



WHY THE SCIENTIFIC WORLD-VIEW CONFIRMS LIBERAL CHRISTIAN FAITH

It may seem rather strange to claim that the scientific world-view confirms any sort of Christian faith, much less a liberal one, in view of the fact that a number of prominent scientists have recently and publicly argued that modern science is completely incompatible with any sort of religious faith.

The view of these writers, however, shows a lack of historical understanding, and a failure to reflect deeply enough on the nature of science and of faith. When they refer to history, they tend to recite a number of legendary episodes – like Galileo's alleged torture by the Inquisition or the humiliating public defeat of Bishop Wilberforce by Huxley – that have been repeatedly shown to be false by historians. And when they speak of science and religion, they present science as wholly without any faith assumptions, pursued by a band of dedicated, wholly rational scholars who are always ready to give up their favourite theories and all of whose views are based on good evidence, whereas religion is based on a number of quite irrational assumptions which believers accept without question or criticism.

We need to ask why such a strange travesty of the facts has come about, and what a more subtle study of the relation between faith and science might disclose. To do that, I will begin with a brief historical account of the ways in which modern science developed from a distinctive faith-position, and of the ways in which it modified Christian (and Jewish) faith in a more liberal direction. My argument will be that reflective science needs faith, but a liberal faith, and that Christian faith is well suited by its essential nature to be such a scientifically informed and spiritually committed faith.

We are often told that science began to exist in ancient Greece, in China, India and in various Muslim countries. That is true. These ancient cultures showed a real interest in close observation of the natural world, and in the development of mathematical techniques for describing it. But in all those cultures science stopped. It was in Western Europe in the seventeenth century that science flourished and continued to develop as a cumulative body of knowledge of the natural world.

The reasons for this are complex and varied. But one thing is undeniable – Europeans accepted a basic form of Christianity, according to which the world had been created by one God through the power of divine reason (the Logos or 'Word' or 'Wisdom' that became incarnate in Jesus). That reason was, according to Christian Scriptures, the pattern on which the universe was founded – through Christ all things were created, and in him they continue to exist, according to Ephesians and Colossians. That divine reason had become fully embodied in the universe – 'the Word became flesh'. The created world is thus seen as an expression of divine wisdom, in which the human mind can participate.

The wisdom of Christ might be different from the wisdom of 'the world', which seeks personal gain and pleasure. But it was certainly wisdom. For the late medieval world view, Christ was far from being an irrational intrusion into a secular world. Christ expressed the rationality of the world, a

rationality ordered towards the good and beautiful, towards that which is supremely desirable in itself, not towards that which satisfies my desires at the expense of others.

The eighteenth century European Enlightenment is sometimes called 'the age of Reason', and shortly after the French revolution the cathedral of Notre Dame de Paris was cleared of Christian symbolism and renamed 'the Temple of Reason'. A religion of reason was instituted in France, though it only lasted a few years and then collapsed, never to be heard of again.

Because of that, rationalism is sometimes thought to be opposed to Christian faith. But the situation is much more complicated.

The Enlightenment in Germany, Scotland, England and America was not opposed to religion. Philosophers like John Locke in England, Immanuel Kant in Prussia, and Thomas Reid in Scotland sought to show that Christianity was wholly reasonable. Admittedly this meant seeking to rid Christianity of what they saw as superstition, and their versions of Christianity tended to radically re-interpret the great 'mysteries' of the incarnation, atonement, Trinity, revelation and the sacraments. It is not a co-incidence that they were Protestants, and I think the most adequate view of the Enlightenment is that it was an attempt to work out with full rigour and logical consistency the Protestant critique of authority, hierarchy and clericalism that had begun with the Reformation.

It was the Reformation that established the acceptability of a radical criticism of traditional forms of religion. Though Protestants often turned out to be quite authoritarian themselves, their very existence showed the justifiability of reform and even of rejection of accepted forms of faith for the sake of a 'purer' or 'more original' form of Christian belief.

It was not some secular or non-religious Reason that the Reformers worshipped. In common with the Catholic Church that they left, they regarded Christianity as the foundation of a reasoned view of a rationally ordered universe. But they accused the Catholic Church of having in practice abandoned true divine reason, and of having substituted for it the inventions and prejudices of human beings.

Revealed truth is indeed opposed to many of the speculations of the human mind, and to many of the competing philosophies that humans had generated. Gnosticism, for example, was a speculative cosmological hypothesis that Christians rejected because revelation asserted that the material creation is good and, though fallen, is redeemable. But revelation itself was regarded as supremely reasonable.

To say that the universe is rational is not just to say that it is based on a clear, consistent, and elegantly ordered set of principles, which may themselves have no point. To say that the universe is rational is to say that there is a reason why it is the way it is. The best of reasons is that it makes possible awareness and appreciation of something that is supremely good or worthwhile for its own sake. That is to say, as Aristotle did say, a rational universe is a universe that it is ordered to contemplation of the good and beautiful – either by God or by intelligent beings generated by and within the universe.

Such a universe will be based on consistent and elegant principles. But the reason for the existence of such principles will be that they are, and they result in states that are, good for their own sakes, and such goodness will only actually exist insofar as it is contemplated by a cosmic awareness that finds supreme satisfaction in them. In other words, the rationality of the universe lies in the existence of a supreme consciousness that generates and appreciates the intrinsic goodness of or generated by the universe.

The argument to the rationality of revelation consists in seeing that, if there is such a supreme cosmic consciousness, whose purpose lies in the creation of goodness in the universe, and if there are created intelligent agents who may contribute to the creation of such goodness, then it is highly reasonable to suppose that the divine consciousness will in some way reveal to those agents its purpose and how they might help to achieve it. To put it briefly, if there is a creator God, it is highly likely that God would reveal the purpose of creation to intelligent creatures. Revelation is a reasonable thing to expect in a rational universe.

What will the relation of revelation be to natural human reason? The traditional Catholic view is that revelation will not contradict reason, but will contribute insights that reason alone could not establish with any certainty. It may correct human speculation when it is in error, or confirm some forms of human speculation that would otherwise be only tentative, or suggest beliefs (that God is Trinitarian, for example) that speculation would be unlikely to formulate on its own, though they can with hindsight be seen to form part of a coherent conceptual scheme for interpreting the widest range of human experience.

Protestant reactions to the Catholic view were diverse. Some, like Calvin in some moods, thought that the human mind was so corrupted by sin that it was quite untrustworthy. God will then simply implant correct beliefs into the minds of the elect, without need of any independent rational grounding. There is little one can say to this, except to point out that different Protestants seem to believe very different things, even though they might all claim to derive their beliefs solely from revelation. Also, they use – as Calvin did – very rational arguments to expound their beliefs. And when they reject Catholic acceptance of the teaching magisterium of the Church, they implicitly legitimate criticism of any teaching authority, including their own. So while they may say that Biblical authority (not Church tradition, which they regard as vain human speculations adding to Scripture) is absolute, in practice they are interpreting the Bible in specific ways which are always open to criticism.

The legitimation of free and informed criticism of any interpretation, however authoritative it claims to be, is a key principle of liberal faith. It is a key principle of the Reformation, though the Reformers did not always see where it would lead. We can best understand the work of thinkers like Kant and Locke by seeing that they were simply pushing the Reformation principle of free informed criticism further. Protestants had criticised Catholic interpretations of the Bible by showing that Catholics had added many new doctrines to what was actually in the text. But had the Protestants not done the same thing? Isaac Newton was surely right when he said that the doctrine of the Trinity could not be found explicitly asserted in the Bible. There is no doctrine there of the incarnation, as formulated at Chalcedon, or of substitutionary atonement, as formulated by Calvin, or of Biblical inerrancy. Yet once you start seeking to return to some supposed 'original teaching' of Jesus and his immediate disciples, the field is open to a variety of diverse interpretations, and you will soon begin to ask why this one text (or set of very diverse texts, edited years after the death of Jesus) should be taken as the any sort of inerrant vehicle of revelation.

My point is that the Enlightenment was the child of the Reformation. It did not seek to replace revelation by Reason, and insist on salvation by Reason alone. What it did was to press for the right of free informed critical enquiry, and the consequence was not the establishment of a secular or non-religious view, but the acceptance of diversity and freedom of religion. A liberal Christian faith is not one agreed view of Christian faith. It is precisely the opposite, the co-existence of diverse views, which should always be seeking to be self-critical and ready to learn from discussion and exposure to the views of others.

What, then, of the French religion of reason? That, too, was not anti-religious. The religion of reason is, after all, a religion, with a supremely rational being who is worthy of worship. The problem in France was that the Church was associated with the repressive ancien regime, and its spiritual authority had been compromised by corruption and repression. Overall, then, the Enlightenment was not anti-religious, and it did not propose one agreed idea of Reason, which was to be the arbiter of all religious doctrines. Instead, it legitimated free informed critical enquiry, and thereby sponsored a wide variety of beliefs about what reason is, what revelation is, and what the nature of reality is. Liberalism does not have a particular religious or anti-religious view. It has a commitment to freedom of enquiry as a means to discovering truth and a defence against the misuse of authority.

It is quite possible, therefore, to have a liberal Christian faith, and what that requires is toleration of conscientious disagreement, and the embracing of the methods of critical scholarship (not acceptance of the view of some particular critical scholar) as an important aid to seeking truth in religion.

Christian faith remains faith – it is a commitment of trust to a view of the world that cannot strictly be proved or conclusively confirmed. But it is precisely faith in the rationality of the universe, in its goodness and beauty. It is not an irrational faith, or faith in unreasonable beliefs. It is a faith that makes science possible. In fact science shares the same faith, that the world has a rational structure, that nothing happens without a reason or cause, and that human beings, created in the image of God, can understand it.

This faith is the basis of a cumulative exploration of a rational universe by the use of reason. But as the Reformers saw, religious institutions tend to be authoritarian, and they tend to resist new knowledge which might bring into question beliefs that are held to have been unchangeably revealed. Such attitudes are not compatible with science, but they were, sadly, characteristic of some of the imperial forms that Christianity took as it became the official faith of the Eastern and Western Roman empires. It was not until the Reformation, and the break-up of old structures of authority, that more liberal attitudes to faith became possible. It is no co-incidence that modern science originated at that time.

It seems that what science requires is faith in the rationality of the universe, combined with the encouragement of informed critical enquiry – in other words, liberal faith. It does not have to be Christian faith, but it probably needs to be a form of liberal and rational theism. I would not care to argue that modern science confirms every detail of Christianity. The distinctive Christian belief is that God is known decisively in Jesus, and I do not think science has much to say about that partly historical and partly experiential claim. But I do want to say that modern science both springs from, and confirms, liberal and rational theism. It confirms some fundamental Christian beliefs. It would take further argument to consider more specific Christian claims. My view is that Christianity, in its post-Enlightenment form, is best placed to further such theism on a global scale, but I shall not argue that here.

It is a controversial enough claim that modern science confirms a form of liberal faith, and I shall try to show what I mean by that. First, science confirms that there are rational and mathematically elegant laws of nature. Physical entities behave in regular, predictable, and mathematically describable ways. From Newton to Roger Penrose and Stephen Hawking, sophisticated mathematics has been used to decode the structures and fundamental forces in accordance with which particles interact. If mathematics simply described the way things happen, it would be a hugely improbable co-incidence that such beautiful laws actually fitted the physical behaviour of everything in the universe. It looks as though the laws prescribe how things have to happen. Somehow the laws give rise to physical realities.

Some cosmologists speak of the universe emerging from quantum fluctuations in a vacuum. The vacuum is not just emptiness. It is a precise balance of, for instance, the forces of inflation and gravitation, and within that balance fluctuations occur in accordance with quantum laws, which thus seem to pre-exist the physical universe.

Things are even more mysterious, for this universe is a particular space-time, and there is no time 'before time', so it is hard to see how anything can literally fluctuate before the universe exists, in order to originate the universe. We must therefore be speaking of a timeless set of possible states of affairs, one of which is this universe. There is a timeless mathematically or conceptually well-ordered but non-physical reality which exists 'beyond' the universe, which in some sense includes all possible states of affairs, and which gives rise to this universe as one of those possibilities.

It is not surprising that Roger Penrose sometimes calls himself a 'Platonist', as does Peter Atkins, one of Oxford's evangelical atheists. Physical reality is not the ultimate reality. Underlying it there is a necessary realm of conceptual timeless truths, and this universe arises from it as, in Plato's phrase, 'a moving image of eternity'.

Peter Atkins thinks of the Christian God as an invisible person who irrationally interferes in nature in order to obtain parking spaces for Christian shoppers. But **God, in traditional Christian thought, is precisely the supra-temporal (we might quite properly say 'supernatural') and necessary source of all being, which somehow encompasses all possible states of affairs and generates this universe, not arbitrarily, but for a good reason.**

Some Platonists would deny that such a God is personal, though they might not object to a necessary, timeless and purely rational source of the universe. They might say that this God need not be conscious, or have any purpose. It just is necessarily what it is, and what issues from it does so without anything like intention or purpose.

Consciousness, purpose, and value are indeed crucial and contested concepts for many scientists. Some would reduce conscious states to physical brain states, would deny that there is any purpose or direction in cosmic evolution, and would insist that all values are purely subjective feelings. But these are not strictly scientific findings. They are philosophical theories which are used to put a particular interpretation on science. Those theories are put in question by a twentieth century worldview that arises from modern advances in science.

The problem of the relation of conscious experience to the brain, for example, is an ancient philosophical problem, and there is no agreed solution in sight. Since natural sciences are by their own self-definition concerned with the behaviour of publicly observable, measurable, and experimentally testable physical states, they cannot directly deal with conscious mental states which are not publicly observable, measurable, or subject to controlled experimental observation.

The denial that there are any such states both flies in the face of the common human belief that the way I see the world is not open to anyone else to know, and assumes that scientific knowledge is the only sort of knowledge there is (introspection and personal experience do not count). Since the 1960s cognitive psychology has accepted the existence of mental states, and has made great advances in understanding them. But while emphasising their dependence in the human case on the brain and on an evolutionary understanding of human cognitive development, there is no implication that conscious states not dependent on human brains are impossible. Such conscious states (like the mind

of God) are simply not accessible to physical investigation. Science is in no position to deny their possibility.

In philosophy and in quantum physics, moreover, there are some good reasons for thinking that consciousness may play an essential role in the very existence of the material world of publicly observable physical objects. After all, the world of vivid colours, varied tastes and sounds, of felt solidity and pleasing sensations, is the appearance to our consciousness of an objective reality which is very different when it is not being observed. The objective world, according to quantum physics, is a ten or eleven dimensional world of probability waves and superposed states, which collapse into precisely locatable particles only when measured by humanly constructed devices which prepare them for observation. The world as we see it is not the world as it is in itself. It is the product of an interaction between consciousness and what the quantum physicist Bernard d'Espagnat calls 'veiled reality', a reality whose objective nature is forever hidden from us.

The physicist John Wheeler can say, 'No elementary phenomenon is real unless observed'. John von Neumann says 'all real things are contents of consciousness'. It seems to them that consciousness constructs the world we experience, and that the objective reality with which we interact can be represented only by rather abstract though fantastically accurate mathematical models. Far from being a by-product of a clearly describable material process, consciousness seems to many quantum physicists to be something that actually selects the sort of material world we experience. Even our mathematical representations, of course, are products of our consciousness, so if we take away consciousness, it is hard to see what is left except an unknown 'somewhat' that produces impressions of the world in our minds.

Modern physics leaves the question of the ultimate nature of reality open, though it seems to have decisively overturned the hypothesis that reality ultimately consists of material particles located in space (the old form of classical materialism). Consciousness may be an ultimate constituent of reality, not just a by-product of matter. If both sensory experiences and mathematical truths are products of consciousness, it becomes wholly intelligible that there could be an **ultimate consciousness, God, that generates both the Platonic world of conceptual realities and the common sense world of human experiences**. In other words, the idea of God as a conscious reality and source of the universe is both consistent with modern physics and is positively suggested by some interpretations of quantum theory.

Once consciousness has been posited as the fundamental reality, the ideas of objective value and purpose become wholly intelligible. The best reason for the creation of anything will be the satisfaction of contemplating states that are good and worth-while in themselves, states of goodness and beauty. These states will be objective values, and the universe will have the purpose of realising a set of such states (which, in a free universe, may be necessarily bound up with many possible disvalues).

Scientists, especially biologists, sometimes reject any notions of purpose in evolution, on the ground that the processes of nature seem random or morally arbitrary. But if there are general laws of nature, nothing is truly random. As Charles Darwin said, 'If we consider the whole universe, the mind refuses to look at it as the outcome of chance i.e. without design or purpose' (letter to T. H. Farrer). The universe has a purpose if it inevitably produces worth-while states through an elegant and efficient process. The laws of nature are elegant and efficient, and they have produced many states of beauty, understanding, and creativity that are immensely worth-while.

Modern physics sees the universe, not as a machine endlessly and pointlessly grinding out repetitive manoeuvres, but as a holistic and open emergent system. It successively realises a diverse

range of possibilities as it grows more complex, emergent properties like consciousness arise within it, and it is creatively open to develop in new directions. Of course not every particular part of the system will develop – bacteria are quite happy to be bacteria, and they are very good at it – and of course in any creative and open system there will be dead-ends and regressions. But the history of the universe from a primeval Big Bang to successively more complex and integrated structures of heavy atoms, replicating molecules, central nervous systems, and consciousness-producing brains, looks as though it is moving, as a whole, in an inevitable direction towards the emergence of conceptual understanding and creative intelligence.

It is this modern scientific worldview of a creatively emergent universe that liberal Christianity can accept with enthusiasm. The heart of Christian faith is that God creates the universe for the sake of the goodness it can realise. Intelligent creatures formed within that universe ('out of dust') can creatively co-operate in realising new forms of goodness. But humans have turned aside to pursue selfish desires, and alienated themselves from their true vocation and from knowledge of God. God enters into this 'fallen' world to unite humanity once again to the divine, and to raise humans in Christ to share in the divine nature.

What modern science confirms is that the universe is a rational and elegant totality. Humans are an integral part of the material universe, not an alien intrusion into matter. Freedom (open-ness) is a fundamental characteristic of the universe, which has great consequences for its future. The existence of a cosmic consciousness is a coherent and plausible hypothesis for understanding the nature of physical reality. Science at its best supports the search for fuller understanding of the universe, sensitive appreciation of its amazing intricacy, beauty, and power, and the creative shaping of its future possibilities for good. Science embodies a hope, a faith commitment, that such a moral goal and purpose is achievable, for it is built into the essential possibilities of the universe at its origin.

My case is that this scientific world-view (not the only scientific worldview, but one deeply consistent with much cutting-edge modern science) sprang from a liberalising Christian context. It provides a strong intellectual framework for modern Christian belief, much as Aquinas did in the very different context of the thirteenth century. It confirms some basic elements of Christian belief, and opens the way to a wholly reasonable account of other elements of Christian belief that do not derive from science – such as the person of Jesus and the idea of redemption as unity with the divine through love.

Christianity is a radical revision of Messianic Judaism which is committed to belief in the rationality of the created universe, and which critically challenges the view of revelation as divinely given law which was its inheritance from Judaism. As such, Christian faith is committed to seek the fullest understanding of the created universe and to accept the legitimacy of informed critical enquiry and radical re-interpretation in religious matters. In this sense, Christian faith is essentially liberal.

The Reformation placed such critical enquiry at the heart of its faith, even if it did not entirely see what it was doing. The Enlightenment pressed such enquiry to its limit, even if the cost was sometimes the rejection of Christian faith. We now have to live with extreme diversity, without any universally agreed basis for belief.

There will continue to be naturalistic and reductionist accounts of science, which allow no place for God – and it is important to recognise that such accounts rule out God by definition, and represent only one highly controversial philosophical opinion. But there is a growing **scientific worldview of the universe as holistic, open and emergent, and as grounded in a supra-temporal, beautiful and intelligible reality which may be in some sense conscious and value-oriented**. It is this worldview that confirms some major elements of liberal Christian faith, and that leaves open the possibility of a form of divine self-disclosure that can complement the findings of natural science in ways that are fruitful for achieving true human fulfilment. Although Christians should always be wary of attaching themselves too closely to what may be passing scientific fashions, nevertheless, this scientifically based worldview provides a framework for Christian belief that gives it a strong intellectual foundation. And liberal Christian belief may provide an explicit formulation of that faith in the intelligibility and value of being which science presupposes but often fails to recognise.

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