Has the advance of science made religion unnecessary ?

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How have we come to be able to appreciate the fact that our beliefs may be false, that there is a basic difference between what we believe and what is the case ?
(Davidson 2004 p 4).

One of the noblest human struggles is against power and its grip on historical memory.
(Pilger 2004 p xiv).

Our definition of human nature gives us a conceptual foundation for our ideas about human rights, individual responsibility and personal freedom.
(Donald in Rees and Rose (eds) 2004 p 34)

The most common of all follies is to believe passionately in the palpably untrue.
(H L Mencken quoted in Ashman and Baringer (eds) 2001 p 140).

Man's responsibility increases as that of the gods decreases.
(André Gide quoted in Ashman and Baringer (eds) 2001 p 142).

We are on the edge of an extraordinary new frontier in the human story when we will be able to manipulate the genetic code – ours and the code of others - creating new synthetic forms of human life, and perhaps growing up beyond contemporary humanness. Does this scare you ? Does it raise deep ethical questions ? Well, whether or not it doesn't matter, says Adrian Woolfson, because it's going to happen anyway.
Andrew Marr 'Start the Week' 6 December 2004. (www.bbc.co.uk/radio4 'Listen again')

. . . the creation of synthetic life is an inevitability.
(Woolfson 2004 p 8)

Preliminary observation.

(A short version of this paper was given on 13 December 2004 at a meeting of the Multi-faith group at the University of Derby. I was invited to provide a humanist perspective on the question, the other speakers were a religious Jew and a member of the Bahá'i faith. The question had been provided by the committee which arranged the series of meetings titled: 'This Week's Big Question').

First I take the liberty of slightly criticising the form in which the question is framed. It seems to juxtapose 'science' and 'religion' in terms which are rather too oppositional. Neither is capable of simple and single definition. Neither is monolithic. Neither has a monopoly of knowledge – in spite of some people's attempts to turn each of them into hegemonies. Judaism, Christianity and Islam all manifest some positive and some defensive views about science. From their website I understand that the Bahá'i faith's Fifth Principle is: '*Religion must be in accord with science and reason'*. The sequence of

the main terms in that principle is interesting. Some famous scientists have been and are religious believers.

In a sense I shall be dealing with caricatures – I hope not too unfairly.

Introduction and background ideas

Given that I have been invited to give a humanist perspective on the question I will not give a detailed exposition of the subtle nuances of both science and religion. That would take too long even if I were able to do it. I hope that my humanist perspective is carefully argued so as not to be merely polemical or prejudiced. I want to try to be fair, but I have a world view and an existential position. My humanism does not include belief in external, metaphysical sources of meaning, purposes, morality, codes or commandments for living. Nor does my humanism believe in any God as a source of divinely revealed facts about how the world works. Divine revelation is not a good basis for science. In other words, I do not believe in God.

What religion attempts to do *directly* is to establish *existential significance*, namely that meaning, purpose and morality are pre-ordained by a God who has not only created the universe but its meaning and purpose as well. These are made known through revelation. Some religions also believe that revelation is a source of scientific knowledge. Christian creationists are an example of this.

What some scientific discoveries do *indirectly* is to enable us to review the meanings which we give to our existence by the knowledge which scientists produce. Scientific discoveries are sometimes *existentially significant*. They may change and often challenge the ways in which we understand ourselves.

Even though I was trained to teach science, I need to say that my knowledge and understanding of science is minimal. I have been reading about scientific discoveries and the methods of science for years, but still I know very little. If my life was only based on my understanding of science, I would have no basis for living. I live with little and changing knowledge and on the basis of my beliefs and values. (Heath 2003).

I am not alone in my little knowledge.

> *Fifteen years ago, researchers quizzed Britons about their attitude to science. Oh yes, they all said, science was terribly important, and what's more they would welcome better reporting of science in newspapers and on TV. And then the researchers moved in for the kill. Does the Earth go round the sun, or does the sun go round the earth, they asked ? One in three got that wrong. The next question was: How long does it take ? Two in three could not answer.* (Tim Radford, science correspondent of 'The Guardian', 25 November 2004).

It's not only religion which is a mystery to people !! The difference is that in science at least someone knows the facts.

Two quotations.

The first is the familiar opening of Genesis:

> *In the beginning God created the heavens and the earth. And the earth was without form and void; and darkness was upon the face of the deep. And the Spirit of God moved upon the face of the waters. And God said: Let there be light, and there was light. And God saw the light that it was good . . . But of the fruit of the tree in the midst of the garden, God hath said, Ye shall not eat of it, neither shall ye touch it, lest ye die. And the serpent said to the woman: Ye shall not surely die: For God doth know that in the day that ye eat thereof, then shall your eyes be opened, and ye shall be as gods, knowing good and evil.*

The second quotation is from a recent New York Review of Books. The reviewer, Anthony Grafton, is discussing a major exhibition in the New York Public Library titled: 'The Newtonian Moment: Science and the Making of Modern Culture'. He is referring to the manuscripts written by Newton which are on display:

> *The manuscripts reveal the man. He set out his definitions, rules, and theorems, boldly, baldly, provocatively, in a clear and direct style that reminds one of the great French thinker Descartes, whom he disliked. But then he tested them, corrected them, and refined them. And then he pulled them together once more into a new and more systematic form. Newton's numerous drafts figure and express his method of invention and discovery with immense vividness and force. Even in his most celebrated work on mathematics, optics and mechanics Newton did not create a new mental universe out of a whole cloth. He read, he learned, he digested a huge variety of works while his fellow scientists Robert Hooke and William Halley and others prodded him onward; and like a brilliant omnivorous intellectual silk worm he transformed and transfigured our understanding of how the world works.* (NYRB 2 December 2004. pp 38 and 39).

And of course Alexander Pope's famous dictum:

> *Nature and nature's laws lay hid in night: God said, 'Let Newton be', and all was light.*

The two main quotations illustrate a number of significant differences between science and religion. One of these differences is the way in which the Big Names of religion and science are treated.

Religious Big Names, mythical and real, and their texts and pronouncements tend to be seen as vehicles for divine revelations. These revelations need to be treated with respect and subjected to careful exegesis, but are not to be ignored or superseded. These

revelations tend to be accumulated into sacred scriptures which are revered by tradition, authority, ritual and status. The crucial question for religious believers then becomes: Do our ideas and lives conform to God's revealed will ? That's why religious ideas tend to be static. Religion tends to be *retrospective*.

There are Big Names in science but their ideas are treated very differently. Their ideas are taken seriously, not as timeless truths but as concepts to be challenged, criticised and superseded. Many of the Big Names in science had deep conflicts with the Christian church. The history of this conflict could almost be encapsulated: *'Never believe anything until it is officially denied'*. (Claud Cockburn quoted by Pilger (2004 p xv)) .

Simon Singh in the Times Higher Education Supplement (7 January 2005) makes the following interesting points:

> *So the truth will out. Scientific progress is inevitable. But the speed of progress can depend on the extent to which the scientific establishment tolerates mavericks and their rebellious ideas. A healthy climate of questioning leads to the rapid detection of flawed ideas and the promotion of insightful thinking. In contrast, if established scientific theories are considered sacred and senior figures are idolised, then the best fringe ideas from newcomers can get stuck in the doldrums. . . . Reality is the absolute judge of scientific truth.*

Since Kuhn (1962) we have come to appreciate that there are paradigm shifts in science and radically new ways of understanding the world are developed. His work made scientific knowledge more tentative. There are *important* texts in science but these do not become *sacred* texts. That's why scientific thought makes advances and is not static. Science is future oriented rather than backward looking.

Science is driven by the questions: Do the theories match the world ? How can the match be tested ? Which new theory might be a better match ? And so on, and on . . . . . Science is *prospective*.

There is a famous anecdote about Einstein which I think summarises these differences in relation to ideas and authority.

When, in his early twenties, a science journal finally agreed to publish his radical paper challenging current understandings of space and time 100 scientists signed a letter to say that he was wrong. He is reported to have said that if he were wrong only one scientist needed to say so. The quality of ideas in science is not determined by their longevity, or the number of people who believe in the ideas, or the authority of the people producing or denouncing them but in the robustness of the ideas when exposed to theoretical and experimental scrutiny. It's also interesting to note that Einstein himself became an authority who resisted ideas which contradicted his own. He said: 'To punish me for my contempt of authority, Fate made me an authority myself'.

Ideas in religions seem to be produced, believed in and codified in ways which are incapable of being tested but require people to accept them by faith. Ideas are supported by scriptures, tradition, ritual and authority.

So, a huge issue embedded in these two quotations is indeed that of authority. Roger Bacon (1220 (?) – 1292 CE) challenged the authority of the church when he described the nature of the rainbow in a rational way based not on faith but on observation. The rainbow had previously been assumed to be the eternal sign of God's covenant with his people after the Flood as stated in what Christians call the Old Testament. Bacon said that the rainbow was a natural phenomenon. An incident which now seems trivial to us actually encapsulated the issue of authority and resulted in painful conflict –painful that is for Roger Bacon.

In some respects the conflict between religions and science has been a conflict of authority.

Who has the authority to determine where reality came from ?
Who has the authority to define what reality is like ?
Whose narrative about reality is valid ?
Who 'owns' the knowledge of the world ?
Indeed, who 'owns' the world God or – or what ? God or nothing ?
Who decides on the significance of human beings ?

A slight digression on the issue of divisions.

Divisions and specialisms in science are not indicative of dogmatic assertions of right or wrong, but represent a spectrum of specialist emphases which pursue different questions using different methodologies. (Knorr Cetina 1999. Swain (ed) 2002. Rees and Rose (eds) 2004. Cornwell (ed) 2004). One cannot be a scientific heretic, nor can one be excommunicated. Theoretical, methodological, observational, interpretational and evidential rigour are the criteria for valid science.

Divisions within and between religions indicate variously dogmatic, defensive and purportedly orthodox positions based on metaphysical beliefs. Schisms, cults, heresies and excommunication are still present religious realities.

Sciences advances on multiple fronts. Religions are disabled by their conflictual and diverse historically based dogmas and multiple orthodoxies.

Science does not presume to know for certain but seeks to enhance knowledge by the rigorous application of carefully devised methodologies. Religions often seem to start from a position of assuming that divine knowledge and truth have been revealed and that the problem is that of trying to apply the definitive revelation in changing circumstances.

I therefore think that the scientific project is important in major respects.

It creates a background and sometimes a foreground for our understanding of the world and of ourselves.

It also helps us to understand and in some respects control the world in which we live. In its medical aspects it has evident benefits. It also needs be noted that medical benefits are not universally beneficial nor are benefits universally available.

Even in exploring issues around the Big Bang and fundamental particles science helps us to understand where we probably came from, what we are made of and where the cosmos might be heading.

In other words, there are existential implications and challenges from scientific understanding as well as the practical benefits of day to day living with technological innovations.

The dangers of science are also evident. Weapons of mass destruction devised by scientific technology actually exist – in spite of rumours to the contrary ! For example, and only one example, millions of land mines are testimony to a total disregard for destroying and maiming human beings. Our planetary environment is actually at risk from short term abuse of scientific technology. Even the benefits of science are self evidently massively skewed in favour of 'we' in the west who are wealthy enough to be able to buy the techno goodies.

Having said all that, I suggest that our basic problem, even as modern human beings, is an *existential problem*. It is not that we need more scientific knowledge about the Big Bang and fundamental particles, but that we need more understanding as to how we can all live together in peaceful coexistence, creativity, trust, respect, tolerance and celebration of diversity, empathy, social and economic justice and with mutual care and respect grounded in carefully agreed international law and consensual human rights. How can we create satisfying meanings for our living ?

That is a summary of my humanist perspective. For me these are not spiritual or religious problems but simply human problems. The word 'simply' must be an understatement !

Whether science and peaceful coexistence are mutually exclusive or reciprocally beneficial is a very moot point.

Whether religions and peaceful coexistence are mutually exclusive or reciprocally beneficial is also a very moot point.

It's self evident that both the application of science and technology in armaments including weapons of mass destruction and the practice of religions in wars and oppression have been and continue to be the causes of massive and on-going human disasters. As noted by the perceptive author of Genesis: *knowledge can be good new or bad news* – a loose translation.

Science demystifies

One of the aims and consequences of science is to remove mystery. The *raison d'être* of science is discovery. Science thrives on curiosity. Science pursues questions of causes and effects and relationships between things with rigour. Different sciences ask different questions, develop different methodologies and produce different kinds of knowledge (Knorr Cetina 1999. Swain (ed) 2002). The thrust of scientific endeavour is to explore the nature of things. Science is inherently sceptical but paradoxically some scientists become dogmatic. Science thrives on critical debate and is, to an extent, open and democratic for those who have the requisite understanding. Science is not static. Science de-mystifies. *'Science works precisely because its results are always tentative'*. (Park in Ashman and Baringer (eds) 2001 p 144).

In Melvyn Bragg's 'In Our Time' discussion (BBC Radio 4, 4 November 2004) there were intriguing references to the way in which the advancing knowledge about electricity in the eighteenth century moved from originally being an occult study, brimming with mystery which was deliberately enhanced, to a formal branch of theoretical and applied physics. The occult was the religious/mysterious phase of the development of electricity, the careful exploration and use of electricity was the scientific stage. The advance of science is the advance of demystification.

Another aim of science, and indeed a major outcome, is to enable changes to take place. With genetics we seem to be at the start of mind-boggling changes in terms of what *we ourselves are able to be* and *what we are able to create* in terms of what Woolfson (2004) calls 'synthetic life'. The slow pace of evolution is about to be speeded up by scientific interventions. This is an *existential change* of enormous proportions as well as a change in scientific understanding and practice.

The question: *Who are we ?* is now profoundly unavoidable not least because we seem to be on the edge of being able to make drastic changes in *who we are* and *who we might choose to be*. We will also be able to make *changes to the unborn*. As I said earlier, science tends to have significant existential implications for us.

Thus another source of conflict between science and religion is pending and indeed underway.

Religion survives on mystery, perpetuates mystery and even thrives on mystery. Religions invent gods and revelations as sources of meanings for living. Religious knowledge tends to be static, traditional, repeated, creed-based and ritualised. The main revealed religious texts are pre-Modern. They inhabit a world which is pre-scientific – indeed a universe which was geo-centric and an earth which was flat. Religious meanings tend to be interpreted by priests and other such who have a vested interest in perpetuating the mysteries on which their status and power depend. Creedal and ritualistic repetitions are essential for many religious purposes. Religions tend to resist

scepticism and criticism. Religions have tended to oppose the advance of science and some still do. Religions can easily become, and in some cases are intended to become, universalistic, imperialistic, codified and dogmatic. Religions also like to be associated with power – secular as well as divine in order to protect their privileged status and authority.

Religions tend to condemn those who criticise or satirise them. Religions do not like to be mocked. Violent demonstrations by Sikhs resulted in the closure of the play 'Dishonour' in Birmingham. Its author, a Sikh, is in hiding having received threats including death threats. A Sikh spokesman said: *'Freedom to abuse or insult a religion is unacceptable'*. (BBC 4 News, 20 December 2004). The law against blasphemy is still in place providing unique protection to the Christian faith.

Religions make the assumption that human beings are special spiritual beings, the epitome of God's creative work capable of responding to the demands of their divine creator. They also emphasise the crucial importance of faith as Professor Denys Turner did in his discussion with Jonathan Miller (BBC 4, 19 November 2004). When pushed by Miller's questioning Turner asserted:

> *Well, it's faith. Revelation is either everything or nothing.*

Turner is Norris Hulse Professor of Divinity at Cambridge.

When I recently visited Bruges I went into the small Roman Catholic basilica in which a phial supposedly containing a sample of the blood of Christ is exhibited each day at 11.30 in the morning. It was interesting to see the way in which this was venerated and to observe the attitude of the priest. The submission of this sample to DNA testing would presumably demystify the whole fantasy and would not be done. I was reminded of a mystery which has caused many conflicts over the centuries – the transubstantiation of bread and wine into the body and blood of Christ. This is perhaps an extreme example of the perpetuation of mystery, but it's indicative of the religious need to have mystery as the essence of religious believing. And not just any mystery, but a divine and fundamentally inexplicable mystery. A mystery which is beyond the critical testing of science. A mystery which requires a faith response.

Some believers in science and some believers in religion can, unfortunately, manifest tendencies to want their beliefs to dominate all thought. Both science and religion can fall into dogmatic – even bigoted - traps. Hegemony is a constant seduction for those who think that they have the truth.

A more current example of mystery and scientific enquiry.

In July of this year I gave a paper at the national conference organised by the Alternative and Complementary Health Research Network held at the University of Nottingham (2004). During one of the discussion sessions a woman spoke of her therapeutic work with *auras* with the air of matter of fact. She seemed to know that auras existed and that

she could do therapeutic work based on her understanding of them. I made no comment. There seemed no point.

Then in 'The Guardian' (21 October 2004) there was this report:

> *Apparent psychic powers that enable people to see colourful auras round others could be the result of faulty wiring in the brain. Jamie Ward, a psychologist at University College, London, says the aura could be nothing more than a rare condition known as emotion-colour synaesthesia. His study of a woman known as GW is published in the October journal 'Cognitive Neuropsychology'. Ward said:*
>
> *'A popular notion is that some people have a magical ability to detect the hidden emotions of others by seeing a colourful 'aura' or energy field that they give off. Our study suggests a different interpretation. These colours do not reflect hidden energies being given off by other people, rather they are created entirely in the brain of the beholder. The ability of some people to see the colourful auras of others has held an important place in folklore and mysticism throughout the ages. Although many people claming to have such powers could be charlatans, it is also conceivable that others are born with a gift of synaesthesia'.*

There are innumerable examples of the demystifying results of scientific understanding. Demystification has been an essential aspect of science.

In the west science has had considerable impacts on what level of health people expect and what they feel they need when they are ill. Science has massively increased the comforts and conveniences of our western living. We, I think I speak for the majority, do not understand how science and technology work – I cannot mend my computer, or my car, or my washing machine, or my watch, or my telly, or my hi fi, etc etc etc. but these goodies do make my life enormously convenient and enjoyable. Scientific and technological advances have changed our lives and our expectations. Perhaps we have become so accustomed to them that we no longer notice the impact of scientific innovations on our everyday living.

For those of us who do not understand these scientific/technological innovations, they are mysteries. The difference is that scientists do understand them and they are understandable by anyone who makes the effort, whereas religious mysteries are intrinsic and revered for their own sake as the basis of the meaning of life and living.

Science and existential issues

It also seems indisputable to me that in the West scientific methods and discoveries have had impacts not only on daily living but have also had huge affects on existential issues - how people try to make sense of their lives. I think that for some, including myself, the impact of scientific advance has created a deep and existential dilemma framed in the following questions:

Given the advancements of science should we put our faith and hope in science ?

Given the advancements of science is it possibly the case that science will eventually provide all the answers to all significant human questions ?

And the title of this paper: *Has the advance of science made religion unnecessary* ?

An affirmative response is given by Wilson (1998) who is the originator of socio-biology:

When we have unified enough certain knowledge, we will understand who we are and why we are here. (p 5).

Or to put it another way: Will science replace religion as the provider of *the only source of meaning* for our existence ? Wilson's answer seems to be: *Yes*.

I am not so sure and I think it's relevant to say why I am not sure about his standpoint. I think that Wilson is being naïvely optimistic in his view of the unlimited boundaries of scientific knowledge and authority. I think that he confuses exploration of external, objective reality with subjective and existential realities. I think that he confuses the ability to be conscious of the world and the world itself. I believe it to be the case that the brain/mind is necessarily a part of the world which is being explored and this means that the brain/mind is unable to 'stand outside' that world which is being explored. There is no Archimedean standpoint from which to view the world in its totality. Just because it seems that our minds transcend the world does not mean that they do. Those are some of the reasons for my hesitation about Wilson's optimistic – and misleading - position. But I still want to argue that scientific knowledge has existential implications.

The philosopher Daniel Dennett (1995) has said that Darwin's development of the theory of evolution has acted like a universal acid. That is, evolutionary evidence has dissolved religious ideas about the origins of life and has therefore significantly affected and destabilised the meanings which people give to their lives. It was Dennett (2003) who produced a fascinating one-liner: *We are the species that discovered doubt*. (p 165). I suggest that doubt has become part of many people's existential background.

In the programme presented by Jonathan Miller on 'Disbelief' (BBC 4, 25 October 2004) Dennett made the important point that whereas religious beliefs have a top-down view of the development of life – *in the beginning God created* – evolution completely up-ends this view. Complex life develops from the simplest forms to complicated forms by a random process of replication with variation. Evolution is bottom up. In evolution there is no purpose, no driving sense of direction, no sense of goals. There is just meaningless change. We are therefore, or so I believe, the result of millions of meaningless years of random meaningless evolutionary changes.

The discovery that DNA is the common basis of all life on this planet provides conclusive evidence for evolution. We are animals with big brains. We have the same basic building blocks as animals and all other forms of life. Genetic differences make us a distinct species. They do not put us outside the evolutionary frame.

As Woolfson (2004) observes: *The simplest way of identifying the genes that make us human is to compare the sequences of our genomes with those of other creatures. The more similar a species is to us the more valuable such comparisons are likely to be.* (p 186).

The report on 27 October 2004 of the new form of human skeleton Homo Floresienis found in an Indonesian cave also adds to the incontrovertible evidence that we are an evolved species of animal and that various forms of human evolved. This skeleton indicates that there were, or even are, alternative humans. I've even known some people who I would describe as 'alternative humans' !!

Erica Fudge, writing in the Times Higher Education Supplement (26 November 2004) stated:

> *(This discovery) raises the possibility that such claims for human uniqueness are misplaced. If there was more than one kind of human, doesn't that imply that there might be more than one way of being human ?*

David Aaronovitch writing in 'The Observer' (31 October 2004) said this:

> *It is wonderful how much we have found out about ourselves in the last 20 years. . . . Strangely, though, we are slow to accommodate what some of these discoveries entail, about history and evolution. Homo Floresiensis emphasises that different species of human beings have actually coexisted, in the same way that different species of monkeys do now. This further removes our particularity (and therefore the idea of progression to human perfection) and of 'purpose'. And what happened to our more immediate forebears and cousins is the same as what happens to other animals too.*

We are animals with language and with exalted and grandiose fantasies of our own status and significance. We are the narcissistic species. I no longer believe that we are the pinnacle of a god's purposeful creation. My conclusions from what science has discovered drastically changes my view of human beings. We are animals. This is why I say that scientific knowledge can have deep existential implications.

When I was a Christian I believed differently. And some Christians still do. A recent report stated:

> *A court in Cobb County, Georgia heard the local school's defence for placing stickers in science textbooks claiming that evolution is a theory not a fact. 'God created Earth and man in his image', said one parent when the books first came*

out. 'Leave this garbage of our textbooks. I don't want anybody taking care of me in a nursing home some day to think that I came from a monkey'.
('The Guardian', report by Gary Younge. 15 November 2004).

The Catholic Church's current attitude to evolution is indicative of religious ambivalence towards science: *'Although the Catholic Church now accepts the principle of evolution, it excludes the human soul from it'*. (Woolfson 2004 p 184). Having one's cake and eating it comes to mind. An existential dither.

It seems to me that many people, not only religious, hold on to myths about what we are rather than adopt an open ended approach in which scientific evidence is taken seriously. Perhaps intensity of belief hides a fear of facing uncertainty. After all, our beliefs sustain our sense of identity. Our beliefs are integral to our sense of existence and being. Bacon's demystification of the rainbow had more consequences that merely to illustrate the effectiveness of the observational method. The demise of the rainbow was the beginning of the demise of people's sense of God as the source of their identity.

I sense that people cherry pick scientific ideas. Those which provide cars, TV and heart by-pass surgery are accepted. Those ideas like evolution – which Dennett described as Darwin's dangerous idea, seem to be rejected because they threaten our fantasies as to our significance. Holding on to notions of divine creation of the world and of ourselves as the pinnacle of that creation is evidently false. *The most common of all follies is to believe passionately in the palpably untrue*. (H L Mencken quoted in Ashman and Baringer (eds) 2001 p 140).

Cosmologists now see evidence for the origin of everything in the Big Bang. This seems reasonable to me, but of course I cannot know this. At the moment I believe it. The physicist John Gribbin on Melvyn Bragg's 'In Our Time' programme (BBC Radio 4, 10 January 2002) said that we are all star dust. Everything about us derives from the original Big Bang. That seems OK by me. But it removes the need to believe in the mystery of a God whose own origins are necessarily shrouded in insoluble mystery. The frequently posed child's question: Who made God ? is unanswerable. Nor, from my point of view, is it an important question. Just because questions can be posed does not necessarily make them good questions. Nor does the fact of being able to pose a question imply that it must have an answer.

As science increasingly demonstrates its power to explore and explain the world, religious believing has shifted from the centre of people's thought to the margin's of life. What is there left for religion to deal with in the face of the expanding authority of science ? My sense is that in most areas of their lives people are practical atheists.

Mainstream religion tends to deal with a private spiritual realm where people find comfort in their beliefs. The term 'social Anglicans' has come into vogue. People go to church for social reasons rather than theological reasons. Such private believers are declining at least in the sense of attendance at religious services. There is also a plethora of fragmented, individualised spiritualities and therapies. On the other hand it's religious

fundamentalists who are thriving even in the modern world. They are thriving because they are taking back the 'ownership' of the narrative of the world and putting it back into divine hands. It's not insignificant that they tend to be anti-science and certainly anti-evolution. They are certain in an uncertain world. They suffer from the weaknesses of their certainties.

I became neither a social Christian, nor a private spiritualist nor a fundamentalist.

I gave up religion. I came to accept that we have the responsibility for inventing meaning for our living.

In addition I also came to look carefully at my own inner experience and once again I came to the view that there was nothing in my experience which could reasonably be called God.

I therefore came to the significant, life-changing decision that I did not believe in God. I did not need to believe in God. Therefore I would no longer pretend that I did believe in God. I gave up Christianity.

Religion became unnecessary. Religion no longer provides sets of meanings and beliefs which make sense to me in terms of my life and my living.

I have since spent my time creating a life without religion. I have spent time working out what I want to believe. I have tried to believe things for which I have some form of evidence. I have decided that I am a humanist.

Basically I have come to the belief that life has no meaning other than the meanings which we invent. I fully appreciate that there is a deep sense of loneliness in accepting this position. But lonely or not, the same moral issues remain in spite of scientific advances. Moral issues constitute an arena which is not amenable to scientific discovery.

Science and moral questions.

As a humanist who is impressed with scientific discoveries I still have to address ethical principles and moral issues of my living. I feel a need to come to a view about what sort of society I would like to live in. I have to decide how to exercise my sense of care and commitment to family, friends and to causes. I believe in trying to act fairly, compassionately and justly. I try to be kind and courteous. Science does not impact directly on my moral commitments and decisions.

I feel that I have to take these issues seriously because:

> *The values in which I believe give direction and purpose to my life and they are the basis for my relationships, political philosophy and notions of the kind of*

> *society, and indeed world, in which I would prefer to live. They represent ideals to which I aspire but which I sometimes fail to achieve. My values represent my beliefs about what makes for people's psychological, social and political interests and benefits in relationships, communities and in society.* (Heath 2003 p 95).

Science does not and cannot deal directly with these moral, political, social and interpersonal issues of human being and living. However, scientific knowledge and methodology does *inform* many moral decisions, for example the current stem cell research dilemma. *How* to carry out effective and reliable pre-implantation genetic diagnosis with a view to avoiding the production of babies with genetic diseases is a strictly scientific question and problem. *How* to manipulate embryonic stem cells for therapeutic purposes is a scientific problem. The questions as to *whether* we should do these things and *whether* we should provide the requisite funding are entirely different questions. The answer to the latter depends on values and beliefs, not on scientific knowledge.

It's important to emphasise that moral problems around pre-implantation genetic diagnosis and embryonic stem cell research are very close to issues of who we think we are, what we think it appropriate to do to ourselves and the manipulation of the lives of unborn others. (Habermas 2003). These issues have profound existential implications as does evidence of evolution.

As the quotation below indicates morality, scientific research and human identity become closely entangled with genetic knowledge and interventions.

Julian Savalescu, Professor in Practical Ethics at Oxford University, said in his article in the THES (5 November 2004):

> *Whether we like it or not, our future is in our hands. But if we do not exercise control over the genetic nature of our offspring, we consign them to the natural lottery and must take responsibility for its consequences. As parents, we should have children who have a good opportunity of the best life. Rather than fearing genetics, we should embrace it. Genetic selection is not cheating – it is one way to be a responsible and caring parent. Where an enhancement is clearly good for an individual we should offer it and let the individual decide. And in the case of the next generation we should let the parents decide. To prevent them from making these choices is to consign those who come after us to the ball and chain of our squeamishness and irrationality. We can do better than chance.*

This quotation is, as one would expect, infused with ethical terminology which is not scientific but is derived from humanist sets of beliefs and values. It does indicate the entanglements of moral decisions and scientific knowledge. It directly impacts on who we think we are. It is existential.

An indication of a religious response to the 'good opportunity for the best life' referred to by Savalescu is contained in the recent Swiss referendum on the use of embryonic stem cells. 'The Guardian' (29 November 2004) reported:

> *An alliance of Roman Catholic, Protestant and other groups said that removing stem cells from human embryos amounted to killing people, even though the embryos would die anyway.*

For those who hold these religious beliefs the stem cell issue is right at the centre of what is believed to be the divinely authenticated nature of human nature. It could be called *the divine right of embryos*. A theocracy of thought which clearly demonstrates the bizarre linkage of souls and cells.

Those who are centrally engaged with such research also recommend caution, but it is caution based on the need for extreme care in research, application and extrapolation, not a caution based on *a priori* assumptions about the spiritual basis of human nature.

> *Though few will doubt that gene therapy should be extensively explored for its potential to prevent or alleviate genetic defects and neurodegenerative diseases, its risks should not be underestimated. . . . The relevance of genetics to the intricate unfolding and operation of human behaviour is far from being clear, and attempts to link specific genes to specific behaviours or behavioural capacities are frequently simplistic*. (Yadin Dudai in: Rees and Rose (eds) 2004 p 169).

It was recently stated that there are 321 inherited diseases for which an embryo can be tested. It seems to me that this information arising from scientific research can be put to better use than the vagaries of believing that 'nature' is best left to itself. It's nature which has produced these diseases in the first place. Nature is not the benevolent vehicle of a God which most religions seem to believe. Nature is not a medium for divine activity which is not to be interfered with. Notions of 'playing God' do not apply. Making carefully thought out decisions does apply.

From my point of view nature is neutral, is random and is not benevolent. Science can improve on nature. Human beings need to make their own decisions on these matters.

For religion there is a tendency to assume that a beneficent God made an essentially beneficent world. *'God saw that it was good'*.

Scientific advances actually *create new moral problems* for us to grapple with. But science, in creating new moral problems, does not have any way of addressing or answering these moral problems. These moral problems belong to what one might call the ordinariness of ethical issues and cannot be solved by either logic or solely rational argument. Any decision is partial, is based on beliefs and values and is unlikely to meet with universal approval. Such decisions are utilitarian – but not for the benefit of the greatest number but for the benefit of those who choose to use these benefits. And for those in the cosseted west who are able to afford these benefits.

I like the inclusion of 'practical' in the professor's title. Moral decisions are indeed practical, and scientific advances make it unavoidable that we accept the responsibility of decision-making – one way or the other. And as Jesus was reported to have said: *Old skins are bad news for new wine - ideas keep moving on* – or words to that effect !

Man's responsibility increases as that of the gods decreases. (André Gide quoted in Ashman and Baringer 2001 p 142).
What science has *not* done is to create a basis for my values and beliefs in relation to how I treat other people. Science cannot directly address questions of ethics and morality. I try to treat others with respect, assuming that they value their well being and sense of dignity. Science has nothing to say about that. I value forgiveness as part of my attempt to be flexible and to be willing to compromise. Science has nothing to say about that. I value kindness, caring, friendliness, courtesy, and considerate behaviour. Science has nothing to say about all that.

Science can often and increasingly does address the question: *How* can we do it ? It is rarely able to answer the question: *Why* should we do it ?

The 'why?' cannot be answered with scientific methods of discovery. But the 'why?' question is not necessarily answered by religion either, or if 'religion' does provide an answer there will be a plurality of answers because there is no monolithic version of religion which can provide monolithic answers. See for example the divisions among Christians on the issue of abortion and therapeutic stem cell research. Or even on the morality of war.

Moral questions are not answered by a variety of gods whose existence is in serious doubt and who are believed in by fewer and fewer people. Some of those who do believe in their gods do so with evident bigotry and to the detriment of those who do not share their bigotry. Bigotry is not an answer to moral problems, it is itself a moral problem. But bigotry to one side, I cannot see how the vast variety of religious beliefs with their significantly differing moral stances can assert that religion(s) can provide clear guidance on moral issues. Religious believers seem to be as confused as non-religious people about moral issues.

Any *moral issue* is answered, or at least addressed, by a careful clarification of our beliefs about human being-ness, the values and interests of the people involved and a form of cost/benefit analysis of the situation. (Donald's chapter: 'The definition of human nature' in Rees and Rose (eds) 2004). What scientific advances have done is to raise profound questions about 'human being-ness'. One of the results of this is that notions of human being-ness are no longer necessarily defined in terms of a spiritual essence. Even the idea that there is an essential human nature of any kind has been challenged by scientific advances and also by philosophical explorations of notions of identity.

Moral issues may be *informed* by science. Moral answers are not *discovered* by science.

Our definition of human nature gives us a conceptual foundation for our ideas about human rights, individual responsibility and personal freedom. (Donald in Rees and Rose (eds) 2004 p 34)

Moral questions have to be answered by human beings trying to think their way through the moral issues as carefully and humanely as they can. No answers are likely to suit everybody. But it's people and only people who have the responsibility to engage with the problems and their temporary answers.

Reference to 'temporary' also reminds me that one of the problems with religious answers to moral and other questions is that they purport to be eternal, universal, static, traditional, scripture-based, backward looking. Answers or interpretations are provided by a patriarchal elite, a priesthood or similar. Religious answers to moral problems tend not to be democratic answers arrived at by full consultation because religions are not democracies – they are theocratic in their tendency.

The following is an example of the theocratic tendency.

There is no scientific evidence which indicates that females and males of whatever sexuality are incapable of fulfilling social roles.

The Anglican church is in an appalling moral mess over gay people, women and the priesthood and who can 'properly' become a bishop. Vociferous and influential sections of that church are still angry about women being ordained. No 'equal opps' here. They want a 'heterosexual men only' diocese of priests and bishops with its own archbishop. They assert with all the pseudo-authority of bigotry that being gay and practising that form of being human is a sin. This is, from my moral standpoint, grossly inhuman and inhumane. It is discriminatory and existentially debilitating.

I give it as an example of the backward, tradition-based, rigid, homophobic, misogynistic, dogmatic, bigoted attitudes which are all too prevalent among some religious believers across a range of religions. Anglicans do not have a monopoly of these inhumane and exclusionary ways of thinking and acting. Any backward looking divinely revealed dogma can have devastating affects on the lives of those who are thereby influenced.

The most common of all follies is to believe passionately in the palpably untrue.
(H L Mencken quoted in Ashman and Baringer (eds) 2001 p 140).

It also needs to be said that some secular ideologies can exhibit similar bigoted and oppressive tendencies. This is because they too believe that they have access to the Truth.

Incidentally, it seems extremely bizarre to me how the world's most militarily powerful Christian, George W Bush, can angst on about abortion and stem cell research whilst seeming to have no compunction about killing and maiming tens of thousands of civilian people in Iraq. The research published in the Lancet (October 2004) estimated 100,000 Iraqi civilians killed – many of whom were women and children. This Iraqi carnage is not

yet ended. When Bush was a State Governor he also agreed to the death sentence for 138 prisoners.

If a religion with power defines 'others' as evil, then the 'evil others' can be destroyed and their deaths need not be counted because they do not count as human beings. They are simply 'evil'. Fortunately science and humanism eschews such terms about human beings.

From my point of view, the mis-match between the espousal of belief in a god of love and justice on the one hand and the cruel and vicious actions of some believers is inhumane and bizarre. It's a massively asymmetrical and immoral de-valuing of human life.

I am not arguing that science is morally neutral. I am arguing that moral issues are not susceptible to merely scientific exploration.

So - has the advance of science made religion unnecessary ?

I am not persuaded by the idea of a God who reveals confusing and conflicting 'truths'. I prefer to rely on what science discovers as the basis for my trying to make sense of the world in which I live.

I am not impressed by an apparently loving God whose world consists of so much suffering, war, futility, disease, poverty, malnutrition, ignorance, hatred, bigotry, despair and disaster. Such a God is deeply offensive and immoral to me. I prefer to adopt the view that people have to keep on and on discussing ways in which we can try to make a better world for all people. We alone are responsible for these moral discussions and any ensuing (in)actions.

For those people who accept the evolutionary and genetic evidence that we are animals with big brains; for those who want to continually up-date their beliefs and understandings in response to contemporary scientific discoveries and knowledge; for those who are not interested in believing in, or depending on, metaphysical mysteries; for those willing to take on the responsibility for creating their own meanings, morals and existential possibilities; for those willing to accept that we are on own our with our human problems and existential possibilities, for such people the answer to the question is: Yes, the advance of science has made religion unnecessary. Or at least to be so problematic as to be unbelievable.

But, I want to emphasise, science has not made redundant or unnecessary the need for human beings to create meanings for living. Meaning, morality and mortality remain central issues for human beings – and I suspect always will.

For those for whom religion represents a ready made meaning and purpose for their lives; for those for whom religion is closely linked to their ethnic, cultural and personal identity; for those for whom the comforts of religion are indeed comforting; for those

for whom tradition , the past, mythical history and perhaps nostalgia are important; for those who believe in notions of 'nations under God' and who espouse the idea of the fusion of nationalism and conservative religion; for those who want their beliefs to be fixed and immutable, grounded in the eternal characteristics of the idea of an eternal God; for those for whom religion provides a believable existential framework for their living; for those for whom scientific knowledge, such as evolution and genetics, is actually threatening and undermining of their religious beliefs - if for all or some of these reasons religion is *needed*, then religion is *necessary*. Necessary by *need* not by *truthfulness*.

For such people the question: *Who and what would I, my community, my culture be without God ?* is a basic question of identity. For such their religion is needed and necessary. Criticism or satire of the religion of such people is an attack on their own identity – hence their frequent anger and even violence. Scientific undermining of their beliefs is also resented and evokes defensive reactions.

As a humanist I do not believe in God and therefore I do not believe in religious observances. Nor do I believe that religions should have any privileged status and authority in a society. God is not necessary either for my personal or cultural sense of identity. A humanist believes in people – with the potential for creative living, empathy, compassion, tolerance and hope on the one hand and stupidity, insensitivity, aggression, despair and destruction on the other. Those are the unavoidable tensions in a humanist's belief system for which there is no divine solution, no divine rescue. Indeed, no solution or rescue of any sort except in so far as we cooperate with each other in the interests of all.

And finally, because I believe death to be final, there's the question of life after death. Is there a soul ? Can consciousness continue after the death of the brain which enabled bodies to be conscious ? My response is: If consciousness is able to survive the death of the brain then this is a *scientific* issue for exploration, not a *spiritual* issue of the immortality of the soul. Science *may*, therefore, be the final arbiter of the most puzzling of human questions.

In our society science provides the unavoidable backdrop to the meanings which I create.

Scientific advances and increasing awareness of the complexities of our motivations have made God and religion, for me, unnecessary. I do not need them. From a personal point of view, I do not need God to be the basis of my sense of identity.

But as I said at the beginning: it's not more scientific knowledge we need so much as understanding how we can all live together in peaceful coexistence, creativity, trust, tolerance, respect for each other and for diversity, empathy, social justice and with mutual care and legal respect grounded in carefully agreed international law and consensual human rights. Significant human energy should be put into exploring these issues.

Life is a not a sacred gift but the result of sequences of random processes. So I believe.

For better or worse we are simply human - and we're on our own.

I can't resist concluding with a quotation which always causes me to smile, and in the right mood, to laugh.

'Do you believe in God?' 'Would you rephrase that question please ?'
(Porter 2001 p 76)

You may wonder at my sense of humour !

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17 December 2004. Geoffheath@aol.com

This paper is also available at www.bowlandpress.com Click on 'Seminar papers'.

Also available on that website are seminar papers on Complementary and Alternative therapies.

A current analysis of deeply humane and therefore moral issues which arise from genetic research is provided by Habermas. (2003).

The late Stephen Jay Gould in his book: *Rocks of Ages* (1999) addresses issues around ways in which science and religion address different kinds of questions.

The edited book: *Alas, Poor Darwin* (2000) by Hilary and Steven Rose is a critical discussion of inappropriate uses and extrapolations of evolutionary discoveries.

Knorr Cetina's book *'Epistemic Cultures: How the sciences make knowledge'* (1999) is the first ethnographic study of two very different internationally respected scientific laboratory cultures and the very different kinds of knowledge which these cultures produce.

Davidson's book *'Problems of Rationality'* (2004) addresses philosophical problems of thought, language, meaning and action which relate to human be-ing and agency.

Neurosciences are not only big business but also massive in their implications. Their responsibilities and dilemmas are explored in the book edited by two leading researchers Dai Rees and Steven Rose (2004): *The New Brain Sciences: Perils and Prospects.*

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