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BIOLOGY – A Critique of Naturalist Science

Contents

1. Introduction	1
2. The Bush of Knowledge	1
3. Naturalism	4
4. Evolutionism	9
5. Two Foundational Laws of Biology	13
6. Variation	13
7. Information	14
8. Fossils	16
9. Developmental Biology	17
10. References & Bibliography	22
11. About the Author	31

1. Introduction

I first encountered the issue of origins as a high school student in the middle of the 1960s. At that time I found little help in the available Christian literature – which was very sparse compared to today. The (mainly American) creationist literature breathed an overly rationalist view of science, and also tended to promote dubious scientific theories. The modern revelations from the history and philosophy of science (then just beginning) were ignored, or unknown. The theistic evolution literature I found very unsatisfactory regarding its treatment of orthodox Christian theology, and of Biblical exegesis. I decided that I must try to find out for myself. In 1965 I went to Birmingham University (UK) to read biology, determined to find out all I could about creation and evolution and eventually do research in some relevant topic of origins biology. By the time I left with a doctorate in zoology, I had become a convinced creationist on both Biblical and scientific grounds. In the nearly 50 years since, I have encountered much to refine my understanding, but nothing to change that fundamental conviction.

2. The Bush of Knowledge

2.1. The *Bush of Knowledge* (© Richard Russell & Arthur Jones, 1969) shows how - in every area of study.- the data (*aka* 'facts') are understood in the terms of a theory, against the frame of reference of a paradigm (*aka* conceptual framework, research programme), within a philosophical view of reality, and from a religious stance. This should not be understood as a postmodern approach, but that 'strong objectivity' (to appropriate a term from Sandra Harding – see *Whose Science? Whose Knowledge?* Open University Press, 1991, page 42) demands an exposure and critique of every level in the framework of explanation.

2.2. Religion

The term 'religion' (*aka* 'faith' or 'worldview') can be misunderstood as referring only to the followers of the main world religions (such as Christianity, Islam, Judaism, Hinduism *etc.*). The term 'worldview' is thus often to be preferred, because it is widely accepted that *everyone* has a worldview. However, with that understanding, we will stay with the more familiar word 'religion'.

The religion of those who accept the secular scientific theory of evolution is that of **ATHEISM**. BUT we must remember that someone's religion is not what they might claim it is, or even what they might think it is!

Someone's religion *is* Atheism if they live and act:

- as *if* there is no God
- as *if* faith is irrelevant to everyday life
- as *if* a Godless and faithless life is natural and normal

So the challenge to us all is: 'What kind of life feels most natural and normal to us?' Is it that of a Biblical Christian worldview, or that of a secular, naturalist worldview?

2.3. General Philosophy

Every research enterprise is based on general philosophical assumptions about the nature of reality, assumptions of:

- **ontology** – what is reality, the world in which we live? Is physical (material) nature all that really exists (Naturalism)? Or are there other irreducible aspects of reality besides the physical? Or are there even aspects of reality that are inaccessible to purely human (e.g. scientific) investigation and unknowable by it?
- **anthropology** – what are we as human beings? Are we just very complicated chemical machines, confined to only those experiences possible in a purely material reality? Or is our human being more than the material, so that we can communicate with an unseen spiritual reality – as theists believe?
- **epistemology** – how do we know anything? In a purely physical world, the conclusion seems inescapable that our acts, thoughts, and beliefs will be wholly determined by our material being (by our genes, hormones *etc.*) and our sense of free will be just a delusion. Or, as in Christian belief, is there a Creator who has made a universe that is knowable by his human creatures, as they follow the guidance and understanding the Creator makes available to them, if they are willing to accept it?

With reference to the topic of this paper, is biology wholly reducible to physics and chemistry, or is the biological another irreducible aspect of reality? I will argue for the latter, drawing attention to an insightful comment of Boris Pasternak (1890-1960) in

Doctor Zhivago: “Life is never a material, a substance to be moulded. If you want to know, life is the principle of self-renewal, it is constantly renewing and remaking and changing and transfiguring itself.” (*Doctor Zhivago*, London: Flamingo, 1984, page 373). Developing that insight, I would suggest that life is fundamentally *generation* (think: reproduction, development, differentiation, adaptation *etc*) and that biological entities (ecosystems, communities, organisms, cells, organelles *etc*) are fundamentally *generative systems*. All biological statements then have a fundamental reference to generative activity.

There are two major General Philosophies relevant for our understanding of the evolution/creation debate: those of *Naturalism* and *Evolutionism*, which we will consider in Sections 3 (pp 4-9) and 4 (pp 9-12) below

2.4. Discipline Philosophies

At any period in the development of its research programmes, every discipline is characterised by certain disciplinary, philosophical commitments. Modern biology is dominated by the philosophies of:

Mechanism – the universe is a material, mechanical system wherein all events are to be explained by preceding events which are their causes.

and

Atomism – all wholes are to be explained by analysis into their parts, *e.g.* organisms into their genes.

2.5. Paradigms

In the sciences, paradigms provide the key concepts and show how these concepts interrelate to create a framework for research.

Examples of paradigms in the physical sciences are: atomic theory, chemical bonding theory, kinetic theory of gases, quantum theory, chaos theory, conservation of energy law, law of increasing entropy, big bang theory, electromagnetic theory and the least action principle.

Examples of paradigms in the biological sciences are: cell theory, exclusion principle (in ecology), gene theory, the principle of homeostasis (in physiology), sociobiology, selfish gene theory, law of biogenesis, Darwinism, Structuralism (in developmental biology), principle of homology (in morphology).

Darwinism, for example, provides a framework for research utilizing key concepts such as ‘variation’, ‘heredity’, ‘adaptation’, ‘fitness’, ‘environment’ and ‘natural selection’, and shows how these concepts interrelate to explain the evolution of organisms.

These paradigm concepts do not refer directly to things we can observe and

measure (the ‘instances’ - we say that they are *non-instantiative* concepts). For example, we cannot go and directly observe an ‘environment’. It is not the space in which an organism lives, nor its physical surroundings. It is a biological (or, I would say, a ‘generative’) concept. As such it refers to all those extrinsic factors (both external and internal) that significantly influence (support or hinder) an organism’s vital (generative) functions – its normal development through its life-cycle. To utilize the concept we must discover, concretely and exactly, what the ‘environment’ is for a particular organism. Identifying an environment may not be easy. Two organisms may live in the same pond (same habitat), but their environments may be very different. Incidentally, this is a key issue with the peppered moth story – despite all the research to date, we still do not understand enough about the moth’s environment. Similar problems attend the use of all the other paradigm concepts.

2.6. Paradigms in Genetics

The relevant genetic paradigm is neo-Mendelism (particulate heredity – that the factors governing heredity are material ‘atoms’, now called ‘genes’) and neo-Weismannism (germ-line heredity – that the germline gives rise to the body, but that the body does not influence the germline). Here I share Jonathan Well’s conclusion (*The End of the Genetic Paradigm*, forthcoming) that there is over-whelming evidence that the fundamentals of heredity are non-atomistic and non-genic – see section 9, page 17ff. On that count alone, (neo-)Darwinism would appear to be untenable.

3. Naturalism

3.1. Two famous quotes from Richard Dawkins:

“We are survival machines – robot vehicles blindly programmed to preserve the selfish molecules known as genes.” (Richard Dawkins, *The Selfish Gene*. Oxford University Press, 1989, 2nd edn, page v.)

"The universe we observe has precisely the properties we should expect if there is, at bottom, no design, no purpose, no evil and no good, nothing but blind, pitiless indifference ... DNA neither knows nor cares. DNA just is. And we dance to its music." (Richard Dawkins, *River out of Eden: a Darwinian view of life*. London: Weidenfeld & Nicolson, 1995, page 133)

Or as John Lennon put it

“Above us only sky”

Here are the opening lines of John Lennon’s *Imagine* (1971)

Imagine there's no Heaven
It's easy if you try

No hell below us
Above us only sky

Imagine is not a “plea for world peace”

([https://en.wikipedia.org/wiki/Imagine_\(John_Lennon_album\)](https://en.wikipedia.org/wiki/Imagine_(John_Lennon_album)), accessed 05/09/2019), but seductive, atheist propaganda. Lennon “later expressed his displeasure with the more commercial sound of the album, saying that the [title track](#) was “an [anti-religious](#), [anti-nationalistic](#), [anti-conventional](#), [anti-capitalistic](#) song, but because it's sugar-coated, it's accepted”. ([Lennon Lives Forever: John Lennon Archived](#) 13 February 2008 at the [Wayback Machine](#), Rolling Stone. Retrieved on 2006-12-02)

3.2. Naturalism (also known as *scientism*, *positivism*, *physicalism* and (*scientific*) *materialism*, though, strictly, these all have their own specific nuanced meanings) is the real issue. Naturalism is the belief that physical (material) nature is all there is.

So what is the secular, naturalist story?

In the beginning was nothing. By chance this nothingness gave rise to something. By chance this something gave rise to matter and energy. By chance and over billions of years this matter and energy gradually gave rise to stars and galaxies, to asteroids, comets, meteors and planets. By chance living things gradually evolved and finally, after billions of years, by chance, intelligent life arose.

But just marinate in the story as C.S. Lewis tells it:

“Supposing this to be a myth, is it not one of the finest myths which human imagination has yet produced? The play is preceded by the most austere of all preludes: the infinite void, and matter restlessly moving to bring forth it knows not what. Then, by the millionth millionth chance – what tragic irony – the conditions at one point of space and time bubble up into that tiny fermentation which is the beginning of life. Everything seems to be against the infant hero of our drama – just as everything seems against the youngest son or ill-used stepdaughter at the opening of a fairy-tale. But life somehow wins through. With infinite suffering, against all but insuperable obstacles, it spreads, it breeds, it complicates itself: from the amoeba up to the plant, up to the reptile, up to the mammal. We glance briefly at the age of monsters. Dragons prowl the earth, devour one another and die. Then comes the theme of the younger son and the ugly duckling once more. As the weak, tiny spark of life began amidst the huge hostilities of the inanimate, so now again, amidst the beasts that are far larger and stronger than he, there comes forth a little naked, shivering, cowering creature, shuffling, not yet erect, promising nothing: the product of another millionth millionth chance. Yet somehow he thrives. He becomes the Cave Man with his club and his flints, muttering and growling over his enemies' bones, dragging his screaming mate by her hair (I could never quite make out why), tearing his children to pieces in fierce jealousy till one of them is old enough to tear him, cowering before the terrible gods whom he has created in his own image.”

(“Is Theology Poetry?” (1944 address) *The Socratic Digest*, **3**, 1945, 25-35,

reprinted in *They Asked for a Paper: Papers and Addresses*, London: Geoffrey Bles, 1962, pages 154-165 and revised and extended as “The Funeral of a Great Myth”, in *Christian Reflections*, London: Geoffrey Bles, 1967, Fount (Collins), 1981, pages 110-123, see pages 115-116)

What happened then? Well, it all eventually returns to nothing: every individual dies, every species becomes extinct, and every planet, star, and galaxy comes to an end.

The poet Philip Larkin (1922-1985) put it like this in his poem *The Old Fools*:

What do they think has happened, the old fools,
 To make them like this? Do they somehow suppose
 It's more grown-up when your mouth hangs open and drools,
 And you keep on pissing yourself, and can't remember
 Who called this morning? Or that, if they only chose,
 They could alter things back to when they danced all night,
 Or went to their wedding, or sloped arms some September?
 Or do they fancy there's really been no change,
 And they've always behaved as if they were crippled or tight,
 Or sat through days of thin continuous dreaming
 Watching light move? If they don't (and they can't), it's strange:
 Why aren't they screaming?

At death, you break up: the bits that were you
 Start speeding away from each other for ever
 With no one to see. It's only oblivion, true:
 We had it before, but then it was going to end,
 And was all the time merging with a unique endeavour

To bring to bloom the million-petalled flower
 Of being there. Next time you can't pretend
 There'll be anything else. And these are the first signs:
 Not knowing how, not hearing who, the power
 Of choosing gone. Their looks show that they're for it:
 Ash hair, toad hands, prune face dried into lines –
 How can they ignore it?

For a naturalist like Larkin, we come from oblivion and one day we will return to this nothingness. Larkin does not lack faith. He has faith in a story that preaches that ‘nature’ is all there is.

Naturalism entails the belief that there is no immaterial (or *spiritual*) realm beyond physical detection, *i.e.* that there is no spirit, soul, angels or God. It is the belief that there is no intelligence, design, or purpose behind, or at work in the universe. Hence it is the belief that all real knowledge comes from empirical science, with the aid of only mathematics and logic. Everything else is seen as merely a matter of individual opinion. In particular, philosophy and religion are reduced to the status of mere opinion. Thus for many secular scientists, debates with believers are debates between objective scientific proof and religious blind faith. They do not doubt for one moment that there is no god and that all religions are false.

We live in a culture in which the only kind of knowledge recognised to be knowledge comes from empirical science. This is the default setting in education and in the media. Consequently we nearly all absorb naturalism unawares. Since our life-choices will reflect the Truth, or idolatry, that has already captured our hearts, this is where the battle really lies. In order to live a life of obedience to God we have to overcome a *naturalism-by-default* that both surrounds us and is lodged in our own hearts.

Naturalism is the greatest threat to Christian faith today. It is like having elephants in your house. You may like elephants, tolerate them, or ignore them, but if you leave them there, they will crush everything anyway.

3.3. Problems with Naturalism

The first thing to say is that Naturalism cannot meet its own criteria. The scholars would say that it is 'self-referentially incoherent' – see Roy Clouser, 2005, page 84. Naturalism is an exception to itself – it cannot be justified by mathematics, logic or empirical science. It may still be true, but, limited to its own criteria, we can never know. John Gray, Professor of European Thought at the *London School of Economics*, rightly describes it as a *faith*: "It is a confession of faith: the Enlightenment faith that, with the growth of knowledge and wealth, human beings will shed their various divisive identities to become members of a universal civilization." (*Heresies*, London: Granta Books, 2004, page 176; cf *Al Qaeda and What it Means to be Modern*, Faber and Faber, 2003, page 104) Earlier he comments, "Of all modern delusions, the idea that we live in a secular age is the furthest from reality ... liberal humanism is itself very obviously a religion – a shoddy replica of Christian faith markedly more irrational than the original article, and in recent times more harmful." (*ibid*, page 41)

Naturalism limits science to what scientific instruments can measure. The trouble with this is that what scientists are really interested in are *causes* – not what happens, but what *causes* it to happen, *why* it happens. But no instrument can detect causes. An instrument can tell us that **B** follows **A**, but not that **A causes B**. To interpret a sequence of events in terms of causality we require knowledge that cannot be generated by naturalistic science.

It would seem that very few people become naturalists by intention; rather Naturalism is usually absorbed unawares from the culture. The reason this is the case is related to the first point above. It is simply impossible to live, intentionally and consistently, a naturalistic life – every human being lives within a framework of non-naturalistic knowledge, a framework of meaning (as we shall see below).

The key point that is hardly appreciated today is that *everything we really know, we know by direct experience*.

The best discussion of this key point is in another book by the Christian philosopher Roy Clouser – *Knowing with the Heart: Religious Experience and Belief in God* (2007) "Proving is actually an inferior way of coming to know something, a way we resort to when we can't directly experience what we want to know." (2007 page 11)

3.4. What We Know by Direct Experience

We know by direct experience that we exist, that other people (other minds) exist, that the external world around us exists, that we are conscious and self-aware, that we are awake and not dreaming (or part of a computer virtual reality *a la Matrix*), that the *qualia* are real (the way it ‘feels’ to be in pain, to see red, to smell a flower, to stroke a cat ...), that our information-gathering capacities (sight, hearing, smell, touch, taste *etc*) are in good working order, that our cognitive (knowledge-forming, belief-forming) faculties (memory, perception, reason) are functioning reliably (that the great bulk of their deliverances are true, that they generally give us true beliefs), that we are free causal agents (that we can make choices and act intentionally), that beauty is real, that love is real, that the axioms of maths hold and the rules of logic apply.

Science cannot prove any of these things. None of them are the product of argument or inference. No known past or present argument of this sort actually works. They are the product of perception. In any case, apparently unanswerable sceptic arguments never seem to make the slightest difference to anyone’s actual beliefs about other minds, the external world *etc*. Rather we have been created with innate faculties that immediately (though often implicitly) generate such beliefs and, if our faculties are operating properly in appropriate circumstances, then it is rationally legitimate for us to accept those beliefs.

3.5. Science in Faith?

Some of the things that science must take for granted cannot even be known by direct experience. These include many foundational assumptions about the universe and about people that are necessary for the scientific enterprise to proceed. Yet we cannot know if these assumptions are true either by direct experience, or by scientific proof.

In order to do science we assume that the universe is orderly (rational, lawful), that it is intelligible (that our reasoning is attuned to the rational structure of the universe), that the past actually occurred, that the world is uniform and consistent (*e.g.*, that the laws that apply here today apply everywhere else and at all times), that causality applies (there are real causes having real effects), that there are right and wrong ways to act, that the scientific enterprise is worthwhile (and so we pursue it), that the universe is good (rewards our searching, doesn’t act capriciously). In other words we assume that the world *is* (or at least *like*) a *creation!*

We assume that scientists are free, rational beings, that they can communicate meaningfully with each other, and that they can collaborate effectively.

What we have seen is that there is a tremendous amount outside the boundaries of science that science must assume in order to operate, but which it can never prove nor explain. If we are rationally justified in accepting science, then we must be rationally justified in accepting these foundational presuppositions of science. In other words there is a *deeper* source of rational justification than science.

The famous media scientist (theoretical physicist) Paul Davies was on the right track, when he wrote that, “Science began as an outgrowth of theology, and all scientists, whether atheists or theists, ... accept an essentially theological worldview.” (Davies, 1995, pages 90-91)

3.6. Science and Everyday Observations

Consider the following two statements:

“Babies are happier with their mothers than when separated from them” – report on the findings of a 3-year, £20 million scientific study (!!).

“For millennia we thought that the sun rises and sets upon the Earth. We now know that this is untrue – the apparent motion of the sun is due to a revolving Earth.”

Both statements are re-enforcing the idea that we don't know anything until scientific experts have established, or interpreted it. This is palpable nonsense. The uniformities on which we base our everyday reasoning have been observed by billions of people over thousands of years. That is a much larger support base than is enjoyed by any modern scientific theory. The theories of modern science provide more precise information; the price paid for that precision is that they are less likely to be true. Our everyday observations may certainly be open to more than one theoretical explanation, but that does not impugn their truth. They remain the basic data that any theory must explain (see Jones, 2006).

4. Evolutionism

4.1. We live in a *universe*. It has an intelligible unity and order that our minds can grasp. Without that unity and order there could be neither philosophy nor science. For secularists the pressing question then is: How do we account for this unity and order, if there is no Creator outside the world system, and, therefore, the unity and order have to be grounded within creation? The historical answer has been the philosophy we now know as *evolutionism*. Evolutionism asserts that everything that has ever existed is part of a great continuity in space and time. The claim is that it is this continuity that accounts for the rational unity and order that the universe displays. (For the history see Lovejoy, 1936; see also Lewis, 1964; Hunter, 2007)

The claim is, of course, another palpable nonsense, and we will address that on page 10 below.

This is the cultural significance of Darwinism. For both its original author, Charles Darwin, and its leading modern proponents, Darwinism is *the* naturalistic theory of biological origins. The primary cultural role of Darwinism is as a key part of the *naturalistic origins myth of secularism* (see Flannery, 2008; Hunter, 2007 and Wiker, 2009). In other words, if atheistic naturalism is true, then something like Darwinian evolution must follow. This is why many argue that Darwinism *must* be true:

“We take the side of science *in spite* of the patent absurdity of some of its constructs, *in spite* of its failure to fulfil many of its extravagant promises of health and life, *in spite* of the tolerance of the scientific community for unsubstantiated just-so stories, because we have a prior commitment, a commitment to materialism [naturalism]. It is not that the methods and institutions of science somehow compel us to accept a material explanation for the phenomenal world, but, on the contrary, that we are forced by our a priori adherence to material causes to create an apparatus of investigation and a set of concepts that produce material explanations, no matter how counterintuitive, no matter how mystifying to the uninitiated. Moreover, that materialism is absolute, for we cannot allow a divine foot in the door ... To appeal to an omnipotent deity is to allow that at any moment the regularities of nature may be ruptured, that miracles may happen ...” (Richard Lewontin, Professor of Zoology, Harvard University, 1997, p 31)

The crucial point here is that if one does not assume that naturalism is true, then the evidence for Darwinism, and even for universal common descent itself, is very small indeed.

4.2. The Principle of Continuity

Statements affirming this principle (or law) are found throughout the literature:

“I cannot avoid believing the possibility of this [inorganic origin of life] will be proved some day in accordance with the law of continuity.”
(Charles Darwin, Letter to D. Mackintosh, 1882, in Francis Darwin (ed), 1903, p 171.)

“Our faith in the idea of evolution depends on our reluctance to accept the antagonistic doctrine of special creation, because this view is foreign to our belief in the continuity of law and order.” (Louis More, American physicist, 1925, p 304.)

In any endeavour to trace the evolution of a highly specialised organ, a difficulty often arises in the application of what may be called the principle of continuity. It is repugnant to reason to suppose that eye or ear appeared suddenly in evolutionary history. Their evolution *must* have been a continuous process...
(Richard Pumphrey, Professor of Zoology, University of Liverpool, 1950, pp 5-6.)

Francis Crick, British biophysicist and Nobel Prize winner, rejected a theory of the origin of the genetic code because, 'it violates the principle of continuity'.
(Francis Crick, 1968, p 372.)

There is, of course, no such law or principle in science. Such continuity is not an empirical (or inductive) finding of scientific investigation; nor is it a theoretical principle of proven fruitfulness: it is purely and simply a dogma of the evolutionist faith.

4.3. The Naturalistic Basis for Reason and Science

The principle of continuity is then seen as the only possible basis for reason and science, a claim that is endlessly and fervently repeated:

“Evolution theories have been accepted not because observers have witnessed evolution, but because countless facts of biology make sense on the assumption that evolution has happened and is happening, and these facts make no sense otherwise.” (Edmund Sinnott, Leslie Clarence Dunn & Theodosius Dobzhansky, American geneticists, 1958, p 276)

“It is no longer possible to give a complete or even a coherent account of living things without the story of evolution.” (Evelyn Klinckmann, American biologist, 1970, p 14.)

“Without that idea [evolution] one is left in chaos: there is no scientific meaning to the facts.” (Elizabeth Perrott *et al.*, biologists, 1974, p 51.)

“With modifications to include new findings, they [hypotheses about the evolution of the universe, earth and life] have become the central organising theories that make the universe as a whole intelligible, lend coherence to all of science, and provide fruitful direction to modern research.” (National Academy of Sciences, 1984, p 7)

It should hardly need pointing out that these are not statements of empirical science, but expressions of a religious faith. In a naturalist world, there is no reason to expect a continuity to be rational and orderly, rather than irrational and chaotic.

Listen to Law professor Phillip Johnson recounting his experience:

“When a few years ago I began pressing in university circles the question whether evolutionary naturalism is true, I was met mainly with blank incomprehension. Ask a group of intellectuals whether neo-Darwinism is really true, I learned, and you can hear minds snapping shut all around the room.

When I did get a reply, it usually was that "evolution" is the best naturalistic theory and that naturalism is the philosophical basis of science and thus equivalent to rationality. Hence naturalism is “the way we think today.” To ask modernists whether science is true is like asking them whether rationality is rational or truth is truthful. Science is, by modernist definition, our only truly objective way of knowing anything.” (Phillip Johnson, 1995, page 195)

4.4. Evolution as Religion

Little wonder that scientific debates over evolution often sound like political or religious debates and that philosophers identify a *religion of science* in it all.

"When I was a boy I believed that 'Darwin discovered evolution' and that the far more general, radical, and even cosmic developmentalism which till lately

dominated all popular thought was a superstructure raised on the biological theorem. This view has been sufficiently disproved. ... The demand for a developing world – a demand obviously in harmony with the revolutionary and the romantic temper – grows up first; when it is full grown the scientists go to work and discover the evidence on which our belief in that sort of universe would now be held to rest.”

(C.S. Lewis, 1898-1963, Professor of Medieval and Renaissance Literature, Cambridge University, 1964, pages 220-221)

“It is as a *religion of science* that Darwinism chiefly held, and holds, men's minds ... neo-Darwinism is not only a scientific theory, and a comprehensive, seemingly self-confirming theory, but a theory deeply embedded in a metaphysical faith: in the faith that science can and must explain all the phenomena of nature in terms of one hypothesis, and that an hypothesis of maximum simplicity, of maximum impersonality and objectivity ... man seems at home in a simply rational world.”
(Marjorie Grene, 1910-2009, American philosopher of science, 1966, page 187 & 199-200)

“Marxism and evolutionism, the two great secular faiths of our day ... They are, not accidentally, but by their very nature, dominant creeds, explicit faiths by which people live and to which they try to convert others. They tend to alter the world.”

“Evolution ... is the creation myth of our age. By telling us our origins it shapes our views of what we are. It influences not just our thought, but our feelings and actions too, in a way which goes far beyond its official function as a biological theory ... today, a surprising number of the elements which used to belong to traditional religion have regrouped themselves under the heading of science, mainly around the concept of evolution.”

(Mary Midgley (1919-2018), formerly senior lecturer in Philosophy at the University of Newcastle upon Tyne, 1985, pages 15-16, 30-31)

“Ultimately the Darwinian theory of evolution is no more nor less than the great cosmogenic myth of the twentieth century.” (Michael Denton, b 1943, molecular biologist, 1985, page 358)

“[History will ultimately judge neo-Darwinism as] a minor twentieth-century religious sect within the sprawling religious persuasion of Anglo-Saxon biology.”
(Lynn Margulis, b 1938, professor of biology at the University of Massachusetts, quoted by Mann, 1991 from a 1990 article)

“The idea is that life arose and evolved to its present form solely because of the laws of chemistry, and ultimately of particle physics. In the prevailing naturalistic worldview, evolutionary theory plays the crucial role in showing how physics can be the theory of everything.”

(Thomas Nagel, b 1937, American atheist, professor of philosophy at New York University, 2008, page 202)

5. Two Foundational Laws of Biology

There are two fundamental laws in biology to consider: the law of biogenesis and the law of heredity

5.1. The Law of Biogenesis: Living things arise only from other living things.

Origin of Life [OOL] studies have taught us a lot, but as regards OOL they have bequeathed us abysmal results and seemingly insurmountable problems. The problem is that – *outside of living organisms* – the organic products of these experiments react together to produce biologically useless materials. What OOL experiments overwhelmingly give us are *geopolymers* – complex red oils and black tars – not the molecules of life.

5.2. The Law of Heredity: Living things arise only from other living things of the same kind.

All living organisms belong to distinct natural kinds. Variation and hybridisation occur only within these kinds. In every experiment to date where we have tried to push past the normal limits of variation, whether with *Drosophila*, *E. coli*, or a variety of other plants and animals, we have always been stopped at a point where either further changes are lethal to the organisms, or further variation is simply not possible.

Consider the example of bacteria. These have been experimented on over far more generations than any other organisms (in fact over *thousands* of generations), but with no evolutionary results:

“Throughout 150 years of the science of bacteriology, there is no evidence that one species of bacteria has changed into another”

Prof Alan Linton, Bacteriologist, Bristol University (2001, page 29)

The Darwinian Theory of evolution predicts that hundreds, thousands, millions, and even billions of bits of functional information can be generated through natural processes. This is a fundamental tenet, yet we have no evidence of natural processes that can do any such thing. At present about 30 bits is all that can be achieved!! (Durston, 2008 – this paper is no longer available online; but see Durston, 2017, 2019)

These two laws are the most rigorously tested and confirmed in the whole of biology. No exceptions to them have ever been found.

6. Variation

6.1. Evolution is not Variation

Remember that, as contrasted with creationism, evolution is *not* the theory that organisms show variation – that has always been accepted by all sides – but the theory that there are *no limits to that variation*. It is the belief that there has been a

continuous development in time from hydrogen to humans, dust to stars, particles to peoples. In terms of naturalism, it is the belief that natural, unguided, unintelligent processes can generate significant amounts of functional information.

6.2. The Law of Heredity contradicts that claim. All living organisms (and all fossil remains) belong to distinct natural kinds. Variation and hybridization occur only within these kinds. In every single breeding experiment to date, where we try to push the limits to see how far we can go, we always hit a limit beyond which further change is lethal, or not possible. There are no exceptions:

“To clarify, individual experiments involving a particular trait may encounter a dead end, but given the millions of different organisms on the planet, evolutionary pathways to a novel genus, order, or phylum should be relatively easy to find with some experimentation if Darwinian evolution is possible. We should not expect to encounter dead ends for 100% of our experiments.”
(Durston 2008, page 4; see Durston 2017, 2019).

The problem is not that we haven't tried for long enough; the problem is that we hit the biological boundaries so soon. Nor is there any evidence that time is a relevant factor. With bacteria, for example, we have been pursuing the experiments for thousands of generations as noted above (Linton, 2001, see also Behe, 2007)

7. Information

7.1. Information an Irreducible Aspect of reality

Information is irreducible to physics and chemistry – to matter and energy. Information is independent of the physical embodiment or *carrier*. The same information can be stored and accessed as writing on paper, as magnetic points on a computer's hard disc, as electric domains in a random-access memory, as bumps on a CD, as bases in DNA, or as thought in a human mind.

7.2. Information in Organisms

In living organisms the information is *coded* information. A naturalist might claim that coded information is just a string of characters and that any string of characters can be obtained by chance: “By means of a random generator and with enough time, we can obtain that information – it is a string of characters only.” But it is much more than a string of characters. In living organisms the coded information is always expressed through biological *machines*, where, thermodynamically speaking, biological machines are devices that capture random environmental energy thereby raising the local free energy so the machine can do useful work, *i.e.*, perform a biological *function*. But these machines can perform their function only if they have the information to do so, either given to them directly as (coded) information and/or inbuilt in the design of the whole system – which design is, of course, the product of an earlier input of information (see Durston, 2008, 2017, 2019, Johnson, 2010, McIntosh, 2006, 2009, 2013). No amount of random energy flow will produce either

the machines or the information. We have no evidence whatsoever that naturalistic (mindless, unintelligent) processes can produce either living organisms, or new biological systems.

7.3. Information Confirms the Irreducibility of Organisms

The irreducibility of information is one way of explaining why it is right to assume that biology cannot be reduced to, or explained by, physics and chemistry. We can also consider the machine-like nature of organisms. Machines do not break any physical laws, or contradict any physical processes, but they cannot be defined by, or reduced to those laws and processes. A machine ‘encapsulates’ those laws and processes for the purposes specified by its (technological) design (see Polanyi, 1968). Similarly the biological functioning of living organisms depends on physical and chemical processes and does not contravene them in any way. But organisms are not physically defined and cannot be reduced to physical and chemical functioning. Organisms ‘encapsulate’ the physical laws and processes for the purposes specified by their (biological) design. We may fairly assume that, whilst the further accumulation of chemical and physical knowledge will teach us more about the functioning of organisms, it will not solve the mystery of the origin and nature of life, nor of the nature of consciousness, or mind, or intelligence.

7.4. Beyond the Reach of Chance

For a different illustration of the problem facing naturalistic theories we can turn to the English language. There are many three letter English words. In fact of all the possible three-letter combinations of the 26 English letters, about 1 in 30 are meaningful words in English. It is therefore relatively easy to construct a sequence of meaningful English words (words with linguistic ‘fitness’) by changing one letter at each step (a linguistic ‘gene mutation’). Furthermore we can construct several different routes between two words, or arrive at different end-points (e.g. can → cat → bat → bag **or** can → fan → fat → fen *etc.*).

If we then turn to seven-letter words, then a much smaller proportion of the possible seven-letter combinations are meaningful in English. Words like ‘abandon’, ‘blister’, ‘yoghurt’ and ‘zoology’. In fact only about 1 in 100,000 are meaningful words. It is therefore very difficult, or even impossible, to ‘evolve’ from one word to another by changing one letter at a time. Finally if we turn to twelve-letter words – such as ‘abbreviation’, ‘behaviourism’, ‘youthfulness’ and ‘zygapophysis’ - we find that only about 1 in a 100 trillion of the possible twelve-letter combinations are meaningful. It is effectively impossible to ‘evolve’ from one word to a different one by one letter changes, or even, in most cases, by two or three letter changes. In contrast to this simple illustration of linguistic function, the protein molecules of life contain **hundreds or thousands** of amino acid ‘letters’. Unlike with letters and words, the protein functions are not arbitrary. With proteins, researchers have shown that there are only very tiny islands of functional protein in unimaginably vast oceans of non-function (Meyer, 2009, chapter 9, pages 194-214). This non-function is not simply no specific function, but that these proteins cannot fold into stable forms – a physical pre-requisite for *any* biological function). Many of these islands of functionality are separated by thousands or even millions of bits of information. No known unguided

(mindless) natural processes have been shown to be able to cross even a 50 bit information gap – not even in the most favourable computer simulations (Durstun, 2008, 2017, 2019). On the other hand, we do know one thing which can cross huge information gaps: we know that intelligent agents can produce unlimited quantities of new functional information.

That last point is crucial. This argument is not an argument from incredulity, nor a ‘god-of-the-gaps’ argument. It is an argument from *evidence*: the *negative evidence* of the inability of unguided natural forces to produce even relatively small gains in functional information, and the *positive evidence* that intelligent agents can produce unlimited quantities of new functional information.

For cogent replies to the endlessly repeated charge of ‘God of the gaps’ against ID and creationism see the papers by Larmer (2002), Larson (2009) and Snoke (2001).

7.5. Darwinism of the Gaps

Of course, naturalists might respond that we cannot prove that no naturalistic process exists that could cross these information gaps. Fair enough. But naturalists are claiming that a scientific theory of naturalistic evolution (*i.e.* Darwinism) *actually exists now*. Are they prepared to be honest and admit that *at present* this claim is false – that no such theory currently exists? And – as in forensic investigations – to admit that there comes a point at which it is no longer reasonable to deny that an event (say, origin of living organisms, origin of new body plans) was intended (a ‘murder’)? It is utterly unreasonable to continue to insist – against the steadily mounting evidence – that we are dealing with an extremely rare and unlikely ‘accident’? After all, countless thousands of committed Darwinists have already laboured without success for generations. ‘Darwinism (evolutionary naturalism) of the Gaps’ ought to be as unacceptable as ‘God of the Gaps’.

8. Fossils

8.1. Fish Fossil Record and Missing Links

For my research on the cichlid fish, I surveyed the fossil record of fish. In my thesis I wrote that all known fish fossils clearly belonged within modern fish kinds or to equally distinct extinct kinds: missing links were – well – missing! At my PhD viva this statement was brought up. The external examiner was Dr Humphrey Greenwood, then Assistant Director of the British Museum (Natural History) in London, world authority on cichlid fishes (my research area) and in charge of the greatest fossil fish collection in the world. He freely admitted that, although he believed in evolution, he could not contradict the statement. He knew of no fossil fish in his, or in any other fossil fish collection, that could honestly be described as a missing link.

8.2. Is the Fossil Record Very Incomplete?

The usual response to this (as it was Dr Greenwood's) is that the fossil record is incomplete: the missing links did exist, but their fossils have not yet been found, or perhaps were never formed, or haven't survived to the present day. According to Darwinism, the existing species are the tiny outermost twigs of the tree of life; most of the tree represents extinct ancestral species. On the assumption that this is true, texts commonly state that only one in 100 or in 1,000 or even in 10,000 of all species that have ever existed are alive today. How can one check that assumption? One obvious way is to see how many existing forms are found as fossils.

8.3. How Many Living Forms are Found as Fossils

Some years ago, when I undertook a fairly exhaustive survey of the vertebrate data, I was amazed at the high levels of representation in the fossil record. For many groups, species representation in the fossil record lies between 40% and 80%. Admittedly, as it is often difficult to identify species among fossils if the remains are fragmentary, it is better to look at genera (for plants) and families (for animals), *i.e.* those taxa that correspond most closely to what people generally recognise as a distinct kind of organism (*e.g.* bear, cat, dog, and horse families *etc.*). If we take animal families, representation as fossils is very high. If we consider land vertebrates, for example, then birds are regarded as being the most poorly represented as fossils, yet the data of D.M. Unwin (*Aves*, ch 40 in M.J. Benton (ed), *The Fossil Record 2*, 1993, pages 717-737) showed that of the 153 families of living bird species, species from 134 families (88%) are known as fossils.

Incidentally, the concentration in fossil texts on extinct kinds of organism (dinosaurs *etc*) hides the fact that ***most fossils are of kinds of organism that are still alive in the world today!***

In short, yet again the empirical data do not match with the predictions of Darwinism (*cf.* pages 7-9 above).

9. Developmental Biology

9.1. Biological Atomism

Modern Darwinian biology is characterised by the view that every feature of organisms and the whole of development is determined by the genes. In other words, all biological heredity is grounded in a chemical called DNA, such that a given DNA molecular composition is the necessary and sufficient condition for a particular species. 'DNA is god and RNA is her prophet!' If this view is true then gene mutation and selection can be promoted to explain the continuity of evolution. Not surprisingly the commitment has prevailed throughout the modern era.

As long ago as 1966 Thomas Jukes wrote:

'the evolution of all living species is due to a series of changes in the order and length of the base sequences in DNA ... we strive, compete and reproduce to maintain the continuity of half of a long word written in a four-letter alphabet.' (Jukes 1966, 5-6).

In his review of Juke's book, C A Williams (1967:308) commented that we had witnessed 'the deification of a molecule'. Just a few years later A D Hershey (1970:699) could refer to 'the unwritten dogma, according to which biological evolution is solely the evolution of nucleotide sequences.' To this day the media scientists strongly affirm the foundational role of genes and DNA.

The trouble is that it has long been known to be untrue. I would argue that it was conclusively refuted as long ago as the 1950s! (see Section 9.4, pages 20-21 below) The reality is that a dominant worldview commitment has always trumped contrary scientific evidence!

9.2. Genes Neither Prescribe Nor Control Development

When I began my own doctoral research (1968-1972), I was already sceptical of the 'DNA is all' dogma, because it was so obviously linked to reductionistic and evolutionary schemes (see Jones 1982; 1998, 41, 79-80). Indeed, everything is against the dogma. Fundamentally it hardly makes scientific sense (see Nelson 2008; Wells 2000, 189-193).

To argue that DNA determines everything is like claiming that a computer disc can not only copy itself, but can also create the whole computer/monitor/modem/printer *etc.* system that runs the programmes it encodes. Neither discs nor DNA can do any such thing. Even so dogmatic a naturalist evolutionist as the geneticist Richard Lewontin is clear about that:

'genes can *make* nothing. A protein is made by a complex system of chemical production involving other proteins, using the particular sequence of nucleotides in a gene to determine the exact formula for the protein being manufactured. ... proteins cannot be manufactured without *both* the gene and the rest of the machinery. Neither is more important. Isolating the gene as the "master molecule" is another unconscious ideological commitment, one that places brains above brawn, mental work as superior to mere physical work, information as higher than action.

Nor are genes self-replicating. They cannot make themselves any more than they can make protein. Genes are made by a complex machinery of proteins that uses the genes as models for more genes. ... if anything in the world can be said to be self-replicating, it is not the gene, but the entire organism as a complex system.' (Lewontin 1993, 48)

The mathematician, Ian Stewart makes the same point using the analogy of a CD:

'A CD (compact disc) contains a lot of information, impressed as tiny bumps – but without a CD *player*, you'll never know what the music is. You won't even

know that the bumps contain a message. ... By focusing on the DNA code, we are like someone trying to understand music who sequences the bumps on CDs, but doesn't take a look inside the CD player. My feeling is that the bumps on the CDs are a very simple trick, not especially interesting of themselves; all of the important action goes on inside the CD player. This is where the bumps are miraculously transformed into music. . .DNA is just the trick that earthly life uses to exploit the deep rules – it's not the rules themselves.' (Stewart 1998, 239-240).

9.3. Cells are the Minimum Unit of Heredity and Development

It has become clear that the whole cell system *is* a minimum unit of organism heredity. Genic processes have much to do with variation within kinds, but probably little to do with the distinction of kinds. Genes are best regarded as triggers in complex developmental systems rather than as creators, or causes of organic structures.

In this regard I found that there had been a vibrant creationist research programme in developmental biology **before Darwin** that has been partly taken up again by the modern 'structuralist' biologists (e.g. Stuart Kauffman and Brian Goodwin). Not surprisingly, the latter evolutionists are anti-Darwinian and anti-Dawkins (e.g. Goodwin 1994; Kauffman 1995). However their work can readily be interpreted in creationist terms. It may of course ultimately prove wrong (our science is always approximate and liable to error), but it at least gives the lie to the calumny that creationism is a science stopper.

In building a house, we need materials, assembly instructions, and a blueprint. The same building materials can be used to build many different structures, e.g. bricks can be used to make a garden shed, a house, or a cathedral. If they are assembled in the wrong place, or time, the result can be a mess. In an embryo, DNA is analogous to a list of building materials; it also contains some rudimentary assembly instructions. But abundant evidence shows that the blueprint is not in the DNA, and biologists not under the spell of neo-Darwinism (according to which DNA mutations are the ultimate raw material for evolution) have known this for decades.

Homeotic genes get a lot of press because mutations in them are so dramatic (e.g., legs sprouting from a fruit fly's head, or a second pair of normal-looking wings). But homeotic genes act long after the body plan is well established. They are also remarkably non-specific: A normal mouse *Pax-6* gene can replace a mutated *Pax-6* gene in a fruit fly, which will then develop normal eyes; but the eyes are fruit fly eyes, not mouse eyes. Homeotic genes are somewhat analogous to switches in a railway goods yard: They can send goods wagons down the right or wrong track, but they tell us nothing about what they are carrying, and they do not determine the layout of the goods yard.

Biologists have mutated every possible developmental gene in the fruit fly *Drosophila melanogaster* and the zebrafish *Danio rerio*, but the organisms remain *Drosophila melanogaster* and *Danio rerio*. They don't even change into similar-looking species of fruit flies or minnow-like fish (Cyprinids). There is no empirical evidence to justify

the claim that genetic changes alone could produce the differences between [say] chimps and humans. Judging from the evidence we actually have, we could change the genome of a chimp embryo all we want and there would be only three possible outcomes: a variety of normal chimp, a defective chimp, or a dead chimp.

Let me be clear. The argument is NOT that there is no scientific theory of development that we can discover and understand, but that Darwinian materialist reductionism is a major hindrance to that process of discovery. My expectation is that when a credible theory is finally articulated not only will we know that Darwinism is false, but also that universal common descent is biologically impossible. But the point for the present is simply that without a scientific theory of (embryological) development, there cannot be a scientific theory of evolution. Yet again (see pages 7-9 and 15-16 above) we must conclude that no such theory yet exists.

9.4 A Brief History of Whole Cell Views of Heredity

At this point, a little history will help to put it all in perspective. Fortunately the relevant history has been surveyed thoroughly and well by Jan Sapp in his doctoral thesis at the University of Montreal in 1984 (published as Sapp 1987). During the second half of the 19th century, the particulate (corpuscular) theories that dominated the physical sciences also came to dominate biology. *Atomism* ('Wholes are explained by analysis into their parts') and *Mechanism* ('All events are explained by preceding events which are their causes') dominate genetics to this day (refer back to *Discipline Philosophies* on page 3). The 'struggle for authority' of Sapp's title was that between embryologists and geneticists for hegemony in biology. In the late 19th and early 20th centuries the embryologists opposed the particulate consensus and it was then widely held among leading biologists that the genes only determine trivial features, whereas the cytoplasm (or cell as a whole) determines the fundamental constitution of each kind of animal or plant. However by the 1920s the view that the genes determine everything dominated genetics and by the 1930s the whole of biology. Furthermore it was by then widely assumed that the nature of the genes and their determination of development would one day be explained in physico-chemical terms. All very familiar to us all, but amongst embryologists and cell biologists, whole cell views of heredity have continued to find support. Ironically a strong case can be made that it was just as genetics won the battle that it lost the war. It was from around 1930 that the evidence of non-genic inheritance became persuasive and finally (by the mid-1950s) incontestable. But as you may have great difficulty in finding any references to this work, I'll discuss the key research:

Whilst early work was done on other animals, the focus from the early 1940s onwards shifted to the ciliated, unicellular animals. These include the 'slipper animalcule', *Paramecium*, of school biology fame. A series of papers by Tracy Sonneborn and others indicated that the cortical (surface and sub-surface) organisation of the ciliate cell was part of the hereditary system. They concluded that in addition to DNA, cells contain complex supramolecular 'templates', two- or three-dimensional structures composed of different macromolecules regulated by some unknown copying process. From the early 1950s Sonneborn *et al* were insisting that this had been demonstrated beyond question. The response? – marginalisation and vilification. Sonneborn was constantly called a 'Lamarckian' – in modern biology the

greatest term of abuse (after, of course, 'creationist'). Others dismissed the results as something unique to ciliates with their elaborate cell-surface architecture. If *Drosophila* is the centre stage of genetics then the ciliate protozoa are the 'bizarre, if not the lunatic fringe of biology' (reported by Brian Goodwin in 1984). John Maynard Smith (in 1982) appealed to democracy: there are 'very few cases' of this 'Lamarckian type of inheritance' over against 'a vast array in which transmission is by nucleic acids.' Nevertheless he suggested (in 1983) that these cases are 'the only significant experimental threat to our views.' Others argue that the 'cytoplasmic foundation' for embryonic development is under genetic control, but by the mother, not the embryo itself: 'Ultimately, then, all developmental events can be altered by changes in the genes and in that sense are caused by genes.' (Futuyma 1986, 426). The majority, however, either know nothing of cortical inheritance, or ignore it. As Jan Sapp (1987, 219) concluded, 'Throughout the 1960s and 1970s, the evolutionary significance of cortical inheritance was largely ignored by neo-Darwinian evolutionists. Indeed, for the most part it still is.' (see also Sapp, 2003). And more than thirty years later it still is!

9.5. Cortical Inheritance is not Confined to Unicells

If there was ever a time when these results on cortical inheritance could be dismissed as a curiosity of some unicells, it is impossible to do so today:

- The unicell 'cortex' is a visible surface elaboration of the (intimately connected) plasmalemma (cell membrane) and cytoskeleton (networks of microscopic fibres). These are universal features of eukaryotic cells, and in all they have the necessary properties to participate in the generation and stabilisation of spatial patterns.
- Developmental processes appear to be universal, *i.e.* the available evidence indicates that the processes are similar, if not identical, in unicellular and multicellular organisms.
- Some unicells encyst (eg *Pleurotrichia*) and then all visible cortical structure is broken down and disappears. Yet cortical inheritance (including of experimental modifications) is unaffected. In other words cortical inheritance is not tied to the uniquely visible cortical structures of some unicells.
- Evidence of cortical inheritance is now available for many multicellular organisms and contrary evidence for none.

9.6. There is no Scientific Theory of Biological Development

This is not to claim that development is now understood. Far from it! All that is clear is that it cannot be reduced to genetic programmes written in the language of DNA nucleotide sequences. The entire cell is programmed for development and heredity in languages we have hardly yet begun to decipher, let alone understand. What can be said is as 'unpalatable' (to evolutionists) as it is true. In modern Darwinism (or

neo-Darwinism) gene mutations are the ultimate raw material for evolution, and natural selection modifies organisms through changes in gene frequencies. But if heredity and development are controlled by something other than genes, then evolution must be due to something other than (just) gene mutations and changes in gene frequencies.

9.7. There is no Scientific Theory of Darwinian Evolution

The most glaring gap in biological understanding today is that **THERE IS STILL NO THEORY OF DEVELOPMENT**. We can *describe* the development of a chicken from an egg, but *we do not understand how it occurs*. Current theory tells us how DNA carries coded information which cells use to manufacture all the chemical substances utilised by a particular organism. But at the end of the day that theoretical understanding leaves us with a bag of chemicals. Why THIS bag of chemicals gives rise to a cat, but THAT bag gives rise to a human, is something no-one yet understands at all. I constantly ask evolutionists:

“How can you claim that you have a scientific theory of evolution when (you have to admit that) there is (as yet) no scientific theory of development?”

I would argue that the main reason we have no theory of development is because research has been falsely constrained by the Mechanist and Atomist commitments (refer again to *Discipline Philosophies* on page 3). As noted above, I believe we already know enough to conclude that the inherited developmental information is largely non-genic and biological causality operates in non-mechanistic ways.

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I have sought to helpfully categorise these references, so there will be a repetition of some references. Also, if you are looking for a particular reference, you may need to check several sections.

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Arthur Jones holds a doctorate in biology (1972) for a thesis exploring alternatives to materialistic evolution [aka Darwinism] in the field of origins. Until he retired in 2013, he was (from 1976) a Chartered Biologist (CBiol), a member of the *Royal Society of Biology* (MRSB). During a teaching career spanning forty years, he has been a college science lecturer, schoolteacher, teacher trainer and the headteacher of a pioneering Christian school in Bristol. From 1995-97, he was a part-time lecturer in science and religion in the Faculty of Continuing Education, *Birkbeck College, University of London* and from 1996-97 in the Department for Continuing Education, *University of Bristol*. His science and religion courses won two Templeton awards. From 2000 to 2013 he wrote and taught worldview-based courses for Christian professionals, accredited by three more UK universities (*University of Wales, Lampeter, University of Wales, Bangor, and York St Johns*), at both graduate and postgraduate levels. He was also a Research Consultant for Curriculum Development to the *Christian Schools' Trust* and authored *Science in Faith: A Christian Perspective on Teaching Science* (CST, December 1998). He has also authored *No Home & Alone: A School Programme on Homelessness* (Global Concern, 1999), and *Is Creationism a Science Stopper?*, a chapter in John Ashton

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