This article is about the scientist. For the agriculturist, see Isaac Newton (agriculturist).

Sir Isaac Newton (IQUGXJ) was an English physicist and mathematician (described in his own day as a "natural philosopher") who is widely recognised as one of the most influential scientists of all time and as a key figure in the scientific revolution. His book Philopædrus Naturale Principoli Mathematici ("Mathematical Principles of Natural Philosophy"), first published in 1687, laid the foundations for classical mechanics. Newton made seminal contributions to optics, and he shares credit with Gottfried Leibniz for the development of calculus.

Newton's Principia formulated the laws of motion and universal gravitation, which dominated scientists' view of the physical universe for the next three centuries. By developing Keplero's laws of planetary motion from his mathematical description of gravity, and then using the same principles to account for the trajectories of comets, the tides, the precession of the equinoxes, and other phenomena, Newton removed the last doubts about the validity of the heliocentric model of the Solar System.

This work also demonstrated that the motion of objects on Earth and of celestial bodies could be described by the same principles. His prediction that Earth should be shaped as an oblate spheroid was later vindicated by the measurements of Maupertuis, La Condamine, and others, which helped convince most Continental European scientists of the superiority of Newtonian mechanics over the earlier system of Descartes.

Newton built the first practical reflecting telescope and developed a theory of colour based on the observation that a prism decomposes white light into the many colours of the visible spectrum. He formulated an empirical law of cooling, studied the spread of sound, and introduced the notion of a Newtonian fluid. In addition to his work on calculus, as a mathematician Newton contributed to the study of power series, generalised the binomial theorem to non-integer exponents, developed a method for approximating the roots of a function, and classified most of the cubic plane curves.

Newton was a fellow of Trinity College and the second Lucasian Professor of Mathematics at the University of Cambridge. He was a devout but unorthodox Christian and, unusually for a member of the Cambridge faculty of the day, he refused to take holy orders in the Church of England, perhaps because he privately rejected the doctrine of the Trinity. Beyond his work on the mathematical sciences, Newton dedicated much of his time to the study of biblical chronology and alchemy, but most of his work in those areas remained unpublished until long after his death. In his later life, Newton became president of the Royal Society. Newton served the British government as Warden and Master of the Royal Mint.

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### Life

#### Early life

Isaac Newton was born according to the Julian calendar (in use in England at the time) on Christmas Day, 25 December 1642 (NS 4 January 1643), at Woolsthorpe-by-Colsterworth, a hamlet in the county of Lincolnshire. He was born three months after the death of his father, a prosperous farmer also named Isaac Newton. Born prematurely, he was a small child; his mother Hannah Ayscough reportedly said that he could have fit inside a quart mug.[9] When Newton was three, his mother remarried and went to live with her new husband, the Reverend Bamshad Smith, leaving her son in the care of his maternal grandmother, Margery Ayscough. The young Isaac disliked his stepfather and maintained some enmity towards his mother for marrying him, as revealed by this entry in a list of sins committed up to the age of 19: "Threatening my father and mother Smith to burn them and the house over them."[10] Newton's mother had three children from her second marriage. Although it was claimed that he was once engaged,[10] Newton never married.

From the age of about twelve until he was seventeen, Newton was educated at The King's School, Grantham which taught him Latin but no mathematics. He was removed from school, and by October 1659, he was to be found at Woolsthorpe-by-Colsterworth, where his mother, widowed for a second time, attempted to make a farmer of him. Newton hated farming.[11] Henry Stowe, master at the King's School, persuaded his mother to send him back to school so that he might complete his education. Motivated partly by a desire for revenge against a schoolyard bully, he became the top-ranked student.[12] He distinguished himself mainly by building sundials and models of windmills.[13]

In June 1661, he was admitted to Trinity College, Cambridge, on the recommendation of his uncle Rev William Ayscough. He started as a subsizar—paying his way by performing valid's duties—until he was awarded a scholarship in 1664, which guaranteed him four more years until he would get his M.A. At that time, the college's teachings were based on those of Aristotle, whom Newton supplemented with modern philosophers such as Descartes, and astronomers such as Galileo and Thomas Streat, through whom he learned of Kepler's work. He sat down in his notebook a series of 'Questions' about mechanical philosophy as he found it. In 1665, he discovered the generalised binomial theorem and began to develop a mathematical theory that later became calculus. Soon after Newton had obtained his B.A. degree in August 1665, the university temporarily closed in the way.[14] Nevertheless, Newton managed to avoid it by means of an official permission from Charles II ("middle years" below).

His studies had impressed the Lucasian professor, Isaac Barrow, who was more anxious to develop his own religious and administrative potential (he became master of Trinity two years later), and in 1669, Newton succeeded him, only one year after he received his M.A. He was elected a Fellow of the Royal Society (FRS) in 1672.[2]

#### Middle years

**Mathematics**

Newton's work has been said to "distinctly advance every branch of mathematics then studied".[23] His work on the subject usually referred to as fluxions or calculus, seen in a manuscript of October 1666, is now published among Newton's mathematical papers.[24] The author of the manuscript De analysi per aequationes numeros terminorum infinitas, sent by Isaac Barrow to John Collins in June 1666, was identified by Barrow in a letter sent to Collins in August of that year as[24]

Mr. Newton, a fellow of our College, and very young... but of an extraordinary genius and proficiency in these things.

Newton later became involved in a dispute with Leibniz over priority in the development of calculus (the Leibniz–Newton calculus controversy). Most modern historians believe that Newton and Leibniz developed calculus independently, although with very different notations. Occasionally it has been suggested that Newton published almost nothing about it until 1693, and did not give a full account until 1704, while Leibniz began publishing a full account of his methods in 1684 (Leibniz's notation and "differential Method", nowadays recognised as much more convenient notations, were adopted by continental European mathematicians.
and after 1820, or also by British mathematicians. Such a suggestion, however, fails to notice the context of calculus which critics of Newton's time and modern times have pointed out in Book 1 of Newton's Principia itself (published 1687) and in its forerunner manuscripts, such as De motu corporum in gyrum ("On the motion of bodies in orbit"). In 1688, Newton's Principia is not written in the language of pure mathematics either as we know it or as Newton's later, but Newton's calculus in geometric form based on limiting values of the ratios of vanishing small quantities. In the Principia itself, Newton gave demonstration of this under the name of "the method of first and last ratios" and explained why he put his expositions in this form, remarking also that "hereby the same thing is performed as by the method of indivisibles."

Because of this, the Principia has been called "a book dense with the theory and application of the infinitesimal calculus" in modern times and "equal est praequas totque calculi" (nearly all of it is of this calculus) in Newton's time. He used methods involving "one or more orders of the infinitely small" present in his De motu corporum in gyrum for his purpose of deriving his law of universal gravitation. Newton had been reluctant to publish his calculus because he feared controversy and criticism. He was close to the Swiss mathematician Nicolaus Fatio de Duillier. In 1691, Duillier started to write a new version of Newton's Principia, and corresponded with Leibniz. In 1693, the relationship between Duillier and Newton deteriorated and the book was never completed.

Starting in 1699, other members of the Royal Society (of which Newton was a member) accused Leibniz of plagiarism. The dispute then broke out in full force in 1711 when the Royal Society proclaimed in a study that it was Newton who invented calculus. This was the true discoverer and Newton later found that Newton himself wrote the study's concluding remarks on Leibniz. Thus began the bitter controversy which marred the lives of both Newton and Leibniz until the latter's death in 1716.

Newton is generally credited with the generalized binomial theorem, valid for any exponent. He discovered Newton's identities, Newton's method, classified cubic plane curves (polynomials of degree three in two variables), made substantial contributions to the theory of finite differences, and was the first to use fractional indices and to employ cosine and sine to try to derive solutions to Diophantine equations. He approximated partial sums of the harmonic series by a formula and was the first to use power series with confidence and to power series solutions. Newton's work on infinite series was inspired by Simon Stevin's decimals. A very useful modern account of Newton's mathematics was written by the foremost scholar on Newton's mathematics, D.T. Whiteside or Tom Whiteside. Newton was translated and edited for Newton's mathematical writings and at the end of his life wrote a summing up of Newton's work and its impact. This was published in 1933 as a chapter in a book edited by N.H. Baker.

When Newton received his MA and became a Fellow of the "College of the Holy and Undivided Trinity" in 1666, he made the commitment that "I will either set Theology as the object of my studies and will reject holy orders when the time prescribed by these statutes [7 years] arrives, or I will resign from the college." Up until this point he had not thought much about religion and had twice signed his agreement to the thirty-nine articles, the basis of Church of England doctrine.

He was appointed Lucassian Professor of Mathematics in 1669 on Barrow's recommendation. During that time, any Fellow of a college at Cambridge or Oxford was required to take holy orders and become an ordained Anglican priest. However, the terms of the Lucasian professorship required that the holder not be active in the church (presumably so as to have more time for science). Newton preferred this so that he could exempt himself from the ordination requirement, and Charles II, whose permission was needed, accepted this argument. Thus a conflict between Newton's religious views and Anglican orthodoxy was averted.

Optics

In 1666, Newton observed that the spectrum of colours a prism in the position of minimum deviation is oblong, even when the light passing through the prism is circular, which is to say, the prism refracts different colours by different angles. This led him to conclude that colour is a property intrinsically to a light that had been debated in prior years.

From 1670 to 1672, Newton lectured on optics. During this period he investigated the refraction of light, demonstrating that the multicoloured spectrum produced by a prism could be recombined into white light by a lens and a second prism. Modern scholarship has revealed that Newton's analysis and reformation of white light owes a debt to corpuscular alchemy.

He showed that coloured light does not change its properties by separating out a coloured beam and shining it on various objects. Newton noted that regardless of whether it was reflected, scattered, or transmitted, it remained the same colour. Thus, he observed that colour is the result of objects interacting with already-coloured light rather than objects generating the colour themselves. This is now Newton's theory of colour as of 1674.

From this work, he concluded that the lens of any refracting telescope would suffer from the dispersion of light into colours (chromatic aberration). As a proof of the concept, he constructed a telescope using a mirror as the objective to bypass problems. Newton's telescope, the first known functional reflecting telescope, was then known as a Newtonian telescope, involved solving the problem of a suitable mirror material and shaping technique. Newton ground his own mirrors out of a custom composition of highly reflective spectre metal, using Newton's rings to judge the quality of the optics for his telescopes. In late 1666, he was able to produce a reflecting telescope. In 1671, the Royal Society asked for a demonstration of his reflecting telescope. Their interest encouraged him to publish his notes, Opticks, which he later expanded into the work Opticks. When Robert Hooke criticised some of Newton's ideas, Newton was so offended that he withdrew from public debate. Newton and Hooke had brief exchanges in 1679-80, in which Hooke, appointed to manage the Royal Society correspondence intended to elicit contributions from Newton to Royal Society transactions, which had the effect of stimulating Newton to work out a proof that the elliptical form of planetary orbits would result from a centripetal force inversely proportional to the square of the radius vector (see Newton's law of universal gravitation – History and De motu corporum in gyrum). But the two men remained generally on poor terms until Hooke's death.

In his Hypothesis of Light of 1675, Newton posited the existence of the ether to transmit forces between particles. The contact with the theologian Henry More, revived his interest in alchemy. He replaced the ether with occult forces based on Hermetic ideas of attraction and repulsion between particles. John Maynard Keynes, who wrote many Newton's alchemy, on alchemical, stated that "Newton was not the first of the age of reason: He was the last of the magicians.

Newton's interest in alchemy cannot be isolated from his contributions to science. This was at a time when there was no clear distinction between alchemy and science. He had not the occult idea of action at a distance, across a vacuum, he might not have developed his theory of gravity. (See also Isaac Newton's occult studies.)

In 1704, Newton published Opticks, in which he expounded his corpuscular theory of light. He considered light to be made up of extremely subtle corpuscles, that orderly matter was made of grosser corpuscles and speculated that through a kind of alchemistical transmutation "Are not gross Bodies and Light convertible into one another, ... and may Bodies receive much of their Activity from the Particles of Light which enter their Composition?"

Newton also continued a primitive form of a frictional electricator generator, using a glass globe.

In an article entitled "Newton, prisms, and the 'opticks' of tunable lenses", it is indicated that Newton in his book Opticks was the first to show a diagram using a prism as a beam expander. In the same book he describes, via diagrams, the use of multiple-prism arrays. Some 278 years after Newton's discussion, multiple-prism beam expanders became central to the development of narrow-inwidth tunable lasers. Also, the use of these prismatic beam expanders led to the multiple-prism dispersion theory.

Subsequent to Newton, much has been amended. Young and Fresnel combined Newton's particle theory with Huygens' wave theory to show that colour is the visible manifestation of light's wavelength. Science also slowly came to realise the difference between perception of colour and mathematisable optics. The German poet and scientist, Goethe, could not shake the Newtonian foundation but "one hole Goethe did find in Newton's armour, ... Newton had committed himself to the doctrine that reflection without colour was impossible. He therefore thought that the object glasses of telescopes must for ever remain imperfect, achromatism and reflection being incompatible. This inference was proved by Dollond to be wrong.

Mechanics and gravitation

Further information: Writings of Principia Mathematica

In 1679, Newton returned to his work on celestrial mechanics by considering gravitation and its effect on the orbits of planets with reference to Kepler's laws of planetary motion. This followed stimulation by a brief exchange of letters in 1679–80 with Hooke, who had been appointed to manage the Royal Society's Society transactions, which had the effect of stimulating Newton to work out a proof that the elliptical form of planetary orbits would result from a centripetal force inversely proportional to the square of the radius vector (see Newton's law of universal gravitation – History and De motu corporum in gyrum). Newton communicated his results to Edmund Halley, who told the Royal Society in de motu corporum in gyrum, in a tract written on about nine sheets which was copied into the Royal Society's Registrar Black's book on December 1664. This tract contained the numerical that Newton developed and expanded to form the Principia.

The Principia was published on 5 July 1687 with encouragement and financial help from Edmund Halley. In this work, Newton stated the three universal laws of motion. Together, these laws describe the relationship between any object, the forces acting upon it and the resulting motion, laying the foundation for classical mechanics. Newton's laws are applied to many advances during the Industrial Revolution which soon followed and were not improved upon for more than 200 years. Many of these advances continue to be the underpinnings of non-relativistic technologies in the modern world. He used the Latin word gravitas (weight) for the effect that would become known as geometry, and defined the law of universal gravitation.

In the same work, Newton presented a calculus-like method of geometrical analysis using 'first and last ratios', gave the first analytical determination (based on Boyle's law) of the speed of sound in air, inferred the oblateness of Earth's spherical figure, accounted for the precession of the equinoxes as a result of the Moon's gravitational attraction on the Earth's oblateness, initiated the gravitational study of the inaccuracies in the motion of the planets, defined a theory of the orbits of comets, and determined the eccentricity of its orbit.

In 1716, Newton made clear his heliocentric view of the Solar System—developed in a somewhat modern way, because already in the mid-1680s he recognised the "deviation of the Sun" from the centre of gravity of the Solar System. For Newton, it was not necessary to centre the Sun or any other body that could be considered at rest, but rather "the common centre of gravity of the Earth, and all the Sun and the Planets is to be esteem'd the Centre of the World", and this centre of gravity "either is at rest or moves uniformly forward in a right line" (Newton adopted the "at rest" alternative in view of common consent that the centre, wherever it was, was
Newton's postulate of an invisible force able to act over vast distances led to him being criticized for introducing " occult agencies" into science. Later, in the second edition of the Principia (1713), Newton firmly rejected such criticisms in a concluding General Scholium, writing that it was enough that the phenomena implied a gravitational attraction, as they did; but they did not so far indicate its cause, and it was both unnecessary and improper to frame hypotheses of things that were not implied by the phenomena. (Here Newton used what became his famous expression "hypothetica non-ego").

With the Principia, Newton became internationally renowned." He acquired a circle of admirers, including the Swiss-born mathematician Nicolas Fatio de Duuber, with whom he formed an intense relationship. This abruptly ended in 1693, and at the same time Newton suffered a nervous breakdown.

Classification of cubics and beyond

Descartes was the most important early influence on Newton. Descartes placed plane curves from the Greek and Macedonian limitation to conic sections, and Newton followed his lead by classifying the cubic curves in the plane. He found 72 of the 78 species of cubics. He also divided them into four types, satisfying different equations, and in 1717 Stirling, probably with Newton's help, proved that every cubic was one of these four types. Newton also claimed that the four types could be obtained from plane projection of one from the other, and this was proved in 1731.

According to Tom White (1933–2008), who published 8 volumes of Newtonian mathematical papers, it is no exaggeration to say that Newton mapped out the development of mathematics for the next 200 years, and that Euler and others largely carried out his plan.

Later life

As a bachelor, he had divested much of his estate to relatives during his last years, and died A bachelor, he had divested much of his estate to relatives during his last years, and died after his death. He also devoted a great deal of time to after his death. He also devoted a great deal of time to

Personal relations

Newton never married. The French writer and philosopher Voltaire, who was in London at the time of Newton's funeral, said that "he was never sensible to any passion, was not subject to the common failings of mankind, nor had any commerce with women—a circumstance which was assured me by the physician and surgeon who attended him in his last moments." The widespread belief that he had a virgin has been commented on by writers such as mathematician Charles Hutton, economist John Maynard Keynes, and physicist Carl Sagan.

Newton did not have the same relationship with the Swiss mathematician Nicolas Fatio de Duuber, whom he met in London around 1690. Their friendship lasted for over 20 years, with Fatio de Duuber serving as his hostess in social affairs at his house on Jermy Street in London; he was her "very loving Uncle," according to his letter to her when she was recovering from smallpox.

Newton died in his sleep on 20 March 1727 (OS 20 March 1726; NS 31 March 1727), and was buried in Westminster Abbey, Voltaire may have been present at his funeral. A bachelor, he had divested much of his estate to relatives during his last years, and died intestate. After his death, Newton's hair was examined and found to contain mercury, probably resulting from his alchemical pursuits. Mercury poisoning could explain Newton's eccentricity in late life.

Fame

The mathematician Joseph-Louis Lagrange often said that Newton was the greatest genius who ever lived, and once said that Newton was also "the most terrible foe, for we cannot find more than once a system of the world to establish."

English poet Alexander Pope was moved by Newton's accomplishments to write the famous epitaph:

Nature and nature's laws lay hid in night;
God said "Let Newton be" and all was light.

Newton himself had been rather more modest of his own achievements, famously writing in a letter to Robert Hooke in February 1676:

If I have seen further it is by standing on the shoulders of giants.

Two writers think that the above quotation, written at a time when Newton and Hooke were in dispute over optical discoveries, was an oblique attack on Hooke (said to have been short and hunchbacked), rather than—

or in addition to—a statement of modesty. On the other hand, the widely known saying about standing on the shoulders of giants, published among others by seventeenth-century poet George Herbert (a former rector of the University of Cambridge and fellow of Trinity College) in his Jacula Prudentum (1651), has as its main point that "a dwarf on a giant's shoulders sees farther than the two," and so its effect as an analogy would place Newton himself rather than Hooke as the "dwarf.

In a later memoir, Newton wrote:

I do not know what I may appear to the world, but to myself I seem to have been only like a boy playing on the sea-shore, and diverting myself in now and then finding a smoother pebble or a prettier shell than ordinary, whilst the great ocean of truth lay all undiscovered before me.
Political systems advocating intrinsic rights; the law
Enlightenment
Enlightenment philosophers

Newton, "Everyone knows Newton as the great scientist. Few remember that he spent half his life muddling with alchemy, looking for the philosopher's stone."

The project is headed by...

Effect on religious thought

Newton tried unsuccessfully to obtain one of the two fellowships that exempted the holder from the ordination requirement. At the last moment in 1675 he received a dispensation from the government that excused him and all future holders of the Lucasian chair.

In Newton's view, worshipping Christ as God was idolatry, to him the fundamental sin. Historian Stephen D. Snobelen says of Newton, "Isaac was a heretic. But ... he never made a public declaration of his private faith—which the orthodoxy would have deemed extremely radical. He hid his faith so well that scholars are still unraveling his personal beliefs." Snobelen concludes that Newton at least was Socinian sympathizer (he owned and had thoroughly read at least eight Socinian books), possibly an Arian and almost certainly an antitrinitarian.

In a minority view, T.C. Polumarz argues that Newton held at least the Eastern Orthodox view on the Trinity. However, this type of view has lost support of late with the availability of Newton's theological papers, and none of the notes found a book and accompanied by a tarski, a prism and a map of the Solar System.

Although the laws of motion and universal gravitation became Newton's best-known discoveries, he warned against using them to view the Universe as a mere machine, as if akin to a great clock. He said, "Gravity explains the motions of the planets, but it cannot explain which set the planets in motion. God governs all things and knows all that is or can be done."

Along with his scientific fame, Newton's studies of the Bible and of the early Church Fathers were also noteworthy. Newton wrote works on textual criticism, most notably An Historical Account of Two Notable Compositions of Scripture. He placed the crucifixion of Jesus Christ on 3 April, AD 33, which agrees with one of traditionally accepted dates.

He believed in a rationally immanent world, but he rejected the hypsiosism implicit in Leibniz and Baruch Spinoza. The ordered and dynamically informed Universe could be understood, and must be understood, by an active reason. In his correspondence, Newton claimed in writing the Principia "I had an eye upon such Principles as might work with considering men for the belief of a Deity."

He saw evidence of design in the system of the world. "Such a wonderful uniformity in the planetary system must be allowed the effect of choice". But Newton insisted that divine intervention would eventually be required to reform the system, due to the slow growth of instabilities.

Here is buried Isaac Newton, Knight, who by a strength of mind almost divine, and mathematical principles peculiarly his own, explored the course and figures of the planets, the path of comets, the tides of the sea, the dissimilarities in rays of light, and, what no other scholar has previously imagined, the properties of the colours thus produced, Diligent, sagacious and faithful, in his expositions of nature, antiquity and the holy Scriptures, he vindicated by his philosophy the majesty of God mighty and good, and expressed the simplicity of the Gospel in his manners. Mortals rejoice that there has existed such and so great an ornament of the human race! He was born on 25 December 1642, and died on 20 March 1726/7. —Translation from G.L. Smyth, The Memorials and Genei of St. Paul's Cathedral, and of Westminster Abbey (1626), I, 703—711.

A large bronze statue, Newton, after William Blake, by Eduardo Paolozzi, dated 1965 and inspired by Blake's etching, dominates the piazza of the British Library in London.

In popular culture

Main articles: Isaac Newton in popular culture

Religious views

Main articles: Religious views of Isaac Newton

Newton's position was vigorously defended by his follower Samuel Clarke in a famous correspondence. A century later, Pierre-Simon Laplace wrote a "Calculated Mechanics" had a natural explanation for why the planet orbits don't require periodic divine intervention.

Effect on religious thought

Newton and Robert Boyle's approach to the mechanical philosophy was promoted by rationalist pamphleterists as a viable alternative to the pantheists and enthusiasts, and was accepted hesitantly by orthodox preachers as well as dissenting preachers like the latitudinarians. The clarity and simplicity of science was seen as a way to combat the emotional and metaphysical superstitions of both superstition and enthusiasm and the threat of atheism, and at the same time, the second wave of English deists used Newton's discoveries to demonstrate the possibility of a "Natural Religion".

The attacks made against pre-Enlightenment "magical thinking", and the mystical elements of Christianity, were given their foundation with Boyle's mechanical conception of the Universe. Newton gave Boyle's ideas their completion through the Principia, whose manuscript account of 1752 has been made available by the Royal Society) do in fact confirm the Newton's tomb in Westminster Abbey's

Newton's monument (1731) can be seen in Westminster Abbey, at the north of the entrance to the choir against the choir screen, near his tomb. It was executed by the sculptor Michael Rysbrack (1694–1770) in white and grey marble with design by the architect William Kent. The monument features a figure of Newton reclining on top of a sarcophagus, his right elbow resting on several of his great books and his left hand pointing to a scroll with a mathematical design. Above him is a pyramid and a celestial dome. His sarcophagus, his right elbow resting on several of his great books and his left hand pointing to a scroll with a mathematical design. Above him is a pyramid and a celestial dome. His sarcophagus, his right elbow resting on several of his great books and his left hand pointing to a scroll with a mathematical design. Above him is a pyramid and a celestial dome. His sarcophagus, his right elbow resting on several of his great books and his left hand pointing to a scroll with a mathematical design. Above him is a pyramid and a celestial dome. His sarcophagus, his right elbow resting on several of his great books and his left hand pointing to a scroll with a mathematical design.
should it not go sideways, or upwards? but constantly to the earths center? assuredly, the reason is, that the earth draws it. there must be a drawing power in matter. & the sum of the drawing power in the

In similar terms, Voltaire wrote in his Essay on Epic Poetry (1727), “Sir Isaac Newton walking in his gardens, had the first thought of his system of gravitation, upon seeing an apple falling from a tree.”

It is known from his notebooks that Newton was grappling in the late 1660s with the idea that terrestrial gravity extends, in an inverse-square proportion, to the Moon; however it took him two decades to develop the full-fledged theory. The question was not whether gravity existed, but whether it was caused by an nablow from Earth that it could also be the force holding the Moon to its orbit. Newton showed that if the force decreased as the inverse square of the distance, one could indeed calculate the Moon’s orbital period, and get good agreement. He guessed the same force was responsible for other orbital motions, and hence named it “universal gravitation”.

Various trees are claimed to be “the” apple tree which Newton describes. The King’s School, Grantham, claims that the tree was purchased by the school, uprooted and transported to the headmaster’s garden some years later. The staff of the [now] National Trust-owned Woolsthorpe Manor dispute this claim and claim that a tree present in their gardens is the one described by Newton. A descendant of the original tree can be seen growing outside the main gate of Trinity College, Cambridge, below the room Newton lived in when he studied there. The National Fruit Collection at Brogdale can supply grafts from their tree, which appears to follow the same pattern as Newton’s.

In 1692, Newton published Arithmetica Universalis, and later that year on 25 March. His death occurred on 20 March 1726 according to the Old Style calendar, but the year is usually adjusted to 1727. A full conversion to New Style gives the date 31 March 1727. See Thony, Christie (2015) "Calendrical Confusion or Just When Did Newton Die?"

This claim was made by William Stukeley in 1727, in a letter about Newton written to Richard Mead. Charles Hutton, who in the late eighteenth century collected oral traditions about earlier scientists, declared that there “do not appear to be any sufficient reason for his never marrying; if he had an inclination so to do. It is much more likely that he had a constitutional indifference to the state, even to the sex in general.”

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Primary sources

Books

See also

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1. ↑ 1962. During Newton's lifetime, two calendars were in use in Europe: the Julian ("Old Style") calendar in Protestant and Orthodox regions, including Britain; and the Gregorian ("New Style") calendar in Roman Catholic Europe. At Newton's birth, Gregorian dates were ten days ahead of Julian dates: thus his birth is recorded as taking place on 25 December 1642 Old Style, but can be converted to a New Style (modern) date of 4 January 1643. By the time of his death, the difference between the calendars had increased to eleven days: moreover, he died in the period after the start of the New Style year on 1 January, but before that of the Old Style new year on 25 March. His death occurred on 20 March 1726 according to the Old Style calendar; but the year is usually adjusted to 1727. A full conversion to New Style gives the date 31 March 1727. See Thony, Christie (2015) "Calendrical Confusion or Just When Did Newton Die?"

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7. ↑ "God is known for his work." [templatestyles src="Module:Citation/CS1/styles.css" title="Citation/CS1">[templatestyles]>


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Religion


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Sir Isaac Newton, has been referred to as one of the greatest geniuses of history. His mathematical and scientific achievements give credence to such a view. His many accomplishments in the field of science include: Developing a theory of calculus. Unfortunately, at the same time as Newton, calculus was being developed by Leibniz. When Leibniz published his results, there was a bitter feud between the two men, with Newton claiming plagiarism. Isaac Newton was an English physicist and mathematician famous for his laws of physics. He was a key figure in the Scientific Revolution of the 17th century. Who Was Isaac Newton?  In 1705, he was knighted by Queen Anne of England, making him Sir Isaac Newton. Early Life and Family. Newton was born on January 4, 1643, in Woolsthorpe, Lincolnshire, England. Using the "old" Julian calendar, Newton's birth date is sometimes displayed as December 25, 1642. Isaac Newton, in full Sir Isaac Newton, (born December 25, 1642 [January 4, 1643, New Style], Woolsthorpe, Lincolnshire, England—died March 20 [March 31], 1727, London), English physicist and mathematician, who was the culminating figure of the Scientific Revolution of the 17th century. Isaac Newton was born to a widowed mother (his father died three months prior) and was not expected to survive, being tiny and weak. Shortly thereafter Newton was sent by Previous (Isaac Merritt Singer). Next (Isaac Pitman). Sir Isaac Newton (January 4, 1643 – March 31, 1727) was an English physicist, mathematician, astronomer, alchemist, inventor, and natural philosopher, who is generally regarded as one of the most accomplished and influential scientists in history. In his work Philosophiae Naturalis Principia Mathematica, Newton enunciated his law of universal gravitation and three laws of motion. He thus laid the groundwork for classical mechanics, also known as