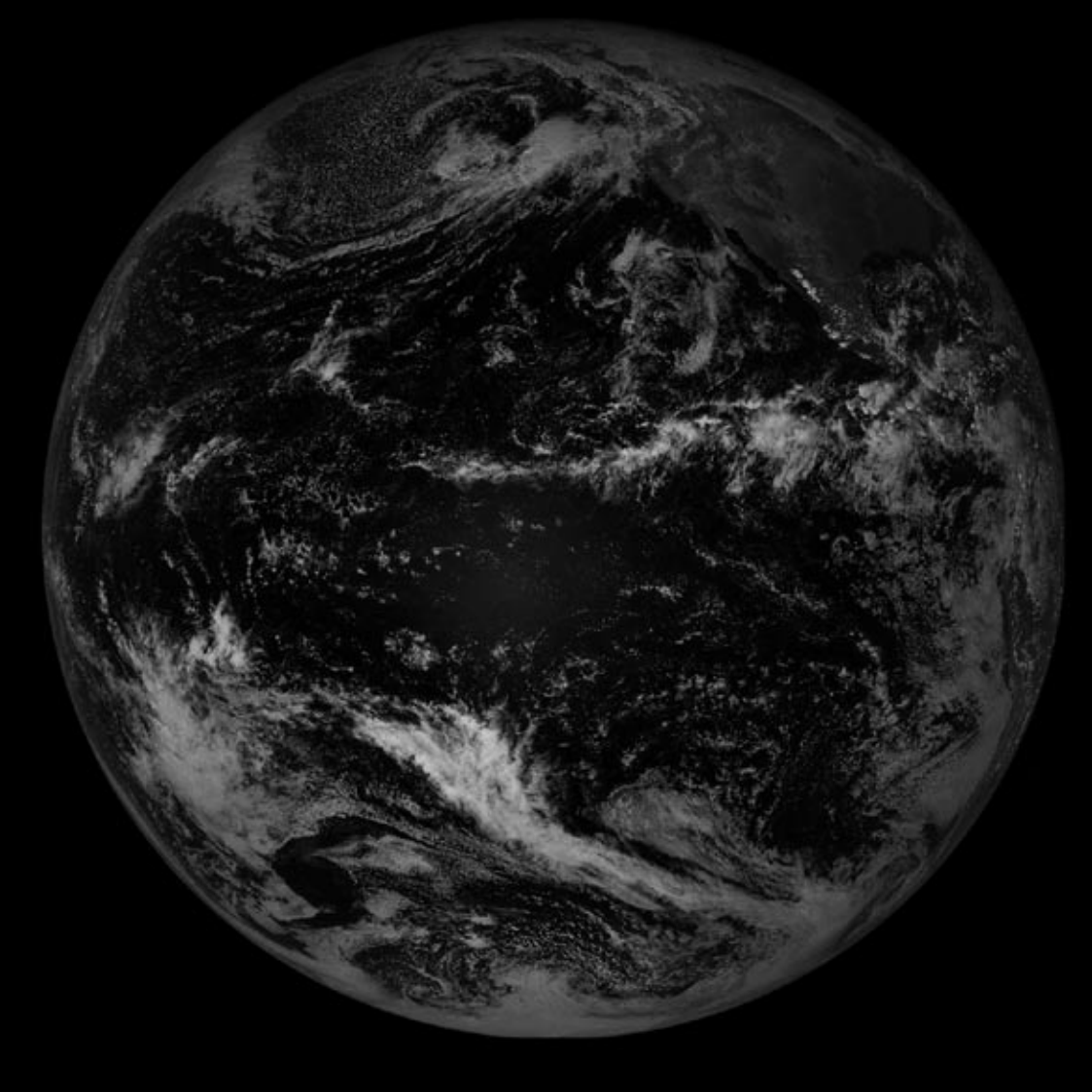

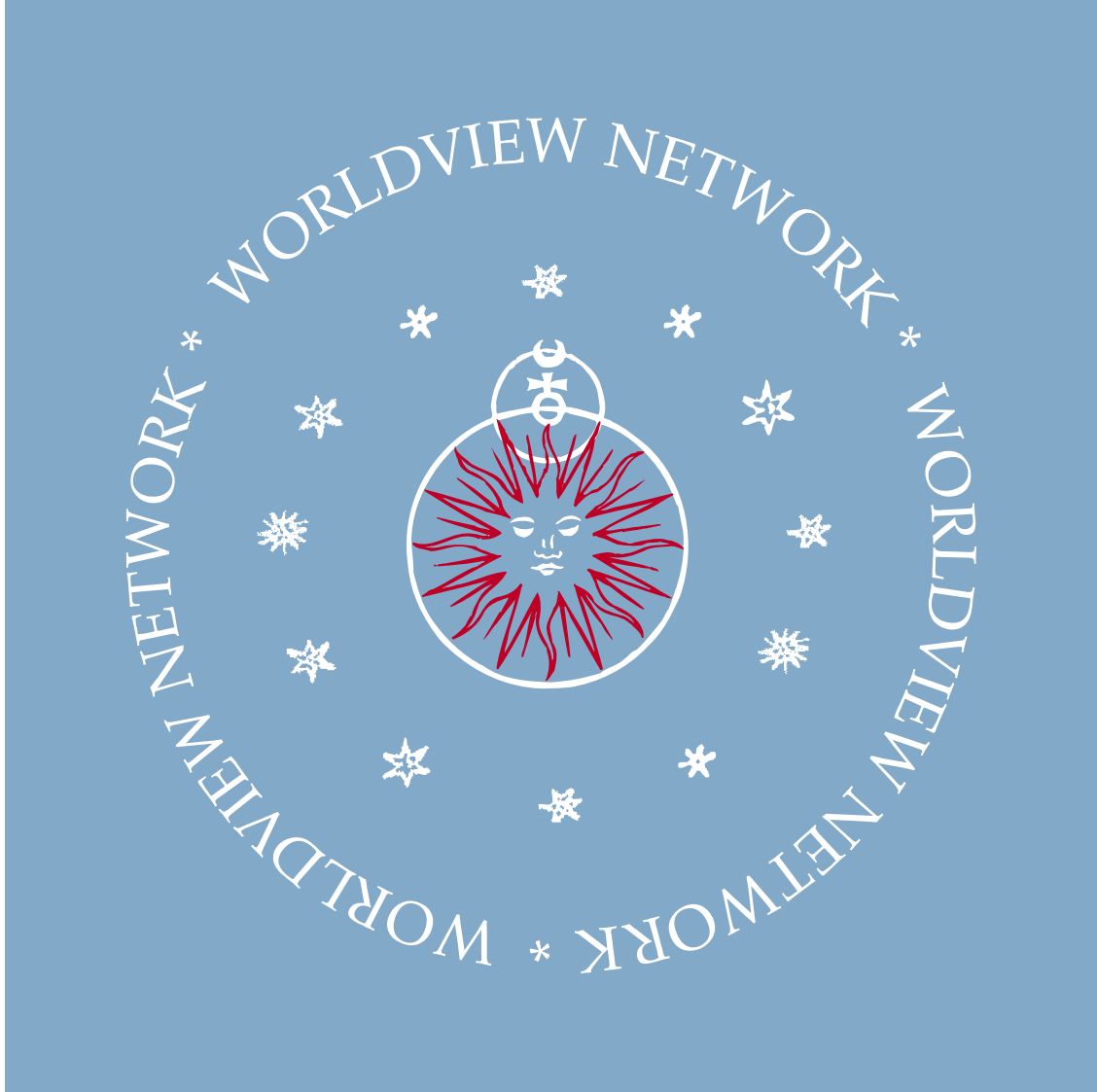
WORLDVIEW NETWORK * WORLDVIEW NETWORK * WORLDVIEW NETWORK *

Our Modern World View

During the 16th and 17th century, five European astronomers and scientists - Copernicus, Brahe, Kepler, Galilei and Newton – laid the foundation for the creation of the modern world view. Their pioneer discoveries broke the lock that human thought had been caught in, through the scholastic dominance at the medieval places of learning. Because these scientists dared to seek out new grounds, study nature as it really was, and used empirical methods, they created a base for what was later to be known as the scientific revolution. The five great astronomers lived and worked in different parts of Europe, and partly during different periods of time. But they had good knowledge about each other's work, and based their findings on the progress of their predecessors.

The story of how these scientists' work forged the path towards the formation of the modern world view is a fundamental part of the common European cultural heritage. The scientific world at this time was small, and therefore had to be a trans-European matter. A basic education was provided by studies at different universities around Europe. There were few experts within the same field, and contacts between them had to be maintained across the continent via a comprehensive exchange of letters. The birth of the modern world view is a geographic odyssey from Frombork in Poland via the island of Ven in the sound between Sweden and Denmark, the 16th century's cultural and political major cities Prague and Florence to the culmination in England's Woolsthorpe and Cambridge.

The World View Network has been formed by the institutions that exhibit and hold in trust relics from Nicolaus Copernicus, Tycho Brahe, Johannes Kepler, Galileo Galilei and Isaac Newton. The project's overall aim is to clarify and focus on the story of how our modern world view was created through the co-operation between a number of scientists from different parts of Europe, and how this world view changed science, philosophy, culture, politics and everyday life.

The targets of this project will be met through the following activities:

- *Establishing co-operation between science historians who carry out research in this area.*
- *Making an inventory of the memorials that have been left by the five scientists.*
- *Exchanging experience around pedagogy and techniques for the presentation of science history for the general public.*
- *Working out a plan for the development of each memorial through joint workshops together with selected experts.*
- *Designing web portals and printed documents for a joint presentation of the memorials and the history that is a theme for this project.*
- *Production of new exhibitions for the respective national partners*
- *Producing a touring exhibition with the theme of how the modern world view has emerged.*

Worldview Network is co-ordinated by Landskrona Cultural Department
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www.worldviewnetwork.org

Mikkola Kopernikka Muzeum in Frombork, Poland

Nicolaus Copernicus Muzeum in Frombork, founded 1948, at the place where Copernicus lived and his famous word was written. Museum is situated on the Cathedral Hill in the former Bishops' Palace. Buildings and exhibitions on the Cathedral Hill: Cathedral, Bishops' Palace, Belfry, Copernicus Tower, Planetarium.
Outside the Cathedral Hill: Hospital of the Holy Ghost, Observatory on the Crane Hill.

Opening hours:		May-Sept	Oct-April
Cathedral	Monday-Saturday	9.30-17.00	9.00-16.00
Museum, Palace	Tuesday -Sunday	9.30-16.30	9.00-16.00
Belfry	Monday-Sunday	9.30-17.00	9.00-16.00
Copernicus' Tower	Tuesday -Saturday	9.30-17.00	on request

Planetarium is open every day. Observatory on request.
Address: Muzeum Mikołaja Kopernika we Fromborku, ul. Katedralna 8, 14-530 Frombork.
Tel. + 48 55243 72 18, frombork@softel.elblag.pl, www.frombork.art.pl

Tycho Brahe Museum at Ven, Sweden

The Tycho Brahe museum is situated on the island of Ven in the sound between Sweden and Denmark at the place where Tycho Brahe had his famous castle and observatories. The heritage consists of museum, the reconstructed renaissance garden and the underground observatory Stjärneborg.
The museum is open daily between Easter and the end of September. Ferries to the island from Landskrona on the Swedish side.
Address: Landskrona kulturförvaltning, Slottsgatan, SE-261 31 Landskrona. +46 (0)418 47 05 82
info@tychobrahe.com, www.tychobrahe.com

Narodni Technikka Muzeum in Prague, Czech Republic

The National Technical Museum in Prague was founded 1908. With its collection of 55,000 three-dimensional exhibits, it ranks among the oldest and the largest technical museums in the world.
In its permanent exhibitions, the museum houses collections from the fields of transport, mining, metallurgy, astronomy, time measuring, photography and film technique and acoustic.
Opening times: Tue-Sun 9-17
Address: Národní technické muzeum, Kostelní 42, Praha 7
+420 220399111
info@ntm.cz, www.ntm.cz

Istituto e Museo di Storia della Scienza in Florence, Italy

The Istituto e Museo di Storia della Scienza di Firenze was founded in 1927 on the initiative of the University of Florence. It is located in the Palazzo Castellani, in the heart of historic Florence. The Istituto carries out an important research programme and possesses an ample library. The collection of the Museum includes around 5000 original items, divided into two fundamental categories: the apparatus and scientific instruments of the Medici and the Lorenese collection of instruments and didactic and experimental devices.
Opening times: Summer: 1 June-30 September
Monday, Wednesday, Thursday and Friday: 9,30-17,00; Tuesday and Saturday 9,30-13,00
Winter: 1 October-31 May
Monday, Wednesday, Thursday, Friday and Saturday: 9.30-17.00, Tuesday: 9.30-13.00
Address: Istituto e Museo di Storia della Scienza, Piazza dei Giudici, 1 – 50122 Firenze, Italy
Telephone:+39 055 265311; Automatic Information Systemactive 24-hours a day:+ 39 55 293493
Fax: +39 055 2653130
imss@imss.fi.it, http://www.imss.fi.it

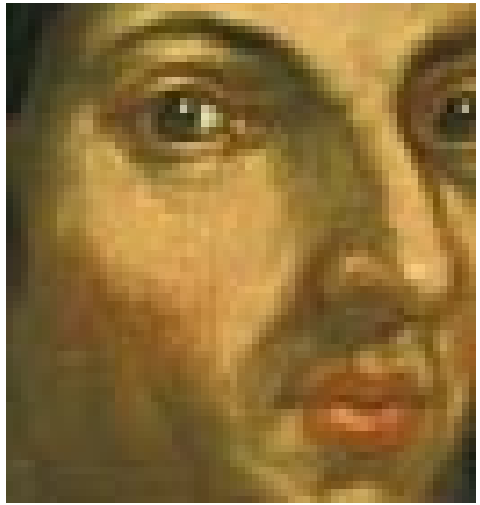
Woolsthorpe Manor in Lincolnshire, England

A small 17th-century manor house, the birthplace and family home of Sir Isaac Newton, who formulated some of his major works here during the Plague years (1665–67). An early edition of his Principia is on display. The orchard includes a descendant of the famous apple tree. Science Discovery Centre and exhibition.
The property is open from March to October (for more precise information see home page).
Address: 23 Newton Way, Woolsthorpe-by-Colsterworth, nr Grantham, NG33 5NR
+44 1476 860338
woolsthorpemanor@nationaltrust.org.uk, http://www.nationaltrust.org.uk/main/

Nicolaus Copernicus was born in Toruń on February 19th, 1473. Thanks to his uncle's care, Nicolaus received a well-grounded education at the best universities. He began his university education at the Kraków Academy – The Jagiellonian University. Copernicus left the Kraków academy with a general education of liberal arts and a love of astronomy. Later he studied law and medicine in Italy and additionally studied mathematics and astronomy. He studied in Bologne and in Padua.

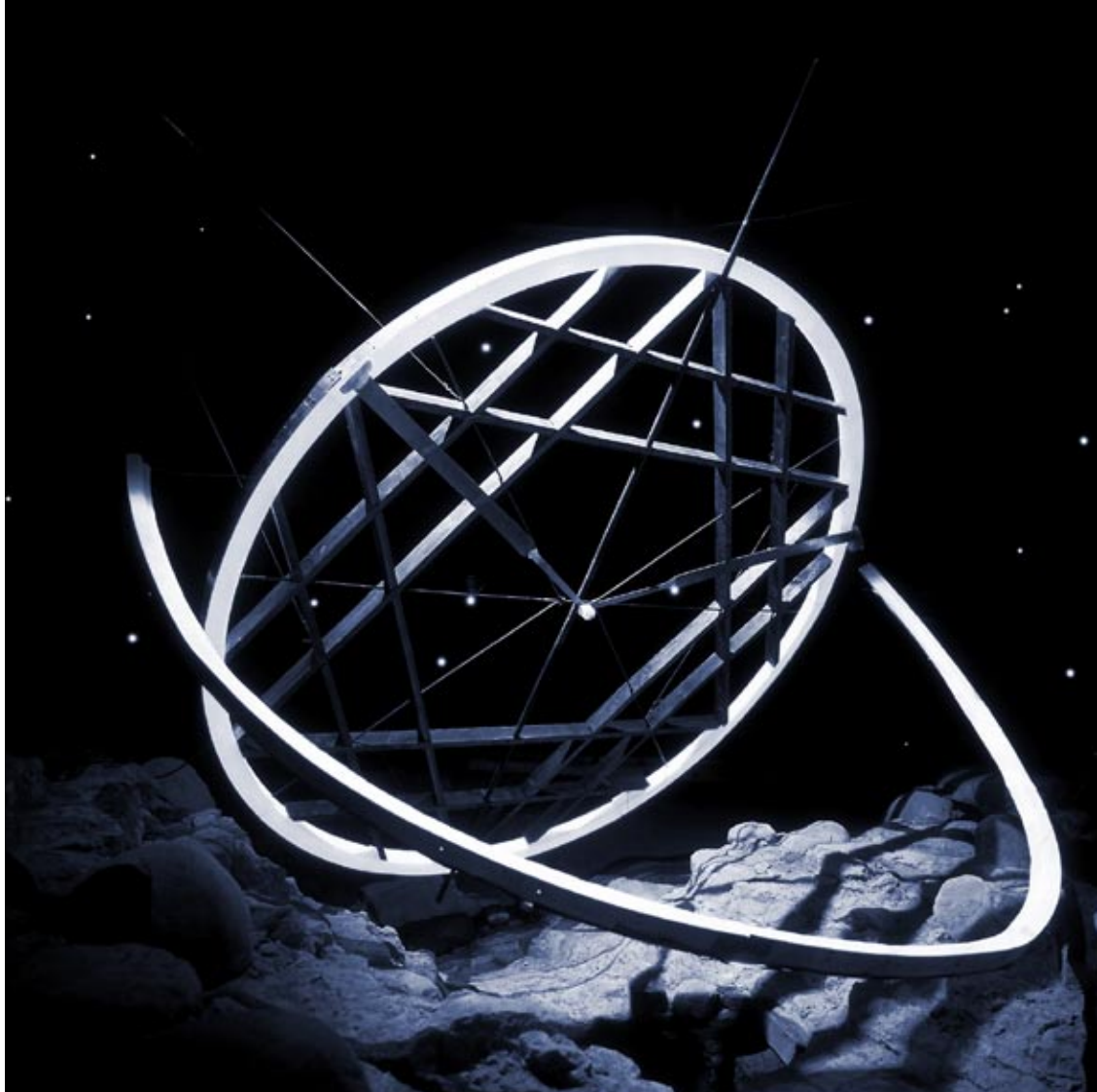
In 1497 he became a member of the Chapter of Warmia. In 1509 Copernicus moved to Frombork. He took various posts during his over 30 years residence in Warmia. Despite his many duties, he always found the time to observe the heavens, to calculate and write down his scientific masterpiece, which described a new view of the world's structure and ensured its author an important place in science. The instruments he used for his research, he made himself out of wood, based on an antique instrument design. He placed all of the instruments on an even and especially levelled tile called the pavimentum in the gardens next to the canonry. He finished his main masterpiece "De revolutionibus" in 1530 but for a long time he could not decide on whether or not to have it published. A theory, which claimed that the Earth was just one of the planets circling about the Sun, placed Copernicus in opposition to other astronomers who shared traditional views of Ptolemy and against the Church itself.

Copernicus died in May of 1543 and was buried under the floor of Frombork's Cathedral. "De revolutionibus" was published after his death in 1543 in Nuremberg. One of the Copernicus instruments, the paralactic triangle, was taken by Tycho Brahe.

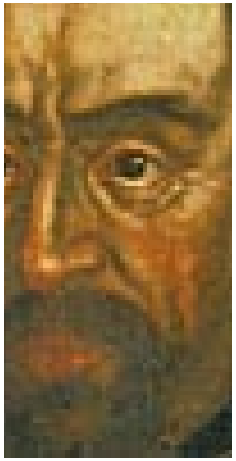


Tycho Brahe (1546–1601), who was a member of one of the most influential families in the Danish kingdom, received his basic education at different German universities. His interest in astronomy was initiated during his studies. He discovered that the tables of planetary movement that were available at that time were unreliable, and he decided to devote his life to developing and improving astronomical observations. He was an ingenious instrument innovator, and together with his assistants, he carried out an observation scheme of star positions and planet orbits, that was to be unrivalled in scope and precision for a very long time.

Through his observations of a supernova in Cassiopeia in 1572, and a comet in 1577, he could establish that the star sphere was changeable, which highlighted the limitations of the Aristotelian world view. On the island of Ven in the sound between Denmark and Sweden, Tycho Brahe created his legendary castle and observatory. He worked here, together with students and researchers from a number of different countries with empirical research in a number of different fields. During his final years, he worked as a court mathematician at the Holy Roman Empire in Prague. His final assistant, Johannes Kepler, carried on his observations and, using these as a basis, could develop the astronomical theory to a new level.



Johannes Kepler 1571–1630, came to Prague at the end of January 1600 at the invitation of Tycho Brahe. He was 29, and in Graz, where he had been living up to then, did not feel safe for religious reasons (he was a Protestant). He was Tycho's assistant, later the imperial mathematician at the court of Rudolf II in Prague. He worked in Bohemia in the years 1600–1612, then left to be a teacher at the Estates Gymnazium in Linz in Upper Austria, where he worked from 1613 to 1627. He spent the last three years of his life in the service of Albrecht von Wallenstein in Prague and in Zahán.



During his first years in Prague, he and his family lived in a house in Pohořelec with Tycho, but later moved to a house that no longer exists in what is now Charles Square. From 1604 Kepler lived in Ovocný trh, and his last home in Prague was at house no.188 in Karlova ulice, in the tower of which he had his observatory. He had a busy correspondence with the Italian astronomer, Galileo Galilei, so he learned about his observations by telescope. In his treatise Dioptrice he described a new type of telescope, which became so established in astronomy that it is still in use today and bears Kepler's name.

Kepler based his scientific activity on the notion that geometry is essential for understanding and explaining the world, and applied this premise in a heliocentric image of the cosmos, which is the content of his first major work, Mysterium cosmographicum (1596). After he arrived in Bohemia, he had first of all to evaluate mathematically data on Tycho's observations of Mars. His work led to the formulation of the first two laws of the orbit of planets in the solar system, which were published in his treatise, Astronomia nova (1609). The third law of orbit he formulated on 15th May 1618 in Linz and published in his treatise, Harmonices mundi (Linz 1619). In 1627, three years before his death, Kepler succeeded in completing the new planetary tables on which he had started to work with Tycho and which were entitled Rudolfíne tables in the emperor's honour.

Galileo Galilei was born in Pisa on 15 February 1564, son of Vincenzo Galilei (1520-1591), known for his musical studies, and Giulia Ammannati (1538-1620). He studied in Pisa, where he held the mathematics chair from 1589 to 1592. He then moved on to the chair of mathematics in Padua, where he remained until 1610. In the Padua years he made studies and experiments on mechanics, built the thermoscope and invented and made the geometrical and military compass. In 1594 he obtained the patent for a machine for lifting water. In 1609 he improved the telescope, with which he performed the observations that led him to the discovery of Jupiter's moons. In 1610 he was appointed Mathematician and Philosopher to the Grand Duke of Tuscany. He studied the peculiar appearances of Saturn and observed the phases of Venus. In 1611 he went to Rome, where he joined the Accademia dei Lincei and observed the solar spots. In 1612 opposition arose to the Copernican theories, which Galileo supported.

In 1614, from the pulpit of Santa Maria Novella, Father Tommaso Caccini (1574-1648) denounced Galileo's opinions on the motion of the Earth, judging them dangerous and close to heresy. Galileo then went to Rome to defend himself against these accusations, but in 1616 he received an admonition from Cardinal Roberto Bellarmino (1542-1621) warning him against holding and teaching Copernican astronomy, because it was contrary to the accepted understanding of the Holy Scriptures. In 1622 he wrote the Saggiatore, which was approved and published in 1623. In 1624 he improved the first known example of the microscope. In 1630 he went to Rome again to press for a license to print the Dialogo dei Massimi Sistemi, published in Florence in 1632. In October 1632 he was ordered to appear at the Holy Office in Rome. The court issued a sentence of condemnation and forced Galileo to abjure. He was kept in isolation in Siena and finally, in December 1633, he was allowed to retire in his villa in Arcetri. From 1634 he was deprived of the support of his beloved daughter, Sr. Maria Celeste (1600-1634), who died prematurely. In 1638, when he was almost totally blind, the Discorsi e dimostrazioni intorno a due nuove Scienze was published in Leyden. He died in Arcetri on 8 January 1642.

The first evidence of Galileo's espousal of heliocentrism came in a letter to Kepler of 1597, in which he described himself as a long-standing Copernican. His astronomical discoveries of 1610, achieved thanks to the telescope, thus came as a confirmation of earlier-held beliefs. With the Sidereus Nuncius, Galileo inaugurated modern cosmology. He showed that the Moon had Earth-like valleys and mountains; that the Milky Way is not a denser part of the heavens, but an impressive array of stars; and that Jupiter is surrounded by four satellites. These discoveries destroyed the very foundations of Aristotelian-Ptolemaic cosmology. Later, Galileo made other extraordinary observations that bolstered his Copernican faith: the strange appearances of Saturn, the phases of Venus, and sunspots.

Isaac Newton came from a farming family in Lincolnshire. His interest in science seems to have started during his childhood at Woolsthorpe. Raised by his grandmother and with no brothers and sisters to play with, he seems to have had quite a lonely childhood, full of time for contemplation. After attending the local school at Grantham, he was expected to become a farmer by his family, but his interests already lay elsewhere in astronomy and science. His uncle helped him persuade his mother to let him attend Trinity College, Cambridge University to study… Newton had just completed his degree in 1665, as the Great Plague ran its deadly course and the University closed down, sending this students and professors home. Newton returned to Woolsthorpe until 1667, in which time he carried out his greatest scientific experiments, and called this time his "annus mirabilis". At this time he is known to have been studying Galileo's "Dialogue of the Two Chief World Systems" and Kepler's work, particularly on light, and quickly mastered their achievements through his analytical approach and ability to separate fact from speculation.

While at Woolsthorpe he reported that he discovered differential and integral calculus, and his theories on colours and gravity, although it was another 20 years before they were published, in his world famous "Philosophia Naturalis Principia Mathematica", mainly due to his oversensitive nature and hatred of criticism. He had many bitter arguments during his lifetime with other scientists who dared criticise his work, becoming very reclusive about his work, but still managing to open up the doors for further study and understanding of the universe we know today.

Newton went on to design and build the first reflecting telescope, allowing more precise astronomical viewing to take place, became president of the Royal Society and was knighted for his achievements in science.

Newton spent a lot of his time studying alchemy and theology rather than science and astronomy, but his place in history is based on his achievements in drawing together the ideas of the scientific renaissance and enabling the development and understanding into the modern science of today, but in his own modest words, described himself as "Standing on the Shoulders of Giants".

The Culture 2000 programme of the European Union supports multiannual cultural cooperation development projects designed and implemented by cultural operators from at least five countries participating in the programme. These projects can be supported for a maximum period of three years.
The Culture 2000 programme thus promotes cooperation by supporting networks of operators, culture organisations, culture institutions, etc. with a view to implementing structured culture projects within and outside the Community.

http://europa.eu.int/comm/culture/eac/index_en.html