

“The Magical Enlightenment of Isaac Newton”

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In a manuscript now held in the Jewish National and University Library in Jerusalem Isaac Newton determined a date for the end of the world – the year 2060. His prophecy was based on a careful exegesis of the Bible, particularly the books of Daniel and Revelations, and on the history of the Christian church, which fascinated Newton all his life.

So what was he doing? Newton is known to us today as an exemplar of enlightened rationality, the greatest scientist who ever lived, perhaps alongside Einstein, and someone who more than anyone else helped to replace a mystical, superstitious, and magical universe with a rational, objective, and mathematical picture of the world. So why was Newton making prophecies about the end of the world? Some writers have presented Newton as a man with two sides, one mystical and the other scientific. Newton is presented as the “last sorcerer”, looking backwards to ancient superstition and forwards to modern reason. But I think it’s a mistake to make this division. There was no boundary between Newton’s magical and mystical activities and his science, and all of Newton’s activities remained influential into the eighteenth century and the age of enlightenment. It was only at the end of the eighteenth century that Newton began to be presented as a paragon of reason, and then really only in France.

Isaac Newton was born in Woolsthorpe Lincolnshire at Christmas in 1642, and after it was clear to his schoolmasters that he had a precocious talent, he left the family farm and went up to Trinity College, Cambridge, where he remained for more than thirty years (1661-1696). In 1687, Newton published his masterpiece *Principia*, or *The Mathematical Principles of Natural Philosophy* (natural philosophy was the contemporary term for what we would call science). After moving to London in 1696 he published another famous study, the *Opticks* on the nature of light. He was president of the Royal Society from 1703 until his death at the ripe old age of 84 in 1727, by which time he was a celebrity across Europe. When he died, Newton was buried in Westminster Abbey, the first scientist to be so honored.

Today Newton is famous for his *Principia* and *Optics*. In *Opticks*, he showed that white light is made up of the colours of the rainbow, and conducted some gruesome experiments on what he called spectra (ghosts) by poking sticks behind his eyes. His *Principia* was widely seen by contemporaries as the final word on the workings of the universe, a revelation of God's plan for the world in all its mathematical detail. Central to this plan was of course the force of gravity, which Newton said, for the first time, acted in the same way everywhere in the universe, and obeyed an inverse square law, which tallied with evidence on the motion of the moon, the planets, and the earth around the sun.

In many ways, Newton could be said to have invented modern science, with its focus on mathematics and experiment, and its objective view of the world, removing anything which is not founded on rigorous reasoning and evidence. But Newton gained much of his inspiration and his ways of thinking from what today would be considered absolutely esoteric, magical and antiquated ways of thinking. It's very interesting to note that Newton wrote two versions of the second edition of the *Principia*, settling on the second version as the one he wanted to publish. The first, now known as the "classical scholia" reveals that he owed a great debt to ancient philosophers. Newton believed that ancient Greeks such as Lucretius and Pythagoras had already known his System of the World long ago, but the knowledge had subsequently been lost. Newton was convinced that he was not discovering something new about the world but was recovering or restoring the wisdom of the ancients. This of course was a common way of thinking during the renaissance, the rebirth of classical thought, but it would not become a feature of modern science.

Newton scoured the works of the ancients in order to find evidence of their past beliefs about the solar system. He also studied the Bible. In fact, Newton spent much of his life reading and interpreting scripture, and produced thousands of pages of biblical studies, some of which were published after his death, though many remain unread even today. Religion, often represented today as being in conflict with science, was really the driving force of Newton's researches. Not that he was an orthodox believer. He followed a controversial Christian doctrine called Arianism, based on the teachings of the third-century heretic Arius, who taught that Christ was not divine, and hence that the Trinity of God, the Son and the Holy Spirit was a false doctrine.

Newton would probably have become an ordained priest if he had not held this belief, a belief that he spent his whole life exploring. Furthermore, Newton's rejection of the Trinity goes a long way in explaining his scientific opinions. It meant that he placed a great deal of emphasis on the will of God in making the world operate, and it was in order to show how God exercised His will in the world, that Newton turned to natural philosophy. Newton approached nature as a kind of book revealing God's plan and action in the world. He used biblical studies and natural philosophy to learn about this plan. He also used alchemy. Biblical studies revealed how God had acted in history, whereas alchemy revealed how God might have shaped the nature of matter in the universe. In a makeshift laboratory built outside his rooms in Cambridge, Newton spent many years at the furnace, conducting hundreds of alchemical experiments, whose nature we are only just beginning to appreciate.

Alchemy, of course, is seen today as a quintessential folly of the past, as alchemists fooled people into believing that they could transmute base metals into gold. In fact, while transmutation was certainly the goal of some dubious alchemists, alchemy could mean a lot of different things in the seventeenth century. It could mean distilling alcohol or preparing medicines. It could mean making scents and perfumes, or assaying ores to find their metal content. It was by no means all mystical and obscure. But Newton's alchemy *was* pretty mystical. He wasn't looking for gold, but he believed in transmutation as a way to reveal divine secrets.

The secrets which alchemy revealed to Newton were extremely powerful. Alchemy showed how God acted as a kind of cosmic chemist, using a special substance that Newton called the "vegetative spirit" to imbue life into matter in the cosmos. Following his interest in the ancients, Newton took from the ancient Stoics the idea of a pneuma or fiery spirit pervading the universe. And this vegetative spirit, Newton concluded, came from the stars and was brought to earth in comets, which crashed into the earth and released the vegetative spirit, which then got into the soil and made plants grow, which fed animals, and so was responsible for all of life. But the big question then became, how did God get this to happen? How did God manage the motions of comets in the solar system to circulate the vegetative spirit? So this leads to a more familiar, more scientific question – another way of putting this is to ask what is the mechanism that drives things around the sun? And that is exactly what

Newton's *Principia* and the idea of universal gravitation answer. Universal gravitation and Newton's laws of motion supplied him with the means to explain how God circulated his life-giving cosmic spirits in the universe.

Religion, alchemy and natural philosophy were thus all part of the same project and different sides of the same coin for Newton – he didn't have one foot in the past and one in the future - it all fits together in a single project. The ancients provided clues to divine truths, chronology and biblical studies revealed God's action on earth, alchemy showed how God made matter and life, and natural philosophy revealed the mechanisms to make this happen on a cosmic scale. There was one more thing too. If gravitation was true, Newton calculated that the planets and comets would ultimately be attracted together until they all fell into the sun. It would be no less than the end of the world. But God, Newton reckoned, would redeem the world by intervening and setting everything right again, starting a new cycle in the life of the earth (and by the way he also thought the earth was alive). So gravitation then solved the key problem for Newton – how to show that God was constantly exerting His will in the universe, and not just designing it and setting it going like a clock. God continually intervened to reform the universe and this demonstrated His will in action and proved his omnipotence. It all confirmed Newton's antitrinitarian belief. God, said Newton, was "Lord Pantocrator" – a unique, all-powerful being.

Newton's successors did not ignore the mystical and religious parts of his work – far from it. In the eighteenth century, Newton was as celebrated for his biblical writing as for his science, and Newton's obsession with the ancients led to a new emphasis on antiquarianism among British scientists that lasted a generation. A fascination with the ancients, for example, provided the inspiration for founding the British Museum in the 1750s. Newton's alchemical views, his interest in comets as divine instruments, and his religious beliefs also influenced many followers. A picture from 1752 celebrating Newton by the antiquarian William Stukeley shows comets and a many-breasted life-giving nature.

In fact, the triumverate of science, religion, and antiquarianism remained a part of British science and culture well into the nineteenth century, and it was only in France that this set of pursuits came to be seen as separate and even in conflict at the time of

the French Revolution. In the decades preceding the Revolution, French philosophers wishing to condemn the Catholic church in France reformulated Newton as a champion of reason against superstition. They downplayed or ignored Newton's religious writings and motivations, and instead represented him as a much more secular thinker. The physicist Pierre-Simon Laplace reworked Newton's system of the world so that the exercise of God's will to restore the system was not part of it, and it was this image of Newton and Newtonian science that was then spread around Europe with Napoleon in the early nineteenth century. It is this image of a rational, secular Newton that we inherit today, but it is not an image that Newton himself would have recognized.

Further Reading:

Patricia Fara, *Newton: The Making of Genius* (Macmillan, 2002)

Rob Iliffe, *Newton: A Very Short Introduction* (Oxford University Press, 2007)

Isaac Newton's publically known legacy largely belongs to the mythology of sanitized mainstream "Science." Official history has sanitized his story to remove elements that were embarrassing to modern rationalists and the version of Newton and the history of science they wished to present to the world—and the modern "Newtonian materialists" (an oxymoron, in truth) have, for the most part, lapped it up without question, putting Newton on a pedestal, virtually deifying him, and with him, the. In his fascinating biography of Newton (1642–1727), *Isaac Newton: The Last Sorcerer*, Michael White informs us that, "More than any other scientist in history, Newton's image has been protected by his disciples and by generations of biographers who have Was Isaac Newton's research into magick, alchemy and the occult more meaningful than his discovery of gravity? Isaac Newton, inventor of calculus and namesake of Classical (or "Newtonian") physics, was also a known biblical scholar and believed there was secret knowledge encrypted in the Bible. Surely, we might say, such a sharp intellect would disregard religious and magical explanations of the universe. In truth, Sir Isaac Newton possessed (or was possessed by) an unbridled curiosity which led him to pursue any avenue to discover truth and order among the variety of phenomena in our world. 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 *Philosophiæ 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 Isaac Newton stands as the scholar who oversaw the transformation from Renaissance thought, still largely built around a religious framework, to a quest for knowledge without the need for God. Isaac Newton. *The End of the Renaissance and the Beginning of the Enlightenment*. Skip to main content. Home >. Foundations >. History >. Isaac Newton. " Martyn Shuttleworth 34.5K reads.