

Special report
Evolution and religion

In the beginning

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The debate over creation and evolution, once most conspicuous in America, is fast going global



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THE "Atlas of Creation" runs to 770 pages and is lavishly illustrated with photographs of fossils and living animals, interlaced with quotations from the Koran. Its author claims to prove not only the falsehood of Charles Darwin's theory of evolution by natural selection, but the links between "Darwinism" and such diverse evils as communism, fascism and terrorism. In recent weeks the "Atlas de la Création" has been arriving unsolicited and free of charge at schools and universities across French-speaking Europe. It is the latest sign of a revolt against the theories of Darwin, on which virtually the whole of modern biology is based, that is gathering momentum in many parts of the world.

The mass distribution of a French version of the "Atlas" (already published in English and Turkish) typifies the style of an Istanbul publishing house whose sole business is the dissemination, in many languages, of scores of works by a single author, a charismatic but

controversial Turkish preacher who writes as Harun Yahya but is really called Adnan Oktar. According to a Turkish scientist who now lives in America, the movement founded by Mr Oktar is "powerful, global and very well financed". Translations of Mr Oktar's work into tongues like Arabic, Urdu and Bahasa Indonesia have ensured a large following in Muslim countries.

In his native Turkey there are many people, including devout Muslims, who feel uncomfortable about the 51-year-old Mr Oktar's strong appeal to young women and his political sympathies for the nationalist right. But across the Muslim world he seems to be riding high. Many of the most popular Islamic websites refer readers to his vast canon.

In the more prosperous parts of the historically Christian world, Mr Oktar's flamboyant style would be unappealing, even to religious believers. Among mainstream Catholics and liberal Protestants, clerical pronouncements on creation and evolution are often couched in careful—and for many people, almost impenetrable—theological language. For example, Rowan Williams, the Archbishop of Canterbury and leader of the world's 80m Anglicans, has dismissed literal readings of the Creation story in Genesis as a "category mistake". But no such highbrow reticence holds back the more zealous Christian movements in the developing world, where the strongest religious medicine seems to go down best.

In Kenya, for example, there is a bitter controversy over plans to put on display the most complete skeleton of a prehistoric human being ever found, a figure known as Turkana Boy—along with a collection of fossils, some of which may be as much as 200m years old. Bishop Boniface Adoyo, an evangelical leader who claims to speak for 35 denominations and 10m believers, has denounced the proposed exhibit, asserting that: "I did not evolve from Turkana Boy or anything like it."

Richard Leakey, the palaeontologist who unearthed both the skeleton and the fossils in northern Kenya, is adamant that the show must go on. "Whether the bishop likes it or not, Turkana Boy is a distant relation of his," Mr Leakey has insisted. Local Catholics have backed him.

Rows over religion and reason are also raging in Russia. In recent weeks the Russian Orthodox Church has backed a family in St Petersburg who (unsuccessfully) sued the education authorities for teaching only about evolution to explain the origins of life. Plunging

into deep scientific waters, a spokesman for the Moscow Patriarchate, Father Vsevolod Chaplin, said Darwin's theory of evolution was "based on pretty strained argumentation"—and that physical evidence cited in its support "can never prove that one biological species can evolve into another."

A much more nuanced critique, not of Darwin himself but of secular world-views based on Darwin's ideas, has been advanced by Pope Benedict XVI, the conservative Bavarian who assumed the most powerful office in the Christian world two years ago. The pope marked his 80th birthday this week by publishing a book on Jesus Christ. But for Vatican-watchers, an equally important event was the issue in German, a few days earlier, of a book in which the pontiff and several key advisers expound their views on the emergence of the universe and life. While avoiding the cruder arguments that have been used to challenge Darwin's theories, the pope asserts that evolution cannot be conclusively proved; and that the manner in which life developed was indicative of a "divine reason" which could not be discerned by scientific methods alone.

Both in his previous role as the chief enforcer of Catholic doctrine and since his enthronement, the former Cardinal Joseph Ratzinger has made clear his profound belief that man has a unique, God-given role in the animal kingdom; and that a divine creator has an ongoing role in sustaining the universe, something far more than just "lighting the blue touch paper" for the Big Bang, the event that scientists think set the universe in motion.

Yesterday America, today the world

As these examples from around the world show, the debate over creation, evolution and religion is rapidly going global. Until recently, all the hottest public arguments had taken place in the United States, where school boards in many districts and states tried to restrict the teaching of Darwin's idea that life in its myriad forms evolved through a natural process of adaptation to changing conditions.

Darwin-bashers in America suffered a body-blow in December 2005, when a judge—striking down the policies of a district school board in Pennsylvania—delivered a 139-page verdict that delved deeply into questions about the origin of life and tore apart the case made by the "intelligent design" camp: the idea that some features of the natural world can be explained only by the direct intervention of a ingenious creator.

Intelligent design, the judge found, was a religious theory, not a scientific one—and its teaching in schools violated the constitution, which bars the establishment of any religion. One point advanced in favour of intelligent design—the “irreducible complexity” of some living things—was purportedly scientific, but it was not well-founded, the judge ruled. Proponents of intelligent design were also dishonest in saying that where there were gaps in evolutionary theory, their own view was the only alternative, according to the judge.

The Seattle-based Discovery Institute, which has spearheaded the American campaign to counter-balance the teaching of evolution, artfully distanced itself from the Pennsylvania case, saying the local school board had gone too far in mixing intelligent design with a more overtly religious doctrine of “creationism”. But the verdict made it much harder for school boards in other parts of America to mandate curbs on the teaching of evolution, as many have tried to do—to the horror of most professional scientists.

Whatever the defeats they have suffered on home ground, American foes of Darwin seem to be gaining influence elsewhere. In February several luminaries of the anti-evolution movement in the United States went to Istanbul for a grand conference where Darwin's ideas were roundly denounced. The organiser of the gathering was a Turkish Muslim author and columnist, Mustafa Akyol, who forged strong American connections during a fellowship at the Discovery Institute.

To the dismay of some Americans and the delight of others, Mr Akyol was invited to give evidence (against Darwin's ideas) at hearings held by the Kansas school board in 2005 on how science should be taught. Mr Akyol, an advocate of reconciliation between Muslims and the West who is much in demand at conferences on the future of Islam, is careful to distinguish his position from that of the extravagant publishing venture in his home city. “They make some valid criticisms of Darwinism, but I disagree with most of their other views,” insists the young author, whose other favourite cause is the compatibility between Islam and Western liberal ideals, including human rights and capitalism. But a multi-layered anti-Darwin movement has certainly brought about a climate in Turkey and other Muslim countries that makes sure challenges to evolution theory, be they sophisticated or crude, are often well received.

America's arguments over evolution are also being followed closely in Brazil, where—as the pope will find when he visits the country next month—various forms of evangelicalism and Pentecostalism are

advancing rapidly at the expense of the majority Catholic faith. Samuel Rodvalho, an activist in Brazil's Pentecostal church, puts it simply: "We are convinced that the story of Genesis is right, and we take heart from the fact that in North America the teaching of evolution in schools has been challenged."

Even in the United States, defenders of evolution teaching do not see their battle as won. There was widespread dismay in their ranks in February when John McCain, a Republican presidential candidate, accepted an invitation (albeit to talk about geopolitics, not science) from the Discovery Institute. And some opponents of intelligent design are still recovering from their shock at reading in the *New York Times* a commentary written, partly at the prompting of the Discovery Institute, by the pope's close friend, Cardinal Christoph Schönborn, the Archbishop of Vienna.

In his July 2005 article the cardinal seemed to challenge what most scientists would see as axiomatic—the idea that natural selection is an adequate explanation for the diversity and complexity of life in all its forms. Within days, the pope and his advisers found they had new interlocutors. Lawrence Krauss, an American physicist in the front-line of courtroom battles over education, fired off a letter to the Vatican urging a clarification. An agnostic Jew who insists that evolution neither disproves nor affirms any particular faith, Mr Krauss recruited as co-signatories two American biologists who were also devout Catholics. Around the same time, another Catholic voice was raised in support of evolution, that of Father George Coyne, a Jesuit astronomer who until last year was head of the Vatican observatory in Rome. Mr Krauss reckons his missive helped to nudge the Catholic authorities into clarifying their view and insisting that they did still accept natural selection as a scientific theory.

But that was not the end of the story. Catholic physicists, biologists and astronomers (like Father Coyne) insisted that there was no reason to revise their view that intelligent design is bad science. And they expressed concern (as the Christian philosopher Augustine did in the 4th century) that if the Christian church teaches things about the physical world which are manifestly false, then everything else the church teaches might be discredited too. But there is also a feeling among Pope Benedict's senior advisers that in rejecting intelligent design as it is understood in America they must not go too far in endorsing the idea that Darwinian evolution says all that needs to be, or can be, said about how the world came to be.

The net result has been the emergence of two distinct camps among the Catholic pundits who aspire to influence the pope. In one there are people such as Father Coyne, who believe (like the agnostic Mr Krauss) that physics and metaphysics can and should be separated. From his new base at a parish in North Carolina, Father Coyne insists strongly on the integrity of science—"natural phenomena have natural causes"—and he is as firm as any secular biologist in asserting that every year the theory of evolution is consolidated with fresh evidence.

In the second camp are those, including some high up in the Vatican bureaucracy, who feel that Catholic scientists like Father Coyne have gone too far in accepting the world-view of their secular colleagues. This camp stresses that Darwinian science should not seduce people into believing that man evolved purely as the result of a process of random selection. While rejecting American-style intelligent design, some authoritative Catholic thinkers claim to see God's hand in "convergence": the apparent fact that, as they put it, similar processes and structures are present in organisms that have evolved separately.

As an example of Catholic thinking that is relatively critical of science-based views of the world, take Father Joseph Fessio, the provost of Ave Maria University in Florida and a participant in a seminar on creation and evolution which led to the new book with papal input. As Father Fessio observes, Catholics accept three different ways of learning about reality: empirical observation, direct revelations from God and, between those two categories, "natural philosophy"—the ability of human reason to discern divine reason in the created universe. That is not quite intelligent design, but it does sound similar. The mainly Protestant heritage of the United States may be one reason why the idea of "natural philosophy" is poorly understood by American thinkers, Father Fessio playfully suggests. (Another problem the Vatican may face is that Orthodox Christian theologians, as well as Catholic mystics, are wary of "natural philosophy": they insist that mystical communion with God is radically different from observation or speculation by the human brain.)

The evolution of the anti-evolutionists

Whatever they think about science, there is one crucial problem that all Christian thinkers about creation must wrestle with: the status of the human being in relation to other creatures, and the whole universe. There is no reading of Christianity which does not assert the belief that mankind, while part of the animal kingdom, has a unique vocation and potential to enhance the rest of creation, or else to

destroy it. This point has been especially emphasised by Pope Benedict's interlocutors in the Orthodox church, such as its senior prelate Patriarch Bartholomew I, who has been nudging the Vatican to take a stronger line on man's effect on the environment and climate change.

For Father Coyne, belief in man's unique status is entirely consistent with an evolutionary view of life. "The fact we are at the end of this marvellous process is something that glorifies us," he says.

But Benedict XVI apparently wants to lay down an even stronger line on the status of man as a species produced by divine ordinance, not just random selection. "Man is the only creature on earth that God willed for his own sake," says a document issued under Pope John Paul II and approved by the then Cardinal Ratzinger.

What is not quite clear is whether the current pope accepts the "Chinese wall" that his old scientific adviser, Father Coyne, has struggled to preserve between physics and metaphysics. It is in the name of this Chinese wall that Father Coyne and other Catholic scientists have been able to make common cause with agnostics, like Mr Krauss, in defence of the scientific method. What the Jesuit astronomer and his secular friends all share is the belief that people who agree about physics can differ about metaphysics or religion.

Critics like Father Fessio would retort that their problem was not with the Chinese wall—but with an attempt to tear it down by scientists whose position is both Darwinist and anti-religious: in other words, with those who believe that scientific observation of the universe leaves no room at all for religious belief. (Some scientists and philosophers go further, dismissing religion itself as a phenomenon brought about by man's evolutionary needs.)

The new book quoting Pope Benedict's contributions to last year's seminar shows him doing his best to pick his way through these arguments: accepting that scientific descriptions of the universe are valid as far as they go, while insisting that they are ultimately incomplete as a way of explaining how things came to be. On those points, he seems to share the "anti-Darwinist" position of Father Fessio; but he also agrees with Father Coyne that a "God of the gaps" theory—which uses a deity to fill in the real or imagined holes in evolutionary science—is too small-minded. Only a handful of the world's 2 billion Christians will be able to make sense of his intricate intellectual arguments, and there is a risk that simplistic reporting and

faulty interpretation of his ideas could create the impression that the pope has deserted to the ranks of the outright anti-evolutionists; he has done no such thing, his advisers insist.

Not that the advocates of intelligent design or outright creationists are in need of anyone's endorsement. Their ideas are flourishing and their numbers growing. As Mr Krauss has caustically argued, the anti-evolution movement is itself a prime example of evolution and adaptability—defeated in one arena, it will resurface elsewhere. His ally Father Coyne, the devoted star-gazer, is one of the relatively few boffins who have managed to expound with equal passion both their scientific views and their religious beliefs. He writes with breathless excitement about “the dance of the fertile universe, a ballet with three ballerinas: chance, necessity and fertility.” Whether they are atheists or theists, other supporters of Darwin's ideas on natural selection will have to inspire as well as inform if they are to compete with their growing army of foes.

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