**Creationism and Schools**

***Government Policy***

***The new changes mean all publicly-funded schools are now barred from teaching creationism as evidence-based theory.* So,** what does this look like in practice for teachers when teaching children about origins?

The announcement of the current coalition government’s decision not to fund schools that teach what is dubbed ‘creationism’, is actually an extension of what was encapsulated in a document that the then government (2007) requested a group of us, involved in science education and in the interplay between science and religion, to compose for use in schools. The DSCF Working Party document was entitled ‘*Guidance on the place of creationism and intelligent design in science lessons’.* Although it has not since been replaced, it has now been archived. Among the points it made was that in science education, although it may make passing reference to historical ideas held in the past, such as *phlogiston* in chemistry, it is the current theories of *mainstream* science which are taught. So the age of the universe will be taught as c. 13.7 x 109years, with our Earth being c. 4.6 x 109 years old, and not some 6000 years as was claimed in imaginative attempts by Archbishop Ussher of Armagh (1581-1656), and some others to date the Earth from incomplete Bible genealogies. Ussher’s conclusion of 4004BC was printed in the margins of some copies of the Authorised Version, giving the date a spurious air of authority and orthodoxy. Such attempts yielded ages that are very different from the current consensus among academic scientists of various faiths and of none, whose expertise lies in the fields concerned, namely, in mainstream cosmology, physics, chemistry, geology and biology.

The very word *creation*ism has contributed to the confusion in the minds of some theists, atheists and secularists alike by adding, to the theological concept of Creation, widely differing estimates of how long ago they imagine the Universe began. The label ‘creation*ism’* compounds the confusion in that it leaves no word available to religious believers who wish both to identify themselves with belief in Creation and to distance themselves from belief in a geologically young Earth. But the rejection of the young Earth component of creationism does not warrant dismissing the traditional belief in Creation itself. That would be to commit a category mistake, in this case to confuse an *act,* Creation, with the *mechanisms* involved.

Although the word ‘Creation’ is widely borrowed to refer to original works of music, art and ideas, and even more confusingly to physical beginnings like the ‘Big Bang’, ‘Creation’ is essentially a theological concept. It is firmly embedded in Christianity and the other Abrahamic religions — the concept of a transcendent Agent, God, purposefully bringing-into-being-and-sustaining-in-being-everything-there-is. The ‘sustaining’ part is often referred to as *creatio continua.* So ‘Creation’, is God’sact(s)of *making* and *maintaining* the Universe, irrespective of the processes involved*.* The ‘built-in' nature of the mechanisms for maintaining the ‘functional integrity’ of the whole created order are hinted at in St Mark’s gospel:

*‘A man scatters seed on the ground… the seed sprouts and grows, though he does not know how. All by itself [Gk* automatos*] the soil produces corn— first the stalk, then the ear, then the full grain in the ear.’* [4:27f]

It hardly needs saying that, by using *automatos* ‘All by itself’, Mark was not denying seed-germination being part of God’s activity’! Any idea of God ‘poking His fingers in’, as with the *semi-deism* of yesteryear, to patch things up, is precluded, since the whole World is a going concern, inaugurated and upheld by God. It is a working whole, as indicated by the word *integrity.* It is referred to in Genesis as ‘good’, i.e. ‘fit for purpose’. Rare acts such as miracles are not precluded, however, since they are not God acting where He does not normally act, but acting differently, for particular purposes, from the ways He normally acts. Failure to recognize the *integrity of creation* has led to the explanatory confusion of the ‘God-of-the-gaps’ — plugging ‘God’ into current *gaps* in scientific knowledge instead of recognizing Him as underpinning the whole scientific enterprise, known or presently unknown.

Galileo, despite being a difficult person, gave some wise counsel in the context of planetary astronomy:

‘… since the Holy Ghost did not intend to teach us whether heaven moves or stands still ... nor whether the earth is located at its centre or off to one side, then so much the less was it intended to settle for us any other conclusion of the same kind … Now if the Holy Spirit has purposely neglected to teach us propositions of this sort as irrelevant to the highest goal (that is, to our salvation), how can anyone affirm that it is obligatory to take sides on them? ... I would say here something that was heard from an ecclesiastic [Cardinal Baronius] of the most eminent degree: ‘That the intention of the Holy Ghost is to teach us how one goes to heaven, not how heaven goes.’[[1]](#endnote-1)

*… and again…*

 ‘I should think it would be the part of prudence not to let anyone usurp scriptural texts and force them in some way to maintain any physical conclusion to be true, when at some future time the senses ... may show the contrary.[[2]](#endnote-2)

***God’s Two Books’***

From antiquity there has been a popular metaphor for understanding how nature relates to the Bible. It is known as the metaphor of ‘God’s Two Books’. This portrays ‘God as the Author of Two Great Books; the Book of Scripture [the Bible] and the Book of Nature ‘the World’. Since each ‘Book’ has the same author, one doesn’t expect contradictions, when each is properly understood. Understanding involves appreciating that the Bible employs over forty different literary *genres* in getting its message across. It appears to encourage us to recognize this factor as early as the opening chapter of Genesis, in its use of the word ‘day’. Days can be measured with reference to our Sun *(solar day)* or the so-called ‘fixed’ stars *(sidereal day)*. But the Sun, Moon and stars were not created until ‘Day 4’! So it cannot be using the word ‘day’ to mean our ’24 hours’ or ‘*day*light’. We are not, however, strangers in employing the word ‘day’ to mean different things, such a period of time —‘She was alive in Winston Churchill’s ‘day’. In the New Testament, Peter’s second letter also cautions us that ‘With the Lord a day is like a thousand years, and a thousand years are like a day.’ 2 Peter 3:8 *(NIV)*

An Early Church Father, Origen (**c**. 225 CE) wrote about the use of the word ‘day’ in the Genesis account of the creation of the Sun on ‘day 4’, asking, ‘What man of intelligence, I ask, will consider as a reasonable statement that the first and the second and the third day, in which there are said to be both morning and evening, existed without sun and moon and stars ...?’[[3]](#endnote-3)

Augustine, in the fourth century CE, perceptively commented, ‘creation is *with* time, not *in* time’ – that is, time is part of the created order. This idea of time and space coming into being with the universe is mirrored by modern physics. The concept of creation sits easily alongside scientific theories about the origins of our world, but to confuse the two easily generates the category mistake referred to above.

When reading the Bible, it is not always easy to distinguish where figurative language is being used, or even when figurative and factual accounts are intermingled. C.S.Lewis once wrote (1953), in answering a letter on a different subject:

‘I think we must take a leaf out of the scientists’ book. They are quite familiar with the fact that for example, Light has to be regarded *both* as a wave in the ether and as a stream of particles. No-one can make these two views consistent. Of course reality must be self-consistent; but till (if ever) we can see the consistency it is better to hold two inconsistent views than to ignore one side of the evidence.’[[4]](#endnote-4)

The example is an interesting one because, even at the time of Lewis’ writing, this paradox of the wave/particle duality was being unravelled by the developing science of *quantum mechanics* - although it lacked picturability - and the concept of the *ether* was found to be redundant*.* But other quandaries were emerging and the principle of having a ‘suspense account’\* of unsolved mysteries remains a wise one for the careful thinker.

The word ‘evolution’ still raises hackles in some people’s minds. Darwin himself rarely used the word, preferring the phrase ‘descent with modification’ with which few would take exception. Doting parents from antiquity readily use phrases like, ‘he’s got his mother’s eyes but his father’s nose’. The fact that ‘chance’ processes are involved does not entail atheism. In science, chance is a technical term, implying ‘unpredictable from prior data’, not accidental. Chance, or to use the technical term, *stochastic* processes, within the stars of the early universe actually resulted in an orderly array of some ninety naturally occurring elements classified in The Periodic Table. Scientists working on different aspects of the development of humankind take different features such as brain capacity, tool-making and language as working demarcations of humankind from other primates, with ever-increasing recognition of overlaps. The key religious distinction is that humankind is made ‘in the image of God’ — not in physical appearance but in spiritual (another metaphor) nature — and able to relate to its Creator. Science, however, has nothing to say about the concept of Creation, since it only deals with physical entities such as space and time. The Greek word *,* from which we get our word *physics,* means *‘nature’.* ‘Old Mother Nature’, although credited with ‘planning’ and ‘doing’ things, is a mythical entity, beloved by those who want to dispense with God. Science itself can neither confirm nor deny *acts* of Creation — ‘bringing-into-being-and-sustaining-in-being-of-everything by God’.

The historian, Professor David Livingstone has pointed out that: ‘… by and large, Christian geologists had both encountered and accommodated the issue of the age of the earth long before the appearance of Darwin’s *theory.’* [[5]](#endnote-5)

Similarly, another historian, Professor James Moore has commented, ‘With but few exceptions the leading Christian thinkers in both Great Britain and America came to terms quite readily with both Darwinism and evolution.’ [[6]](#endnote-6)

So, what is it appropriate to teach in science lessons?

The nature of, and evidence for, evolution must be taught at key stage 4 as these are part of the programme of study for science.  Key stages 1, 2 and 3 include topics such as variation, classification and inheritance which lay the foundations for developing an understanding of evolution at key stage 4 and post-16.

As from September 2015, evolution is in the primary curriculum, but see Alister McGrath’s critique of possible conceptual difficulties as well as the implications for religious believers in ‘Evolution and religion: separate or complementary?‘ in THE TIMES, Saturday 30 2014.

Because some people with religious beliefs feel threatened by science – especially when it is presented falsely, as atheistic, a number of colleagues in science education believe it helpful, if the matter of creation*ism* gets raised in a science lesson, to be able, briefly to explain the difference between ‘creation*ism’* and ‘Creation’. The word ‘creation*ism*’ is a hybrid, one which includes both the theological concept of Creation — which lies outside the domain of science — and speculations, usually emanating from religious sources, about time-scales and processes. Science offers no threat to belief in God: Creation is not a scientific concept. Unfortunately, there are some science teachers who do not understand the limitations as well as the strengths of their subject and unjustifiably try to present science as leading to atheism. It is important for every science teacher to understand the epistemological basis of their subject. Science can answer questions about how the Universe may have come into being and continue in being, but can say nothing about whether it is of God’s doing or not. Put briefly, science is the study of the natural world, whereas religious enquiry includes questions about whether there is anything *other* than the natural world (God?), to which the natural world owes its existence. Clearly, it is odd to go to science – the study of the natural world – to try to answer the question ‘is there anything other than the natural world?’

**Scientific theories**

Some people who wish to elide evolution from the curriculum, describe it as ‘only a theory’ Such a use of the word ‘theory’ can mislead those unfamiliar with science as a subject discipline because it differs from an everyday meaning of a ‘theory’ as being little more than a ‘hunch’. In science the meaning is less tentative and indicates a substantial amount of supporting evidence, underpinned by principles and explanations accepted by the international scientific community. However, it does serve as a reminder that all scientific knowledge is considered to be provisional as it can be overturned by new evidence, validated and accepted by the scientific community.

Another strategy for dismissing evolution and an ancient Earth has been to claim that a young Earth is a valid alternative theory that should be taught in the interests of fairness, that it should be given equal time, or introduced as a matter of controversy. This, on present scientific understanding, would be unwise. There is, at present, no controversy in informed scientific circles about whether the Earth is geologically young or old.

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\* A suspense account is one used in book-keeping which temporarily stores transactions about which there are uncertainties yet to be resolved.

I have drawn on some material previously published in my

Poole, M. W. (2007) *User’s Guide to Science and Belief,* pp 128, Oxford: Lion Hudson

Poole, M. W. (2008) ‘Creationism, intelligent design and science education’, *School Science Review* **90**(330), 123-129

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1. Seeger, R. J. (1966) *Galileo Galilei, his life and works*, p. 271, Oxford, Pergamon [↑](#endnote-ref-1)
2. Seeger, *op. cit.*, p. 274 [↑](#endnote-ref-2)
3. Origen First Principles, c. 225, Book 4, chapter 3 [↑](#endnote-ref-3)
4. Lewis, C. S. (1966) *Letters of C. S. Lewis,* ed. W. H. Lewis, p. 252, London: Geoffrey Bles [↑](#endnote-ref-4)
5. Livingstone, D. N. (1987) *Darwin's Forgotten Defenders,* p. 27, Edinburgh: Scottish Academic Press/Eerdmans [↑](#endnote-ref-5)
6. Moore, J. R. (1979) *The Post-Darwinian Controversies,* p. 92, Cambridge University Press [↑](#endnote-ref-6)