How did the scientific revolution lead to the enlightenment

The scientific revolution, which emphasized systematic experimentation as the most responsible research method, resulted in developments in mathematics, physics, astronomy, biology and chemistry. This development has changed society's views on nature. Outline the changes that occurred during the scientific revolution, which resulted in developments towards new means for experimenting key takeaways Key points scientific revolution was the emergence of modern science in the early modern period, when development in mathematics, physics, astronomy, biology (including human anatomy), and chemistry transformed social views of nature. The medieval idea of science was changed for four reasons: cooperation, derivation of new experimental methods, the ability to build on the legacy of existing scientific philosophy and institutions that enabled academic publishing. According to the scientific method that was defined and applied in the 17th century, it is not the first time that a person has been in a state of law. During the scientific revolution, the changing perception of the role of a scientist in relation to nature, and the value of experimental or observed evidence, led to a scientific methodology in which empirism played a large, but not absolute, role. Since the scientific revolution was not marked by a single change, many new ideas contributed. Some of them were revolutions in their fields. Science has come to play a leading role in Enlightenment discourse and thought. Many Enlightenment writers and thinkers had backgrounds in science and related scientific progress with the overthrow of religion and traditional authority in favor of the development of freedom of expression and thought. Key terms empirism: The theory that knowledge comes only, or above all, from sensory experiences. It emphasises evidence, in particular the type of evidence collected through experimentation and through a scientific method. Galileo: An Italian thinker (1564-1642) and a key figure in the scientific revolution, who improved the telescope, made astronomical observations and presented the basic principle of relativity in physics. Baconian method: an investigative method developed by Sir Francis Bacon. It was presented in Bacon's book Novum Organum (1620) (or New

Method) and was intended to replace the methods presented in Aristotle's Organon. This method influenced the development of the scientific method in modern science, but also more generally in the early modern rejection of medieval aristotheliism. scientific method: A set of techniques for examining events, acquiring new knowledge or correcting and integrating previous knowledge through the use of empirical or subject to specific principles of justification. In the 19th century it characterizes natural science, which consists in systematic observation, measurement and experimentation and formulation, testing and modification of hypotheses. British Royal Society: British Educated Society for Science; perhaps the oldest such company that still exists was founded in November 1660. The scientific revolution was the emergence of modern science in the early modern period, when developments in mathematics, physics, astronomy, biology (including human anatomy) and chemistry transformed social views of nature. The scientific revolution began in Europe towards the end of the Renaissance period and continued at the end of the 18th century. While its dates are questionable, the 1543 edition of Nicolaus Copernicus's De revolutionibus orbium coelestium (About the Revolutions of the Celestial Spheres) is often cited as marking the beginning of the scientific revolution. The Scientific Revolution was built on the foundations of ancient Greek teaching and science in the Middle Ages as it was processed and further developed by Roman-Byzantine science and medieval Islamic science. Aristotle's tradition was in the 17th century. Key scientific ideas dating back to classical antiquity have changed drastically over the years and in many cases have been discredited. The ideas that remained (for example, Aristotle's cosmology, which put the Earth at the center of the spherical hierarchical universe, or Ptolemy model of planetary motion), were fundamentally transformed during the scientific revolution. The change in the medieval idea of science occurred for four reasons: scientists and philosophers of the seventeenth century were able to work with members of mathematical and astronomical communities to make progress in all areas. Realizing the inadequacy of medieval experimental methods for their work, scientists felt the need to devise new methods (some of which we use today). Academics had access to the legacy of European, Greek, and Middle Eastern scientific philosophy, which they could use as a starting point (either by refutation or by sentence). Institutions (such as the British Royal Society) helped validate science as a field by providing an outlet for the publication of scientists' work. New methods According to the scientific method, which was defined and used in the 17th century, the new methods are based on the scientific method used in the 17th century. Philosophy of using an inductive approach to nature (abandoning and to try to simply observe with an open mind) was in stark contrast to the earlier, aristocratic approach of deduction, through which the analysis of known facts brought further understanding. In practice, many scientists and philosophers believed that a healthy combination of both was needed – a willingness to question assumptions and interpret observations that are assumed to have a certain degree of validity. During the scientific revolution, changing perceptions about the role of scientists in relation to nature, the value of evidence, experimental or observed, led to a scientific methodology in which empirism played a large, but not absolute, role. The term British empirism began to be used to describe the philosophical differences perceived between its two founders - Francis Bacon, described as an empirical, and René Descartes, who was described as a rationalist. Bacon's works introduced and popularized inductive methodologies for scientific research, often called the Baconian method, or sometimes simply the scientific method. His request for a planned procedure for examining all natural things marked a new turn in the rhetorical and theoretical framework for science, much of which still surrounds the concept of the correct methodology. Similarly, Descartes distinguished between knowledge that could only be achieved by reason (rationalist approach), such as in mathematics, and knowledge that required the experience of the world, as in physics. Thomas Hobbes, George Berkeley and David Hume were the main exponents of empirism and developed a sophisticated empirical tradition as the basis of human knowledge. The recognized founder of this approach was John Locke, who suggested in an essay on human understanding (1689) that the only real knowledge that could be available to the human mind was what was based on experience. New ideas Many new ideas have contributed to the so-called scientific revolution. Some of them were revolutions in their fields. These include: a heliocentric model that included a radical shift of the Earth into orbit around the sun (as opposed to being considered the center of the universe). Copernicus's work in 1543 on a heliocentric model of the solar system sought to prove that the sun was the center of the universe. The discoveries of Johannes Kepler and Galileo gave credibility to the theory, and the work culminated in Isaac Newton's Principia, which formulated the laws of motion and universal gravity that dominated scientists' view of the physical universe for the next three centuries. The study of human anatomy based on the autopsy of human bodies, rather than on the dissection of animals, as has been practiced for centuries. Discovering and studying magnetism and electricity, and thus the electrical properties of various materials. Modernization of branches (creation of more like what they are today), including dentistry, physiology, chemistry, or optics. The invention of tools that deepened the underesteer of science, including a mechanical calculator, a steam digester (the predecessor of the steam engine), refractive and reflective telescopes, a vacuum pump or a mercury barometer. Shannon's portrait of The Hunt. Robert Boyle F. R. S. (1627-1691): Robert Boyle (1627-1691), an Irish-born English scientist, was an early proponent of scientific method and founder of modern chemistry. Boyle is known for his pioneering experiments on the physical properties of gases, his authorship of a skeptical chymist, his role in creating the Royal Society of London, and philanthropy in American colonies. Scientific Revolution and Enlightenment The scientific revolution laid the foundations for the Age of the Enlightenment, which focused on reason as the primary source of authority and legitimacy, and emphasized the importance of the scientific method. In the 19th century, when the Enlightenment flourished, scientific authority began to displace religious authority, and disciplines until then considered legitimately scientific (e.g. alchemia and astrology) had lost scientific credibility. Science has come to play a leading role in Enlightenment discourse and thought. Many Enlightenment writers and thinkers had backgrounds in science and related scientific progress with the overthrow of religion and traditional authority in favor of the development of freedom of expression and thought. Generally speaking, Enlightenment science greatly appreciated empirism and rational thought, and was embedded in the Enlightenment ideal of progress and progress. At that time, science was dominated by scientific society and academies, which largely replaced universities as centres of scientific research and development. Societies and academies were also the backbone of the mingling scientific profession. Another important development was the popularization of science among an increasingly literate population. In the 19th century, it saw significant advances in the practice of medicine, mathematics and physics; development of biological taxonomy; a new understanding of magnetism and electricity; and the mingling of chemistry as a discipline that established the foundations of modern chemistry. Isaac Newton's Principia developed the first set of uniform scientific laws that Newton's Principia formulated the laws of motion and universal gravity that dominated scientists' view of the physical universe over the next three centuries. By deriving Kepler's laws of planetary motion from his mathematical description of gravity and then using the same principles to take into account the trajectories of comets, tides, equinox precesses and other events, Newton removed the last doubts about validity model of the universe. This work also showed that the movement of objects on Earth and celestial bodies could be described by the same principles. His laws of movement were supposed to be a solid foundation of mechanics. In the 19th century, European scientists increasingly began to apply quantitative measurements to measure physical effects on Earth, which was reflected in the rapid development of mathematics and physics. Distinguish between the various key figures of the scientific revolution and their achievements in mathematics and physics Key points takeaways The philosophy of using an inductive approach to nature was in stark contrast to the earlier, aristocratic approach to deduction, by which the analysis of known facts brought further understanding. In practice, scientists felt that a healthy combination of both was needed – a willingness to question assumptions, but also to interpret observations that are assumed to have a certain degree of validity. This principle was especially true for mathematics and physics. In the 16th century, it was the first time that a Copernicus's revolution, or paradigm shift from the Ptolemy Model of heaven to the heliocentric model with the sun at the center of the solar system, began with the release of Copernicus De revolutionibus orbi coelestia and ended with Newton's work more than a century later. Galileo has shown a remarkably modern appreciation for the proper relationship between mathematics, theoretical physics and experimental physics. His contributions to observational astronomy include telescopic confirmation of the Venus phases, the discovery of Jupiter's four largest satellites, and observation and analysis of sunspots. Newton's Principia formulated the laws of motion and universal gravity that dominated scientists' view of the physical universe for the next three centuries. He removed the last doubts about the validity of the heliocentric model of the solar system. Electron science developed rapidly after william gilbert's first discoveries. Key concepts of the scientific method: A set of techniques for examining events, acquiring new knowledge, or correcting and integrating previous knowledge that relates to empirical or measurable evidence, subject to specific principles of reasoning. In the 19th century it characterizes natural science, which consists in systematic observation, measurement and experimentation and formulation, testing and modification of hypotheses. Copernicus Revolution: A paradigm shift from the Ptolemy model of the heavens, which described the cosmos as having Earth stationary at the center of the universe, to the heliocentric model with the sun at the center solar system. Starting with the publication of De revolutionibus orbium coelestium by Nicolaus Copernicus, contributions to the revolution continued until they finally ended with the work of Isaac Newton more than a century later. Scientific Revolution: The emergence of modern science in the early modern period, when development in mathematics, physics, astronomy, biology (including human anatomy) and chemistry transformed social views of nature. It began in Europe towards the end of the Renaissance period, and continued through the late 18th century, affecting an intellectual social movement known as the Enlightenment. According to the scientific method that was defined and applied in the 17th century, it is not the first time that a person has been in a state of law. The philosophy of using an inductive approach to nature-abandoning premise and trying to simply observe it with an open-mind was in stark contrast to the earlier, Aristotle approach of deduction, which analysis of known facts produced further understanding. In practice, many scientists (and philosophers) believed that a healthy combination of both was needed – a willingness to question assumptions, but also to interpret observations that are assumed to have a certain degree of validity. This principle was especially true for mathematics and physics. René Descartes, whose idea emphasized the power of reasoning but also helped create a scientific method, distinguished between knowledge that could only be achieved by reason (rationalist approach), which he thought was mathematics, and knowledge that required the experience of a world that he thought was physics. Mathematics To the extent that medieval natural philosophers used mathematical problems, they limited social studies to theoretical analyses of local speed and other aspects of life. The actual measurement of the physical amount and the comparison of this measurement with the value calculated on the basis of theory was largely limited to the mathematical disciplines of astronomy and optics in Europe. In the 16th century, it was the first time that a Copernicus Revolution While the dates of the scientific revolution are being questioned, the 1543 edition of the De revolutionibus orbium coelestium (On the Revolutions of the Celestial Spheres) in 1543 is often cited as marking the beginning of the scientific revolution. The book suggested a heliocentric system contrary to the widely accepted geocentric system of the time. Tycho Brahe adopted the Copernica model, but reaffirmed geocentricity. However, Tycho attacked the Aristotle model as he observed a comet that had passed regions of the planets. The area was said to have only uniform circular motion on solid spheres, which meant that it would not be possible for the comet to enter the area. Johannes Kepler followed Tycho and developed three laws of planetary motion. Kepler would not have been able to produce his laws without observing Tycho, because they allowed Kepler to prove that the planets were traveling in ellipses and that the sun was not sitting directly in the center of orbit, but in the center of orbit, but in the focus. Galileo Galilei came after Kepler and developed his own telescope with enough magnification to study Venus and discover that it has phases like the moon. The discovery of the Venus phases was one of the most influential reasons for the transition from geocentrism to heliocentrism. Isaac Newton's Philosophiæ Naturalis Principia Mathematics concluded the Copernicus Revolution. The evolution of its laws of planetary motion and universal gravity explained the supposed movement related to the heavens by claiming the gravitational force of attraction between two objects. Further advances in physics and mathematics Galileo was one of the first modern thinkers to clearly state that the laws of nature are mathematical. In a broader sense, his work marked the next step in the final separation of science from philosophy and religion, a significant development in human thought. Galileo has shown a remarkably modern appreciation for the proper relationship between mathematics, theoretical physics and experimental physics. He understood parabola, both in terms of conical sections and in terms of edification(s) changing as a square of absciss (x). He further claimed that the dish was theoretically the ideal trajectory of an evenly accelerated projectile without friction and other failures. Newton's Principia formulated the laws of motion and universal gravity that dominated scientists' view of the physical universe for the next three centuries. By deriving Kepler's laws of planetary motion from his mathematical description of gravity and then using the same principles to take into account the trajectories of comets, tides, equinox precesses, and other events, Newton removed the last doubts about the validity of the heliocentric model of the universe. This work also showed that the movement of objects on Earth and celestial bodies can be described by the same principles. His prediction that the Earth should be shaped like an oblate spheroid was later justified by other scientists. His laws of movement were supposed to be a solid foundation of mechanics; his law of universal gravity combined ground and celestial mechanics into one large system that seemed capable of describing the whole world in mathematical samples. Newton also developed the theory of gravity. After with Robert Hook, the English natural philosopher, architect and polymath, he produced evidence that the elliptical form of planetary orbits would be the result of a centrileal force inversely proportional to the square of the radius vector. The scientific revolution also witnessed the development of modern optics. Kepler published Astronomiae Pars Optica (Optical Part of Astronomy) in 1604. In it he described the inverse square law governing the intensity of light, reflection by flat and curved mirrors and the principles of pinhole chambers, as well as the astronomical consequences of optics such as asparallax and the apparent size of celestial bodies. Willebrord Snellius found the mathematical law of the quarry, now known as Snell's Law, in 1621. Subsequently Descartes showed, using geometric construction and the law of refraction (also known as the Descartes Law), that the angular radius of the rainbow is 42°. He also independently discovered the law of reflection. Finally, Newton examined the refraction of light, proving that the prism could break down white light into a spectrum of colors, and that the lens and the second prism could translate a multicolored spectrum into white light. It also showed that color light does not change its properties by separating the color beam and shines it on different objects. Portrait of Galileo Galilei giusto Sustermans, 1636 Galileo Galilei (1564-1642) improved the telescope with which he made several important astronomical discoveries, including the four largest moons of Jupiter, the phase of Venus, and the rings of Saturn, and made detailed observations of sunspots. He developed laws for falling entities based on pioneering quantitative experiments that he analyzed mathematically. Dr. William Gilbert, in De Magnete, invented the new Latin word electricus from ἤλεκτρον (electron), the Greek word for amber. Gilbert conducted a series of meticulous electrical experiments, during which he found that many substances are capable of manifesting electrical properties. He also found that the heated body had lost electricity and that moisture had prevented the electrification of all bodies, due to the now well-known fact that moisture had disrupted the insulation of these bodies. He also noticed that electrified substances attract all other substances inausantly, while the magnet attracted only iron. Many discoveries of this kind have earned Gilbert the title of founder of electrical engineering. Robert Boyle also worked frequently on the new science of electricity and added several substances to Gilbert's list of electricity. In 1675, he declared that electrical attraction and repelling can act through a vacuum. One of his important discoveries was that electrified bodies in a vacuum would attract light substances, suggesting that electrical does not depend on air as a medium. He also added resin to the then well-known list of electricians. At the end of the 17th century, it was the First World The first use of the word electricity is attributed to Thomas browne's 1646 work. In 1729, Stephen Gray demonstrated that electricity can be transmitted through metal fibers. Treasures of RAS: The Stellar Messenger by Galileo Galilei: In 1610, Galileo published this book describing his observation of the sky with a new invention - a telescope. In it, he describes his discovery of Jupiter's moons, stars too weak to be seen with the naked eye, and mountains on the moon. The book was the first scientific publication to be based on data from a telescope. It was an important step towards our modern understanding of the solar system. The Latin name is Sidereus Nuncius, which translates as Starry Messenger, or Sidereal Message. Although astronomy is the oldest of the natural sciences, its development during the Scientific Revolution completely transformed social views of nature by moving from geocentrism to heliocentrism. To assess the work of both Copernicus and Kepler and their revolutionary ideas key takeaways key points the evolution of astronomy during the period of scientific revolution completely transformed social views of nature. The publication of Nicholas Copernicus' De revolutionibus in 1543 is often seen as the beginning of a time when scientific disciplines have gradually transformed into modern sciences as we know them today. Copernicus heliocentrism is the name of an astronomical model developed by the Copernicus that placed the sun near the center of the universe, motionless, with Earth and other planets rotating around it in circular paths, modified epics and uniform velocity. For more than a century, few astronomers have been convinced of the Copernicus system. Tycho Brahe went so far as to create a cosmology exactly equivalent to Copernica's, but with the earth held in the center of the celestial sphere instead of the sun. But Tycho's idea also helped to defend the heliocentric model. In 1596 Johannes Kepler published his first book, which was the first to openly support Copernicus cosmology by an astronomer since 1540. Kepler's work on Mars and planetary motion further confirmed the heliocentric theory. Galileo Galilei designed his own telescope, with which he made a number of critical astronomical observations. His observations and discoveries were among the most influential in the transition from heliocentrism. Isaac Newton developed further links between physics and astronomy through his law of universal gravity and irreversibly confirmed and further developed heliocentrism. Key terms Copernicus: Renaissance mathematician and astronomer (1473-1543), who formulated a heliocentric model of the universe that placed the sun, rather than the Earth, at the center. epicycloes: The geometric model is used to explain the change in the speed and direction of the apparent movement of the moon, sun and planets in the ptolemy system of astronomy. Copernicus Heliocentrism: The name of an astronomical model developed by Nicolaus Copernicus and published in 1543. It placed the sun near the center of the universe, motionless, with Earth and other planets rotating around it in circular paths, modified epics and uniform speeds. He deviated from the Ptolemy system that had prevailed in Western culture for centuries, placing the Earth at the center of space. While astronomy is the oldest of natural sciences, dating back to ancient times, its evolution during the Scientific Revolution completely transformed society's views on nature. In fact, the publication of a seminal paper in the field of astronomy, Nicolaus Copernicus ' De revolutionibus orbium coelestium (About the Revolutions of the Celestial Spheres) published in 1543, is often seen as marking the beginning of a time when scientific disciplines, including astronomy, began to apply modern empirical research methods and gradually transformed into modern sciences as we know them today. Copernicus Heliocentrism Copernicus Heliocentrism is the name of an astronomical model developed by Nicolaus Copernicus and published in 1543. It placed the sun near the center of the universe, motionless, with Earth and other planets rotating around it in circular paths, modified epics and uniform speeds. Copernicus's model deviated from the Ptolemy system that prevailed in Western culture for centuries, placing the Earth at the center of space. Copernicus's De revolutionibus marks the beginning of a departure from the geocentric (and anthropocentric) universe with Earth at its center. Copernicus decided that Earth is another planet that rotates around a solid sun once a year and rotates around its orbit once a day. But while he put the sun in the center of the celestial realms, he did not put it exactly in the center of the universe, but near it. His system used only uniform circular movements, correcting what many considered to be the main non-legislation in Ptolemy's system. Copernicus Revolution From 1543 to about 1700, few astronomers were convinced of the Copernicus system. Forty-five years after the release of De Revolutionibus, astronomer Tycho Brahe went so far as to build cosmology what is equal to Copernicus, but to the Earth, which was held in the center of the celestial sphere instead of the sun. However, Tycho attacked the Aristotle model as he observed a comet passing through an area of the planets. The area was said to have only uniform circular motion on solid spheres, which meant that it would not be possible for the comet to enter the area. After Copernicus and Tycho, Johannes Kepler and Galileo Galilei, who worked in the early decades of the 17th century, the 19th century was a time when the world's most beautiful people were in the world. Johannes Kepler Johannes Kepler was a German scientist who initially worked as Tycho's assistant. In 1596 he published his first book, Mysterium cosmographicum, which was the first to openly support Copernican cosmology by an astronomer since 1540. The book described his model, which used Pythagorean mathematics and five platonic solids to explain the number of planets, their proportions and their order. In 1600, Kepler set about working in orbit on Mars, the second most centric of the six planets known at the time. This work was the basis of his next book Astronomy nova (1609). The book claimed heliocentrism and ellipses for planetary orbits, instead of circles modified by epicycles. It contains the first two of its three laws of planetary motion of the same name (a third law was issued in 1619). The laws state the following: All planets move in elliptical orbits, with the sun on one focus. The line that connects the planet to the sun sweeps the same regions at the same times. The time it takes for a planet to orbit the sun, called its time, is proportional to the long axis of the ellipse raised to 3/2 power. The proportionality constant is the same for all planets. Galileo Galilei Galileo Galilei was an Italian scientist who is sometimes referred to as the father of modern observational astronomy. Based on hans lippershey's designs, he designed his own telescope, which he improved to 30 times magnification. Using this new instrument, Galileo made a number of astronomical observations, which he published in Sidereus Nuncius in 1610. In this book, he described the surface of the moon as rough, uneven, and imperfect. His observations challenged Aristotle's claim that the moon is a perfect sphere, and the greater notion that the heavens are perfect and immutable. Observing Jupiter over the course of a few days, Galileo noticed four stars near Jupiter whose positions were changing in a way that would be impossible if they were solid stars. After a long observation, he concluded that these four stars orbit the planet Jupiter, and in fact they are moons, not stars. This was a radical discovery because, according to Aristotle cosmology, all celestial bodies revolve around the Earth, and the planet with the moons clearly denies it. Beliefs. While opposing the Aristotle faith, he supported Copernicus cosmology, which stated that earth is a planet like all others. In 1610, Galileo also noted that Venus had a complete set of phases, similar to the phases of the moon that we can observe from Earth. This was explained by the Copernicus system, which said that all phases of Venus would be visible due to the nature of its orbit around the sun, unlike the Ptolemy system, which stated that only some phases of Venus would be visible. Due to galileo observations of Venus, the Ptolemy system became highly suspicious and most leading astronomers subsequently converted to various heliocentric models, making its discovery one of the most influential in the transition from geocentrism to heliocentrism. Heliocentric model of the solar system, Nicolas Copernicus, De revolutionibus, p. 9, from the original edition, currently at jagiellonian university in Krakow, Poland Copernicus was a polyglot and polymath who earned a doctorate in canon law and also practiced as a doctor, classical scholar, translator, governor, diplomat and economist. In 1517 he inferted the quantitative theory of money - a key concept in economics - and in 1519 he formulated a version of what later became known as the Gresham Act (also in economics). Unification of Astronomy and Physics: Isaac Newton Although the movements of celestial bodies have been qualitatively explained in physical terms since Aristotle introduced celestial hysterists in his metaphysics and the fifth element in his in the heavens, Johannes Kepler was the first to attempt to derive mathematical predictions of celestial movements from supposed physical causes. This led to the discovery of three laws of planetary motion that bear his name. Isaac Newton developed further links between physics and astronomy through his law of universal gravity. Realizing that the same force that attracted objects to the earth's surface kept the moon in orbit around the Earth, Newton was able to explain all known gravitational phenomena in one theoretical framework. Newton's Principia (1687) formulated the laws of motion and universal gravity that dominated scientists' view of the physical universe for the next three centuries. By deriving Kepler's laws of planetary motion from his mathematical description of gravity and then using the same principles to take into account the trajectories of comets, tides, equinox precesses, and other events, Newton removed the last doubts about the validity of the heliocentric model of the universe. This work also showed that the movement of objects on Earth and celestial bodies could be described by the same principles. His laws of movement were supposed to be a solid foundation of mechanics; its law of universal gravity combined ground and celestial mechanics into one large system that be able to describe the whole world in mathematical formulas. Jan Matejko, astronomer Copernicus, or Conversations with God, 1873: Oil painting by Polish artist Jan Matejk depicting Nicolaus Copernicus observing the heavens from a balcony by the tower at Frombork Cathedral. Currently, the painting is in the collection of Jagiellonian University in Krakow, which bought it from a private owner with money donated by the Polish public. Johannes Kepler (1571–1630): Johannes Kepler was a German astronomer and mathematician. The Renaissance period witnessed groundbreaking developments in medical sciences, including advances in human anatomy, physiology, surgery, dentistry and microbiology. List of discoveries and progress made by leading medical professionals during the early modern era Key points of takeaway during the Renaissance, experimental research, especially in the field of autopsy and body examination, advanced knowledge of human anatomy and modernized medical research. De humani corporis fabrica by Andreas Vesalius emphasized the priority of the autopsy and what became called an anatomical view of the body. This laid the foundations for the modern study of human anatomy. Another pioneering work was carried out by William Harvey, published by De Motu Cordis in 1628. Harvey conducted a detailed analysis of the overall structure of the heart and bloodstream. French surgeon Ambroise Paré (ci 1510-1590) is considered one of the fathers of surgery and modern forensic pathology, and a pioneer in surgical techniques and battlefield medicine, especially in the treatment of wounds. Herman Boerhaave (1668-1738) is considered the founder of clinical teaching and a modern academic hospital. He is sometimes referred to as the father of physiology. French physician Pierre Fauchard began dentistry as we know it today, and was appointed father of modern dentistry. Key terms humorism: the system of medicine detailed the makeup and functioning of the human body, adopted by the Indian Ayurvedic system of medicine, and ancient Greek and Roman doctors and philosophers. It assumes that the excess or lack of any of the four distinct bodily fluids in a person - known as humor or humor - directly affects their temperament and health. Andreas Vesalius: Belgian Anatomy (1514-1564), doctor and author of one of the most influential books on human anatomy, De humani corporis fabrica (On the fabric of the human body). Galen: Distinguished Greek physician (129 CE-c. 216 CE), surgeon and philosopher in the Roman Empire. Probably the most accomplished of all medical researchers of antiquity, influenced the development of various scientific disciplines, including physiology, pathology, pharmacology and neurology, as well as philosophy and logic. Ambroise Paré: French surgeon (1510-1590), who is considered one of the fathers of surgery and modern forensic pathology, and a pioneer in surgical techniques and battlefield medicine, especially in the treatment of wounds. William Harvey: An English doctor (1578-1657), and the first to describe completely and in detail the systemic circulation and properties of blood are pumped into the brain and body by the heart. The Renaissance brought an intense focus on varied scholarship to Christian Europe. Significant efforts were made to convert Arabic and Greek scientific works into Latin, and Europeans gradually became experts not only in the ancient writings of romans and Greeks, but also in contemporary writings by Islamic scientists. In the later centuries of the Renaissance, which overlapped with scientific revolution, experimental research, especially in the field of autopsy and physical examination, knowledge of human anatomy advanced. Further development of this period also contributed to the modernization of medical research, including printed books, which enabled a wider distribution of medical ideas and anatomical diagrams, more open attitudes of Renaissance humanism, and the declining impact of the Church on the teachings of the medical profession and universities. In addition, the invention and popularization of the microscope in the 17th century greatly advanced medical research. Human anatomy The writings of the ancient Greek doctor Galen dominated European thinking in medicine. Galen's understanding of anatomy and medicine was influenced mainly by the then contemporary theory of humorism (also known as four humors: black bile, yellow bile, blood and mucus), as developed by ancient Greek doctors such as Hippocrates. His theories dominated and influenced Western medical science for more than 1,300 years. His anatomical reports, based mainly on the autopsy of monkeys and pigs, remained indisputable until 1543, when descriptions and illustrations of human dissections were printed in a key work, De humani corporis fabrica by Andreas Vesalius, which was the first to demonstrate errors in the galenical model. His anatomical teachings were based on an autopsy of human bodies, rather than animal autopsies, which Galen used as a guide. Vesalius's work emphasized the priority of autopsy, and what happened to be called an anatomical view of the body seen the human inner workings as essentially a material structure filled with organs arranged in three-dimensional space. This was in stark contrast to many anatomical models used before. Another pioneering work was carried out by William Harvey, published by De Motu Cordis in 1628. Harvey did a detailed analysis The structure of the heart, continuing to analyze the arteries, shows how their pulsation depends on the contraction of the left ventricle, while the contraction of the right ventricle drives its charge of blood into the pulmonary artery. He noticed that the two chambers moved together almost simultaneously and not independently, as his predecessors had previously thought. Harvey also estimated the capacity of the heart, how much blood is expelled through each heart pump and the number of heartbeats in half an hour. According to these estimates, he proved how blood circulates in a circle. Andreas Vesalius, De humani corporis fabrica, 1543, p. 174: In 1543, Vesalius asked Johannes Opus to publish the seven-part De humani corporis fabrica (On the Fabric of the Human Body), a pioneering work of human anatomy. She emphasized the priority of the autopsy and what began to be called the anatomical gaze of the human body. Other medical advances Various other advances in medical understanding and practice have been made. French surgeon Ambroise Paré (ci 1510-1590) is considered one of the fathers of surgery and modern forensic pathology, and a pioneer in surgical techniques and battlefield medicine, especially in the treatment of wounds. He was also an anatomist and invented several surgical instruments and was part of the Paris Guild of Barber Surgeons. Paré was also an important figure in the progress of obstetrics in the mid-16th century. Herman Boerhaave (1668-1738), Dutch botanist, chemist, Christian humanist and physician of European fame, is considered the founder of clinical teaching and modern academic hospital. He is sometimes referred to as the father of physiology, along with the Venetian physician Santorio Santorio (1561-1636), who introduced a quantitative approach to medicine, and with his disciple Albrecht von Haller (1708-1777). He is best known for demonstrating the relationship of symptoms to lesions and in addition was the first to isolate chemical urea from urine. He was the first doctor to introduce thermometer measurements into clinical practice. Bacteria and opposites were first observed by the microscope of Antonia van Leeuwenhoek in 1676, the beginning of the scientific field of microbiology. French physician Pierre Fauchard began dentistry as we know it today, and was appointed father of modern dentistry. He is widely known for writing the first complete scientific description of dentistry, Le Chirurgien Dentiste (Surgeon Dentist), published in 1728. The book described basic oral anatomy and function, signs and symptoms of oral pathology, surgical methods for removing decay and tooth renewal, periodontal disease (pyorrhea), orthodontics, replacement of missing teeth and tooth Andreas Vesalius, De corporis humani fabrica libri septem, illustration attributed to Jan van Calcar (c. 1499–1546/1550) Illustration on the front cover of De Humani Corporis Fabrica (On the fabric of the human body, 1543) shows a public autopsy performed by Vesalius himself. The book has advanced in the modern study of human anatomy. Anatomy.