

Chapter 15

The God of the Gaps

Although the Reformation brought change and innovation to the doctrines and practices of Western Christendom, many aspects of popular religious belief were probably unaffected by the work of the great reformers. Beneath the surface storms of theological conflict that re-sculpted the formal religious face of Europe in the sixteenth century, the deeper waters of traditional faith flowed much as they always had done. Given the slow pace of cultural change in the late medieval world, this is hardly surprising. With the vantage of hindsight, the sixteenth century can be seen as the start of a huge and irreversible shift in European culture from a religious to a scientific understanding of the natural world; but it would not have seemed like that at the time. Faithful Christians, Protestant as well as Catholic, still looked to the Church for a coherent account of why things were as they were, and ancient beliefs and superstitions still dominated the lives of ordinary people even as scientists of the stature of Copernicus and Galileo were revealing their astonishing ideas to a sceptical and resistant Church.

This sixteenth century was an age when magic and superstition still permeated the fabric of daily life. Spirits, demons, angels and bogeymen were everywhere in the world. Martin Luther repeatedly ascribed his various diseases, including chronic constipation, to ‘the devil’s spells’, declaring that ‘Satan produces all the maladies which afflict mankind, for he is the prince of death’. God, too, was continually at work in the world, and life for many people was a daily battle between the good and evil forces that surrounded them. People instinctively signed themselves with the cross to protect them from danger and they habitually invoked the help of the saints to ease their passage through life. Sometimes their invocations were heeded, at other times not; but there was rarely any doubting the potency of these occult powers. The failure of a prayer to be answered was as likely to be interpreted as a sign of God’s displeasure as of the natural processes of cause and effect. Bad weather, infertility, stillbirths, poor harvests, madness, plague and pestilence – all these and more besides could spring from dark forces at work in the world and all might be alleviated by prayer, penance and other ecclesiastically sanctioned actions.

Holy relics were greatly prized, for they exuded enormous potency. Objects that had been intimately associated with a saint, such as his clothes, hair, blood or bones, could transmit their sacred power to those who revered them, amplifying the prayers of the faithful and increasing their efficacy. Relics that could actually be touched or kissed might generate yet more spectacular results. Even a handkerchief stained with the sweat or nasal secretions of a saint could sometimes work wonders. The more celebrated the saint and the more exalted the relic, the greater the effect; and pilgrims travelled great distances throughout medieval Europe to worship at the shrines of the most popular saints. In reality, a belief in the power of saintly relics was little more than the ancient principle of associative magic imported into a Christian context; but if people truly believed in the potency of holy artefacts, then many seemingly miraculous or supernatural cures must have occurred through what is now understood as the placebo effect.

The most powerful association of all was with Jesus himself, and relics that were believed to have been in physical contact with him, such as thorns from his crucifixion crown, fragments of his cross or the shroud in which he had been buried, were of unsurpassable holiness. To offer prayers to God in the presence of such awesomely sacred objects was associative magic at its most intense. Even the words of Jesus could bring hope to those who believed in their saving power. At rogation-tide, when fields and livestock were blessed for their fertility, parishioners read passages from the gospels over their crops and pregnant women bound their stomachs with papers scribbled with prayers and verses from the Bible. It was not just the words of Jesus that were available: in spite of the protestations of Luther and Zwingli, many people continued to believe that the communion bread became Christ's physical body as the priest raised it heavenwards and, to the tolling of the sacring bell, declared to the parish that the saviour was among them. 'This *is* my body, broken for you.' So sacred were the communion elements that some parishioners wore gloves while washing the cloth on which they had lain, fearing directly to handle objects that had been in contact with Christ himself. Others, more boldly, were given to storing the consecrated bread in their mouths for later use as a charm against misfortune or even to rid their gardens of caterpillars.



Many of these beliefs and rituals relied upon what we now know to be false assumptions about cause and effect in the natural world. Charms and talismans cannot protect against misfortune and a piece of bread

left in the garden, even one that has been consecrated by a priest, cannot prevent an infestation of caterpillars. If the true cause of something is unknown, however, there is a kind of logic in attributing it to unseen forces at work in the ether. Why shouldn't good health, large families and plentiful harvests be seen as the benevolent work of God? Why shouldn't plague, drought and pestilence (and even, as Martin Luther evidently believed, constipation) be seen as the malevolent work of the devil? After all, that is how they were commonly understood in biblical times. From here it was but a short step to believing that the bad things in life could be prevented and the good ones encouraged by pleasing God and fighting the devil. If the intercessions of a saint could tip the balance in favour of the supplicant, then it made good sense to visit his shrine and enlist his help. Faith, pilgrimage and healing were all tied up together in the medieval imagination.

There are countless examples from all over medieval Christendom. The early thirteenth-century windows in Canterbury Cathedral, though much depleted by the actions of iconoclasts across the ages, depict dramatic stories in coloured glass of the healing powers of Canterbury's miracle-working saint, Thomas Becket. Mediating the grace of God among the sick and the wounded, St Thomas restored the gouged-out eyes of a felon, cured epilepsy and leprosy, healed industrial injuries, resuscitated a boy who had drowned in the River Medway, rescued workmen from a collapsed trench, helped the lame to walk again, and dispensed an array of other miraculous cures. With such a proven track record to his name, it made good sense for the sick and the lame to visit Becket's shrine; and many pilgrims, for many different reasons, doubtless left Canterbury feeling better than when they arrived. Times have changed, though, and a modern visitor to Canterbury Cathedral who fell and broke a leg would certainly not expect the chaplains to dally in prayer at the site of St Thomas' shrine. Indeed, if an ambulance equipped with all the necessary technology failed to be summoned forthwith, an expensive claim for negligence might be lodged against the Dean and Chapter.

It is clear from these brief examples that something very important began to change in the intellectual climate of Europe at about the time of the Reformation. Whereas God had been a vital factor in explaining a great many things in the late middle ages, he gradually ceased to be a force as people's knowledge of the natural world increased apace. For the last three hundred years our understanding of the cosmos has been driven by scientific evidence, not ecclesiastical dogma, and even though there remain many gaps in scientific knowledge, few scientists now believe that the supernatural power of a deity will prove to be the answer.

Acts of God in the twenty-first century have been relegated largely to the small print of insurance policies. People may still instinctively appeal for supernatural help when things go wrong, but more from a sense of frustration than in genuine expectation of a divine solution. When the car breaks down, a muttered prayer of pleading may be made that it will miraculously start again; but few believe that God can do a better job of it than a motor mechanic. The internal combustion engine has to be understood in terms of mechanical engineering, not the power of God; and if it were otherwise, the world of engineering would be a totally chaotic and unpredictable place.



This fundamental shift in human understanding about the natural world, which began in earnest in the sixteenth century and gained momentum in the seventeenth and eighteenth centuries, has come to be known as the period of the Enlightenment. It had the effect (among many other things) of eroding the authority of the Church by enhancing the status of science. In astronomy, medicine, physics, anatomy and many other areas of human knowledge, statements about the ways in which things worked came to be accepted as true less because the Church said they were than because the new sciences were proving them so. In sharp contrast to the traditional but ultimately unverifiable pronouncements of ecclesiastical authorities, scientists were going about their business by observing natural phenomena, formulating hypotheses to explain them, and testing them by means of controlled experiments that others could replicate. Findings that could not be shown to be wrong would provisionally be accepted as true, but always with the reservation that the apparent truths of today could become the proven falsehoods of tomorrow. Crucially, the difference between science and religion was not only one of method (experimentation versus authority) but also of mind-set: the default position of science, that truth is always provisional, was alien to the Church.

The seismic change from ecclesiastical authority to scientific verification did not happen overnight. Even before the impact of the Enlightenment, the Church had often tried to suppress whatever challenged its dogmas and to silence those who asked awkward questions. An interesting early example is that of the Franciscan monk William of Ockham, who was born in 1280 or 1290 in the village near Guildford from which he took his name and which in turn gave its name to the principle that he enunciated – Occam's Razor. It was a principle of parsimony in explanation: if something could adequately be explained in terms of its immediate physical causes,

then it was unnecessary to look for supernatural ones. The best explanation was the one that invoked the fewest and most plausible assumptions. If the fall of a rock down a mountainside could be explained through a combination of soil erosion and wind, there was no point wondering whether it had been pushed by an angel. The Church, however, instinctively saw things differently: in William's day it was liable to claim both a natural *and* a supernatural explanation for events and happenings. To argue, as William of Ockham did, that it was unnecessary to invoke the presence of supernatural forces when a perfectly natural explanation would suffice, was to challenge the intellectual hegemony of the Church; and in 1326 he was condemned as a heretic by a papal court in Avignon.



A little over a hundred years after the death of William of Ockham, Nicolaus Copernicus (1473-1543) was born at Thorn, in Poland. Trained as both a lawyer and a doctor, he practised medicine at the episcopal court at Heilsberg, in East Prussia, where he became interested in astronomy and worked assiduously on a study of the motion of heavenly bodies. By 1530 he had completed his great work, *De Revolutionibus Orbium Coelestium*, but because of his fears about its reception by the Catholic Church, it was not until 1543 that it was first published under the name of a young Lutheran from Wittenberg University, Georg Rheticus (1514-1574). The work was dedicated to Pope Paul III. In *De Revolutionibus* Copernicus claimed, in flat contradiction to the teachings of the Church, that the sun was a stationary body at the centre of the solar system with the earth moving in orbit around it. It was a scandalous claim, for it meant that the earth – God's supreme creation – was not, after all, the centre of everything. Copernicus well understood the magnitude of what he was doing, noting in the preface to the first edition of *De Revolutionibus* that: 'there will be babblers who, although completely ignorant of mathematics, nevertheless take it upon themselves to pass judgement on mathematical questions and, badly distorting some passages of Scripture to their purpose, will dare to find fault with my undertaking and censure it.' He added that: 'I disregard them even to the extent of despising their criticism as unfounded.' Copernicus' confidence (some might say arrogance) was justified: he had arrived at a profound truth about the heliocentric nature of the solar system long before the theoretical evidence for it was provided by Isaac Newton (1642-1727).

Although Copernicus began the demolition of an intellectual system that had been consecrated by a thousand years of universal acceptance and ecclesiastical approval, he did not incur the displeasure of the

Catholic Church until after his death. It was the work of two of his scientific successors, Giordano Bruno (1548-1600) and Galileo Galilei (1564-1642), which finally provoked the Church into a reaction against the new science. Of the two, Bruno was by far the inferior scientist, though his punishment was much more severe than Galileo's. Born near Naples in 1548, five years after Copernicus' death, Bruno was ordained a priest and admitted to the Dominican order; but he was an outspoken critic of the theological orthodoxies of his day, and four years after his ordination he was formally charged with heresy. Thereafter Bruno became something of a European nomad, visiting a number of Italian cities as well as Toulouse, Lyons, Paris, London and Geneva (where he is said to have flirted with Calvinism). He seems to have attracted controversy wherever he went, defending the heliocentric theories of Copernicus and suggesting that the universe may contain an infinite number of worlds, all of which could be inhabited by intelligent creatures. This was not to the Catholic Church's liking, and in 1591 Bruno was arrested in Venice on multiple charges of heresy and tried by the Inquisition. He recanted his views but was sent to Rome in 1592 for a second trial. Found guilty, he was imprisoned and interrogated for eight years, and when he refused to recant for a second time he was declared a heretic and burned at the stake in Rome in 1600. A statue now marks the place of his death in the Campo de' Fiori.



Bruno's near contemporary Galileo Galilei, the devout Catholic genius from Tuscany, ranks as one of the truly great scientists in world history who in the course of a staggeringly innovative career made fundamental contributions to the study of motion, astronomy, the strength of materials and the scientific method. His insistence that the book of nature was written in the language of mathematics redirected the course of science away from the narrative arguments of philosophy towards the quantitative methods of observation and experimentation. In 1613, Galileo produced telescopic evidence that vindicated Copernicus' heliocentric view of the solar system and paved the way for a general acceptance that the earth, spinning on its own axis, did indeed orbit around the sun. Three years later the Catholic Sacred Congregation of the Index of Forbidden Books, controlled by Cardinal Robert Bellarmine (1542-1621), ordered Galileo to renounce his Copernican views. (Bellarmine had earlier affirmed not only that the earth was at the centre of the universe but also that hell was at the centre of the earth). Galileo declined to repudiate his evidence or to recant his position, and it was then that the Congregation placed a ban on Copernicus' great work

De Revolutionibus Orbium Coelestium, at least until certain corrections had been made to its heliocentric passages. These were duly done, and the Congregation allowed the amended work to pass into the public domain, but it was not until 1758 that the original text of *De Revolutionibus* was removed from the Index of Forbidden Books.

As for Galileo, he was summoned to appear before an Inquisition in Rome in 1633 where he was sentenced to indefinite house arrest. Many influential Europeans, outraged by his treatment, pressed unsuccessfully for his release, and even after his death near Florence in 1642 his supporters continued to campaign for his rehabilitation. In 1734 the Vatican allowed his remains to be moved from its modest grave to a suitably imposing mausoleum in the Church of Santa Croce in Florence, and within a short space of time it relaxed its rule forbidding discussion of the motion of the earth. Nevertheless, some of Galileo's writings remained on the Vatican's Index of Forbidden Books until 1835. It was not until the 1870s that the documents relating to his conflict with the ecclesiastical authorities were released. A further hundred years were to pass before Galileo was finally rehabilitated by Pope John Paul II in an address to the Pontifical Academy of Sciences in 1992.



The confrontation between Galileo and Bellarmine has often been depicted as the archetypal conflict between the rationality of science and the authority of the Catholic Church in the sixteenth and seventeenth centuries. Galileo's courage in speaking and writing about his findings was met with humiliation and punishment by an ecclesiastic hierarchy bent on defending its dogmatic teachings through the exercise of its power over human souls. Eventually, however, observation and experimentation necessarily replaced ecclesiastical authority, and the scientific method became the accepted gold standard for understanding the natural world. In the process, the Church lost much of its control over the intellectual paradigms of Western civilisation.

There is a good deal of truth in this traditional telling of the story; but the gradual ascendancy of scientific enquiry over religious dogma was far from swift or smooth. For all that science achieved between 1600 and 1800, the Catholic Church clung onto its prerogative to explain the natural world for a great deal longer than that; and the Protestant Churches also weighed into the fray from time to time. When Charles Darwin (1809-1882) published his groundbreaking book *The Origin of Species by Means of Natural Selection* in 1859, the ecclesiastical opposition to his theory of evolution through natural selection was led not only by Catholics but also by senior Anglicans and Methodists. The Methodist

Church, in particular, erupted in pious indignation over the suggestion that the beauty of nature might be the result of naturally occurring processes rather than the creative imagination of God, and it condemned Darwin as though he were the anti-Christ. As we shall see, echoes of this particular confrontation between faith and science still reverberate in fundamentalist circles, especially (but not exclusively) in the southern states of America.

It is also too simple to see the rise of science as the death knell of popular religion – at least in the short-term. The increasing momentum of the Enlightenment during the eighteenth century coincided in England with a striking religious revival as evangelical preachers took the simple gospel of Christ to the people and converted them in huge numbers. The founder of Methodism, John Wesley (1703-1791), is an interesting example of the complex relationship between religion and science at this time. On the one hand, Wesley was a hugely successful evangelical preacher, convinced of the reality of heaven and hell and given to casting lots to divine the will of God. Yet he was also intensely interested in the scientific debates of his day. He was well informed about pharmacy, physics, botany, metallurgy, zoology, astronomy and much else besides. His two-volume *Compendium of Natural Philosophy* is a remarkably comprehensive description of what was known about the natural world in the mid-eighteenth century and his *Primitive Physick*, published anonymously in 1747, laid down rules for healthy living that still seem eminently sensible.

If Wesley, the intelligent and well-read graduate of Oxford University had no difficulty in holding a religious and a scientific view of the world in constructive tension, the ordinary worshipper in the pew was unlikely even to have realised there was an issue at stake. Many people in Wesley's day still inhabited a universe controlled and manipulated by unseen forces. They still believed in ghosts, evil spirits and angels. More than four hundred years after William of Ockham expounded his principle of parsimony in explanation, escapes from death and other disasters were still commonly attributed to divine intervention, and close shaves were taken to be a warning from God. Far from putting paid to religion, including even the more irrational and superstitious aspects of popular religion such as casting lots to divine the will of God, the Enlightenment seems to have left ordinary people largely untouched.



In the long run, however, the Enlightenment unquestionably set in train the intellectual revolution that was to see the replacement of the religious supernaturalism of the medieval world with the scientific

rationalism of the modern world. In the process, the power of occult forces gradually ceased to be an adequate explanation of why things happened as they did. The supernatural face of God, which had been highly conspicuous from earliest times, was steadily departing the limelight as the acceptance of miracles and divine interventions began to erode in educated circles.

If a new face did emerge from the intellectual upheavals of the Enlightenment, it was the face of the God of the gaps. Reluctant to abandon their belief in a God who had created the universe and who held its innermost secrets in the palm of his hand, many Christians yearned for a set of truths about God's creative power that would remain forever beyond the inquisitive minds of rationalists and scholars. They thought they had found them in the gaps in human knowledge that science had not yet explained – and hopefully never would. Science might be able to account for a great deal, they thought, but it could never penetrate the mind of God himself. It could never unravel the mystery of life itself. Black holes of human ignorance, impenetrable by the light of science, would always remain where God could dwell secure; and it was from those eternal gaps in scientific knowledge that he would continue to choreograph the dance of the cosmos.

Yet this was at best a short-term solution to the threatening encroachments of science, buying time for God only for as long as it took the scholars to turn their inquisitive gaze towards the gaps. The God of the gaps was always likely to be a fragile God, destined to shrink as the missing pieces in the jigsaw of human knowledge were patiently assembled. It was bad theology as well as bad science, for there was never going to be a future for a God whose credibility depended upon the limitations of science. That, though, is far from the end of the story. The Enlightenment may have placed a discreet veil over one of the faces of God, but it opened the way for others to emerge. If God could no longer be defended with any great conviction as a supernatural force at work in the world, that merely redirected the divine quest towards other aspects of his nature – aspects that could withstand the critical gaze of secular scholarship and still offer hope and meaning to faithful believers. In the process, philosophy returned to the stage of theological discourse for the first time since medieval scholasticism as some of the finest intellects in seventeenth-century Europe began to think and write about God. Among them were René Descartes, Blaise Pascal and John Locke, together with the polymath scientist, philosopher and theologian, Isaac Newton.