

The teaching of science: a Biblical perspective

Steven Layfield

As Christians who teach science, we are interested to know what the Bible says about the issue. It's not that we wish to add a certain 'religious flavour' to our science lessons. Rather, we realise that the Bible provides us with, as it were, spectacles through which the whole of reality can be sharply focused. At a most fundamental level of thinking, there are just two starting positions. One position begins with the assumption that man can find out all that is true by careful enquiry. The other acknowledges the limitation of such endeavour and recognizes the need to accept Divine help. One is the rationalist voice of autonomous humanism. The other is Christ-centred Christianity.

It is important to recognize this distinction right from the start, because much difference of opinion at a higher level can be traced back to this point. Those of us who are engaged in the struggle to show the superiority of a creationist paradigm (worldview), over the prevailing orthodoxy of atheistic materialism and evolutionism in science, have been viciously attacked for adopting a 'Bible-first' mentality by many of our opponents.

Let us state then, right from the start, that we reject the notion popularised, perhaps inadvertently, by Francis Bacon in the 17th century that there are 'two books', i.e., the book of nature and the Scriptures, which may be mined independently for truth. Rather, we stand firm upon the bare proposition that God has spoken authoritatively and inerrantly in the pages of Holy Scripture. However fragile, old-fashioned or naive this assertion may ostensibly appear, especially to an unbelieving, TV-drunk modern culture, we can be sure that it is as robust a foundation as it is possible to lay down and build upon. The words of the Apostle Paul on trial before Festus seem strangely relevant to our situation, 'I am not mad, but speak the words of truth and reason' (Acts 26:25).

What is science?

First, we must identify precisely what we mean when we talk about 'science'. We find that popular notions of science vary widely. For example, Webster's 1828 Dictionary says that science is,

1. In a general sense, knowledge, or certain knowledge; the comprehension or understanding of truth or facts by the mind. The science of God must be perfect.

2. Pure science, as mathematics, is built on self-

evident truths; but the term science is also applied to other subjects founded on generally acknowledged truths, as metaphysics; or on experiment and observation ...'

Thus science, as its Latin root suggests, is concerned with knowing. We may have heard the glib comment, 'If you really want to know something, ask a scientist'. This seems altogether in sympathy with a more up-to-date definition, reflecting perhaps our culture's shifting religious conviction, which defines science as,

'knowledge obtained from the systematic study of the structure and behaviour of the physical world, involving experimentation and measurement and the development of theories to describe the results of these activities.'

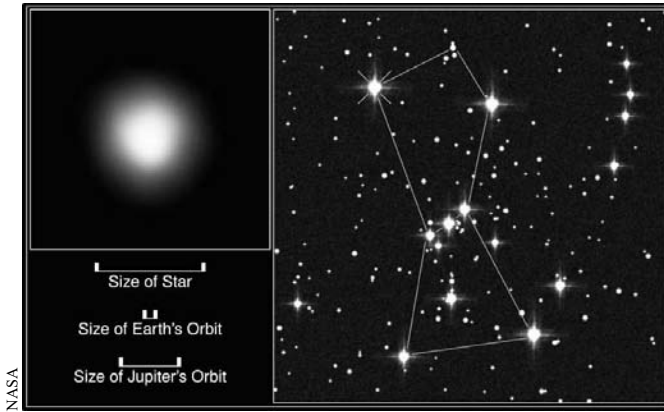
This latter definition may seem acceptable enough. It duly acknowledges the limited scope of scientific enquiry to 'the physical world' in its present 'structure and behaviour'. But, unlike the previous one, notice that there is no reference to God, truth in general or metaphysics. Implicit in the first definition, yet strangely absent from the second, is the acknowledgement that there must exist some general framework of thinking to properly interpret sensory empirical data. Hence, the possibility of Scripture providing this normative role is explicitly denied.

Both Scripture and human philosophy affirm that before developing a body of knowledge and truth, we must inevitably assume something. No practitioner of science can avoid this presumptive first step. For example, cosmologists assume a uniformity of the laws of physics when contemplating distant galaxies and stars. But why should such matter, and the laws that govern its behaviour, be the same everywhere? Thus, when the astronomer infers the existence of metals and certain gases in distant stars, he is assuming the unity of nature (i.e. that we inhabit a universe, not a multi-verse): something he cannot prove.

However, if, as Jesus clearly taught, the Bible is the

Editorial note

This article is based on a lecture delivered by Steven Layfield at Emmanuel College in Gateshead in September 2000. Emmanuel College pioneers a scheme, backed by the British government, to involve private sponsorship in the education system. It became the centre of unprecedented media frenzy in March/April 2002 after it made its auditorium available for a creation seminar by Ken Ham of *Answers in Genesis*. Headline articles were run for weeks in national newspapers in the UK, and questions were asked of the Prime Minister, Tony Blair, in Parliament. Head of Science, Steven Layfield, became a target with such jibes as 'This Head of science ... blinds himself to the whole edifice of exciting scientific work.'⁸ *AiG* applauds the stand taken by the college. We believe Layfield's presentation about the Biblical perspective on the teaching of science is insightful and deserves wide circulation.



Betelgeuse is so huge that, if it replaced the Sun at the centre of our Solar System, its outer atmosphere would extend past the orbit of Jupiter (scale at lower left). Scientists (especially cosmologists) have to assume that the laws of physics that we see here on Earth, are uniform throughout the whole of the universe.

Word of God—and the internal evidence is overwhelming—true science will always agree with it. The form of knowledge to which it tends will be trustworthy and true. The ultimate absurdity of abandoning the Biblical framework of knowledge is the inability to logically defend the universality of any scientific law.

Naturalism

Over recent centuries, there has been a general acceptance of Aquinas’s dualistic theory of knowledge and Bacon’s ‘two-books’ approach. Perhaps this has led the practitioners of science to progressively develop the notion that scientific endeavour, and the theory that describes it, must proceed along lines of thought that are inherently ‘naturalistic’. Thus today, schools, universities and TV documentaries present ‘natural history’ and ‘natural science’. When examined at a fundamental philosophical level, it emerges that the following assumptions have been subtly added to or implied in most contemporary notions of science:

- all that exists is hard matter (atoms and molecules)
- only ‘natural physical processes’ can be invoked as causes of all effects.

Practical consequences

Although the contemporary scientific fraternity may be well intentioned in rigorously pursuing ‘natural science’, the stark result has been ‘methodological atheism’. This approach to science, by definition, precludes any mention of God or supernatural activity whatsoever. To be sure, we as Christians should seek explanations for ‘present phenomena’ in naturalistic terms because this is consistent with the Biblical revelation of God as a God of order (1 Cor. 14:33). But historical events may be

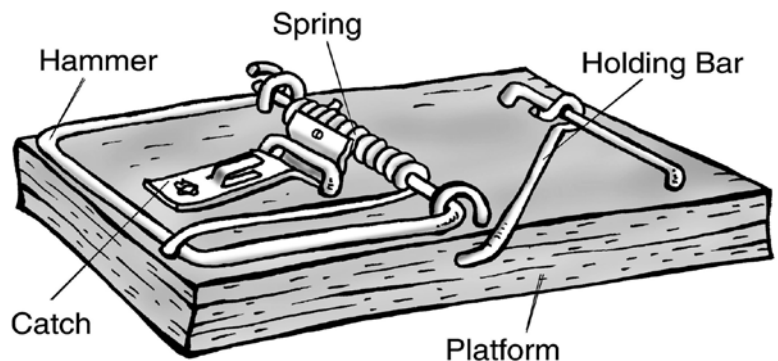
wrought ‘supernaturally’ by the hand of God. Only brute pride and prejudice will explicitly deny this possibility.

The political and religious consequences for modern culture from the uniform application of naturalistic and materialistic presuppositions in science teaching are immense. The Professor of Law at the University of California, Berkeley, Phillip Johnson, has identified how a body of elite professionals has been remarkably influential in shaping the moral character of today’s generation by this distinctive approach to science.

But won’t the integrity of ‘science’ be threatened if we ‘allow a divine foot in the door’? Johnson has written with much helpful insight on this issue. He has shown that defining scientific endeavour in such materialistic and naturalistic terms, contrary to popular opinion, actually stifles scientific progress. He argues that the research process ought to pursue, with honesty and integrity, empirical evidence wherever it leads. But if naturalism is true, what place is there for such moral concepts as honesty and integrity? Perhaps it is not coincidental that there has been a rising trend of fraudulent science in recent times.

Moreover, it can readily be shown that there exists both physical laws and a substantial body of empirical data, which are incompatible with, or else fundamentally defy, a doctrinaire naturalistic explanation. This includes the intrinsic irreducible complexity possessed by all living organisms. Johnson and others have fought hard academically and politically. Presently, his ‘Intelligent Design (ID)’ group is urging the US Government and Legislature to realise the social and moral implications of unquestioningly adopting naturalistic scientism in the classroom. It remains to be seen how successful they will be. The recent machinations of the Kansas and Ohio Boards of Education show clearly that a powerful body of ideological proponents are keen to retain the falsehoods inherent in the present status quo.

Here in the UK the situation is regrettably worse. Successive governments have formulated policy statements,



The common mousetrap can be seen to be an analogy of a biological system showing irreducible complexity. All pieces of the mousetrap must be present for the trap to work. Similarly all ‘pieces’ of a biological system (eg. blood clotting mechanism) must be present at the same time for it to be of any use. The development of the system over time cannot work because without one component the system does not offer any benefit to the organism.

which describe explicitly, if not implicitly, what mainstream schools are to understand by ‘science’. Although much ground has been lost over the past 150 years or so, there are heartening signs in the latest revision of the national curriculum. Here we read that scientific enquiry should include reference to the controversial character of the Darwinian Theory of Evolution and the limitations of the scientific method in certain inaccessible contexts.

Biblical revelation of reality

Johnson’s charges are most important because the Bible calls us to recognize the totality of reality. This includes the unseen, spiritual realm as well as the material, spatial and temporal dimensions. The Apostle Paul explicitly warns us, ‘See to it that no-one takes you captive through hollow and deceptive philosophy, which depends on human tradition and the basic principles of this world rather than on Christ’ (Col 2:8).

Scripture reliably informs us that an omnipotent, eternal and all-wise God supernaturally created the universe (matter, space and time) *ex nihilo* (from nothing). He presently superintends his creation, hears and answers prayer, directs legions of angels to do his will and moves in the hearts and minds of all men, turning slowly but surely the great wheels of providence. Furthermore, he upholds all things by the power of his Word and consigns to Heaven and Hell those who are respectively receptive or non-receptive to his forgiveness offered through Jesus Christ. This Supreme Being is the great Architect, Creator and Sustainer of all and exists simultaneously within and without his creation. Despite the complete absence from the current mainstream science national curriculum, he is, in the words of Francis Schaeffer, ‘The God who is there.’

It is apparent then that Biblical theology, and not physics or mathematics, is properly ‘queen of the sciences’. It is in this sense of the fullness of knowledge which God alone possesses that ‘the science of God must be perfect’ as our first definition plainly stated. Physics, as we shall see, is merely concerned with a proper understanding of the normal workings of the material world. But the best physicists (e.g. Kepler, Newton, Faraday, Brewster—to mention a few) duly recognized the limitations of their undertakings and were happy to acknowledge the existence of God and the genius of his handiwork as they sought to fathom and explore it. Their determination to understand the mechanism of present operations within the universe by no means prevented them from contemplating a supernatural, divine act of Creation in the past, and the mystery of God’s care in the present.

A Biblical view of the universe requires us to believe that everything has been made for mankind who alone among living creatures possesses spiritual faculties giving him the potential for personal fellowship with his Maker. Given that man’s chief end in life is to know and glorify God, the whole of creation must necessarily be perceived as a stage upon which he may realize this potential and fulfil

this purpose. The material medium therefore ought to be recognized as a divine construct by which man, when truly guided and enlightened by the Scriptures, may discover the great wisdom and power of God, together with remarkable tokens of his kindness and love.

Mindful of this, Christian theologians have most helpfully identified the conceptual framework of Creation, Fall and Redemption. Within this framework, thinking and teaching, which is truly Biblical, must take place. No academic discipline that ignores this framework can progress properly. These events are fundamental to a Biblical view of reality, not for any abstract reason, but because they are momentous historical events. The first two are especially pertinent to the development of true science.

Creation

The Bible at once confronts us with the God of Creation. Throughout the first chapter of Genesis there is a whole string of statements in which, as someone has well said, ‘God is the subject of the verb’. In the last 150 years, Christians have struggled to harmonise the plain, obvious sense of Genesis 1 with the so-called ‘assured facts of modern science’. Almost invariably, they have tried to hide their embarrassment of the explicit supernatural behind a smokescreen hermeneutic, which requires a mythological interpretation of the early chapters. They typically say that the principal lesson from Genesis is that nature somehow betrays the existence of God as we look at it in the right sort of way. While this may be true, we affirm that Creation is something that God did historically. The distinction may seem trivial but this creative act establishes God’s credentials as our almighty, all-wise owner, to whom we are accountable. A proper awareness of this show of Divine sovereignty inspires humility and awe-filled worship.

‘Let all the earth fear the Lord; let all the inhabitants of the world stand in awe of Him. For He spoke, and it was done; He commanded, and it stood fast’ (Psalm 33:8–9).

Christians know only too well the value of such contemplation. When faced with great trials, like Job, they are strengthened in hope and comforted in death by God’s Word (e.g. Job 38 and following). The astounding creative accomplishments described as real historical events in the Bible, give us wonderful assurance that the might and right of God’s kingdom will eventually prevail.

We are mistaken if we assume that such a view of Earth history is peculiarly religious and only valid for those who have faith. The truth of Creation is so self-evident and morally relevant that the Scriptures declare: ‘For since the creation of the world God’s invisible qualities—His eternal power and divine nature—have been clearly seen, being understood from what has been made, so that men are without excuse’ (Rom. 1:20). By stark contrast, the prevailing notions of naturalism and atheism are condemned as intellectual folly (Psalms 14:1). Coming as it does at the

beginning of the Bible, we may assume that the doctrine of Special Creation is foundational to true science and real piety.

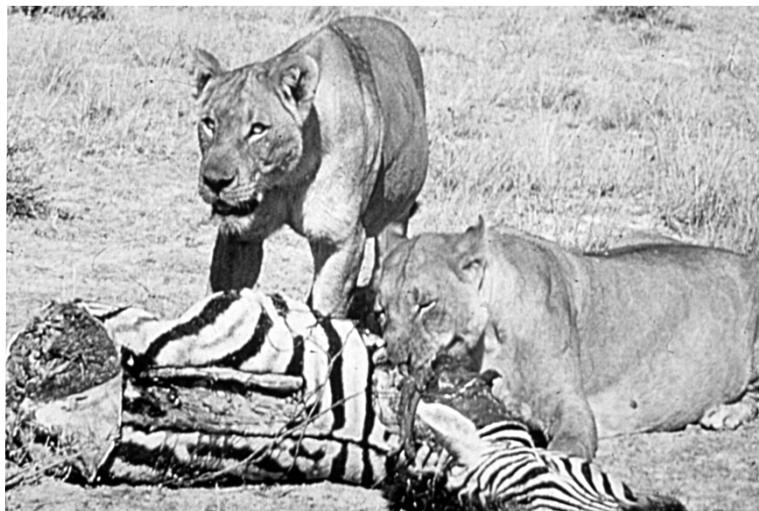
Fall

No sooner are we informed that this world is the result of ingenious, special (miraculous) Creation than God records for us the sober fact of its subsequent Fall and corruption. Sin entered human experience and God's subsequent Curse on the world affected everything (Gen. 3). Decay and death characterize our present physical existence. That which was harmonious and beautiful in the beginning is now cursed, in 'bondage to decay' (Romans 8:20–21). In the words of man, the poet, the crowning glory of God's original creation is now 'a magnificent wreck'. The full extent of the physical consequences of the Fall may never finally be known. But those of us engaged in the proclamation of true science must reckon all that we study to be somehow affected by it. Two passages of Scripture (among several) which clearly allude to the Fall include:

'The heavens shall vanish away like smoke, and the earth shall wax old like a garment, and they that dwell there shall die in like manner: but my salvation shall be forever' (Isaiah 51:6).

'For the creation was subjected to frustration, not by its own choice, but by the will of the one who subjected it, in hope that the creation itself will be liberated from its bondage to decay and brought into the glorious freedom of the children of God. We know that the whole creation has been groaning as in the pains of childbirth right up to the present time' (Rom. 8:20–22).

We may safely invoke the historical Fall event to explain effects such as earthquakes, certain pathological virus infections and various instances where nature now appears 'red in tooth and claw'.



We can invoke the historical Fall to explain instances where we see nature 'red in tooth and claw'.

Flood

If we are serious about using the Biblical record, we must also acknowledge within our grand geophysical paradigm the historicity of a worldwide Flood as outlined in Gen. 6–9. The Biblical narrative is secure and the listed genealogies (e.g. Gen. 5; 1 Chron. 1; Matt. 1 and Luke 3) are meticulously thorough, so we must reckon that this global catastrophe took place approximately 4,500 years ago.

Its effects are everywhere abundantly apparent. Principal evidence is found in the fossil-laden sedimentary rocks, the extensive reserves of hydrocarbon fuels (coal, oil and gas) and the 'legendary' accounts of such a great flood common to people groups worldwide. The feasibility of maintaining an ark full of representative land creatures for a year until the waters had sufficiently receded has been well documented by, among others, John Woodmorappe.¹ Much useful research has recently been undertaken confirming that speciation via natural selection and variation within limits can happily account for the rapid repopulation of the world and separation of human 'racial' groupings such as we find today.

Science in schools

In light of all this, it is necessary for us to enter the 21st century classroom with caution. Modern technology, which has influenced our lives in countless ways, engenders within the man on the street, and his children whom we teach, considerable confidence in the proclamations of modern science. Understandably, our pupils tend to believe what popular science pundits present in the media. Science teachers who affirm Biblical authority must proceed carefully. Scientific naturalism is fervently preached at the very highest level in colleges and universities throughout the land. The high priests of secular humanism wield great power and their influence is regrettably noticeable in the formal statements of the national curriculum and school examination syllabuses. Textbooks inevitably 'kow-tow' to the dictates of examining bodies and regrettably, most teachers unquestioningly follow on.

Therefore, a teacher who expresses ideas contrary to the prevailing secular worldview risks suspicion and scorn from students and colleagues. Truly, the fear of man is a great snare (Proverbs 29:25). But as challenging and as revolutionary as it may seem, Christian teachers must go against the crowd if they are to make significant spiritual in-roads into the hearts and minds of today's youngsters and tomorrow's generation of cultural transformers.

Church leaders, too, must do their part. As long as Christianity is preached as a 'religious optional extra', we can only hope to secure in the children under our charge a weak, existential

piety in which the historical Christ must be squeezed and trimmed to fit.

We urgently need thinking Christians who understand scientism’s subtle messages and expose its errors with clarity, conviction and courage. In the classroom, Christian teachers must be prepared to express without compromise the integrity and infallibility of the Biblical historical narrative, however loud and disagreeable the objection. Such ambassadors must be ‘as shrewd as serpents and as innocent as doves’ (Matt. 10:16).

What can be done?

Until or unless the science/faith problem is tackled at a higher level (i.e. government and university), the present curriculum constraints will apply for the foreseeable future. Teachers must frequently remind pupils, parents and fellow colleagues that all is not what it seems with the popular so-called scientific dogma.

In the meantime, science teachers may try some or all of the following:

- Remind students of great scientists from the past who believed in God and the Bible. Display pictures of them, together with brief quotes indicating their spiritual allegiance and scientific achievements. This simple exercise can effectively assure students that a simple trust in the Bible as the Word of God is not intellectual suicide—a popular media contention. Most are astonished to find out how many past worthies were committed to Biblical authority. Henry Morris, for example, lists over forty scientific disciplines and a further twenty-six notable inventions or discoveries which were established or substantially developed by Bible-believing scientists.² Many top scientists alive today also believe in Creation in six-days.³
- Note every occasion when an evolutionary/old-Earth paradigm (millions or billions of years) is mentioned or implied by a textbook, examination question or visitor and courteously point out the fallibility of the statement. Wherever possible, give the alternative (always better) Biblical explanation of the same data. (We will look at examples from physics, chemistry and biology later.) Remember, ‘The first to present his case seems right, till another comes forward and questions him’ (Proverbs 18:17).
- Display a variety of topical data not readily explained by current orthodox science. E.g. presence of information in DNA; rapid decay of the geo-magnetic field; recessional velocity of the moon; lack of transitional fossils. Posters are easily cut and pasted from old *Creation* magazines, which are brightly coloured and always helpfully illustrated.
- Provide background reading and further information for all who express an interest. There is a vast array of free Internet material. I have found Ian Campbell’s

Creation Matters booklet most helpful with staff and sixth-form students.

- Make literature and video resources available to the school library and actively encourage their use. Catalogues advertising such specialist items are available from at least two UK-based creationist organizations and from the Internet.
- Organize talks by specialist scientists who can provide authoritative support for the Biblical worldview and a fair but critical appraisal of naturalism. There is a need for someone nationally to draw up a list of suitable personnel, together with their academic credentials and contact details so that schools can arrange such visits.
- Set up a science-critical forum in which relevant issues from topical science-news items are discussed within the school. Show students and teachers that the claim of ‘religious neutrality’, everywhere vaunted by the secular dominated mass media, is spurious. Let them see that what is served up as science for popular consumption is frequently riddled with subtle atheistic propaganda, the fruit of which is the paralysis of true spiritual thinking and Christian action.

Never underestimate the therapeutic value of truth. ‘You will know the truth, and the truth will set you free’ (John 8:32).

It remains for us to examine a few examples of how naturalism has infected the national curriculum in the principal areas of biology, chemistry and physics. In doing so, we will provide suggestions and practical advice for those at the chalk-face.

Biology

Biologists ought, at the very least, to recognize and draw particular attention to the lack of evidence for ‘macro-evolution’. They must clearly teach that, while limited variation within basic kinds of organisms can and does occur (adapta-

Scientist	Contribution to Science
Lord Kelvin	Absolute Temperature Scale
Blaise Pascal	Barometer
Carolus Linnaeus	Classification System
Michael Faraday	Electric Generator
Joseph Henry	Electric Motor
Johann Kepler	Ephemeris Tables (Astronomy)
Louis Pasteur	Fermentation Control
Isaac Newton	Reflecting Telescope
Ambrose Fleming	Thermionic Valve
Francis Bacon	Scientific Method

A selection of Bible-believing scientists and their contribution to the scientific community.²

tion within the created kind), it is intellectually dishonest to extrapolate such evidence to support general evolutionary theory. Mutations do not produce the new information necessary to produce new organs or new appendages. Typically, mutations involve a loss of information. The distinguished Australian molecular biologist, Michael Denton, among others, has examined the limitations of mutational variation. He has shown that it is most unreasonable to imagine that successive slight changes of coded information can account for the large-scale differences between say a mouse and an elephant, or an octopus and a bee.

Biology teachers should encourage students to identify ‘design features’ for the living systems they study, and recognize that subsystems within organisms possess intrinsic, irreducible complexity. Michael Behe’s *Darwin’s Black Box* and Stuart Burgess’ *Hallmarks of Design* are essential background reading. Students and staff who read these important works will learn to recognize interdependence, functional intricacy and structures showing optimum efficiency, which characterize living things. Through such training, they will graduate with the sentiments of King David ringing loud and clear: ‘For you created my inmost being; you knit me together in my mother’s womb. I praise you because I am fearfully and wonderfully made; your works are wonderful, I know that full well’ (Psalms 139: 13, 14).

Perhaps too, students would do well to read Rudyard Kipling’s *Just So Stories* to appreciate how easy it is to invent plausible stories to explain alleged evolutionary adaptations. They should be reassured that, in most cases, the evidence marshalled in support of such fables is simply non-existent.

They might note the remarkable interdependence of symbiotic systems (e.g. the yucca plant and the yucca moth; DNA and its genetic decoding machinery) and the obvious need for each to commence functioning simultaneously to account for their existence.

Biologists must constantly remind students that information contained in cellular tissue, ensuring function, growth and replacement, is distinctly different from the molecules upon which it is written. Such information never arises spontaneously by chance. Rather, in accordance with the the principle of analogy and the law of cause and effect, it is the product of intelligent thought. The genetic code thus provides overwhelming *prima facie* evidence for intelligent design.

Only blind or wilful ignorance prevents serious-minded people from seeing it. The Apostle Paul, with remarkable insight comments, ‘For although they knew God, they neither glorified him as God nor gave thanks to him, but their thinking became futile and their foolish hearts were darkened. Although they claimed to be wise, they became fools’ (Rom. 1: 21, 22).

Summarizing, by providing a thorough understanding of the form and function of creatures and plants found within creation, biology teachers must foster within their

students a sense of awe, wonder and humility before their Maker.

Chemistry

Chemistry teachers should point out the remarkable fact that the astonishing variety of materials and compounds now known to us are all formed from ‘the dust of the ground’. The evident order epitomized in the periodic table points to the fact that the Creator is a God of order, not chaos. Students need to recognize the delicate balance which governs atomic and molecular bonding mechanisms and gives rise to the vast array of substances formed.

The so-called ‘Anthropic Principle’ is an important concept, which has only recently been recognized as scientifically significant. Briefly summarized, it states that the Earth (indeed the whole universe) is full of materials that comprise a unique environment.

The processes of change and regulation are governed by remarkably fine-tuned physical laws that enable life in general, and human life in particular, to be maintained. There are so many examples of such fine-tuning that it is easy to show that the statistical probability of them collectively existing within such narrowly permissible ranges is vanishingly small. Dr Arthur Jones notes one remarkable example:

In dry air, 78 out of every 100 atoms are nitrogen, while 21 are oxygen. Nitrogen’s relatively unreactive molecules are essential to build air pressure and to dilute oxygen. The proportion of oxygen is critical: with less than 15% oxygen, no fire could be lit, whereas at 22%, forest fires would occur too easily and at 25% even wet vegetation would burn (so lightning would quickly destroy most of the living world).⁴

In view of the current inclusion of Earth science into the Sc3 component of the UK national curriculum, it would seem particularly prudent for all who deliver this aspect of the course to familiarise themselves with creationist thinking. They should read the early Flood-geology writings of Whitcomb and Morris⁵ and be aware of the subsequent developments reported in creationist scientific journals.⁶ These plainly show the superiority of a catastrophe paradigm over and against the still-prevailing orthodoxy of uniformitarianism to explain various topological features of the Earth, such as fossilization, sedimentation, lava flows and magnetic reversals.

In particular, Earth-science teachers should point out that no rock is unearthed with an age label and that, unlike physical properties, the age of rocks (of unknown age) is not something that can be measured. Dating processes involve unprovable assumptions which are speculative, frequently contradictory and in many instances altogether incompatible with a great age. This is especially important when dealing with the alleged eons required for the formation of hydrocarbons (coal, oil and gas deposits) and various metamorphic rocks. Dr John D. Morris and his team at

the *Institute for Creation Research* have dealt with such issues most helpfully.

Physics

Physics teachers must stress the great difference between the well-established empirical laws of science (especially the conservation laws) and the highly speculative, hypothetical extrapolations into the distant past/future currently in vogue in cosmology. Mostly, the controversy tends to rage in the field of astronomy. The apparent close relationship between cosmology and elementary particle theory stems from the assumption that the universe began with a big bang and that in the immediate aftermath, elementary sub-atomic particles evolved into larger particles which, in turn, eventually formed stars, solar systems and, finally, galaxies.

It is sobering to remember that, despite occasional over-enthusiastic media pronouncements to the contrary, no star has ever been observed to form. No star has been followed through the alleged evolutionary sequence. It is important to explain that, with theoretical timescales of millions or billions of years, no observer could possibly monitor such a sequence! Spectacular photographic images typically show relatively static formations. Thus, while stars can be categorized according to Hertzsprung-Russell criteria, the idea that the great variety of star types represents evidence of stellar evolution remains fundamentally unproved. Furthermore, the elusive dark matter needed to rescue a semblance of reasonableness for modern cosmology theory is still missing. Hence, how could rapidly expanding debris from a primeval explosion, spreading out to fill three-dimensional space, ever overcome the initial self-destructive gravitational force of an alleged big bang?

In the UK, the new draft GCSE syllabus specifications for NEAB (AQA), for example (familiar to UK science teachers), requires students to be introduced to notions of where our solar system came from. They are encouraged to suppose that the raw materials were ejected from previously exploding stars, which somehow condensed into the intricate spinning and orbital elements of our solar system.⁷ Physics teachers must give careful thought to the actual data (i.e. planets, moons, rings, magnetic fields, anomalous orbits, comets etc.) and weigh the possibility of such intricate structure and complexity arising by chance. They should explain that the time-honoured laws of physics collectively cry out ‘impossible’! But this should not surprise us. The Bible teaches plainly that ‘the heavens declare the glory of God; the skies proclaim the work of his hands’ (Psalm 19:1). It is God who did it. ‘By the word of the Lord were the heavens made, their starry host by the breath of His mouth’ (Psalm 33:6). The full array of objects, which fill the night sky ‘speak’ loudly and clearly of the creative work of God—‘there is no speech or language where their voice is not heard. Their voice goes out into all the earth, their words to the ends of the world’ (Psalm 19:3, 4).

Physicists should remind their students that no laws of physics are better attested than the laws of thermodynamics. They should present a clear understanding of the Second Law, which argues against the spontaneous, unaided development of orderly systems from disordered, chaotic ones. Thus, demonstrate the impossibility of alleged natural processes producing the complex structure evident all around us—especially in living things.

Carl Sagan spent much of his life working on the SETI (Search for Extra-Terrestrial Intelligence) project. He knew that pattern and order are the characteristics of signals which would positively indicate a source of intelligence. It is both sad and ironic that this dedicated secular humanist, while searching for such signs in radio signals from space, could (would?) not recognize the same fingerprints in the genetic information coded on the DNA of every living cell on Earth.

Physicists, too, should utilize the Anthropic Principle to underscore how finely tuned the Earth/moon/sun system is as a harbour for life. They should point out that

- the period of the Earth’s rotation (24 hours) is critical. Much faster, and windstorms would be violently destructive; much slower, and the day time/night time temperatures would be too extreme.
- the moon’s gravity is critical. Much greater, and the tides would be catastrophic; much less and the oceans would become stagnant through insufficient mixing.
- the temperature of the Earth’s surface is critical. A little hotter on average, and excessive water vapour and carbon dioxide would collect in atmospheric clouds and the greenhouse effect would run away with itself, causing the ice-caps to melt and further overheating; a little colder, and more snow and ice would form reflecting solar energy, promoting yet cooler temperatures.

Finally, physicists should underscore Karl Popper’s contention that experiments designed to test or validate a proposed theory may only falsify. Thus, scientific tests can only demonstrate, at best, that the theory *might* be true.

Relevance and importance of a proper approach

Does a distinctively Biblical approach to science teaching matter? Yes, it does, and it matters a great deal. Much is at stake. The Bible informs us that our thinking determines the way in which we live (Proverbs 23: 7). Over the past one hundred and fifty years, a great conceptual wedge has been driven between alleged ‘absolute scientific truth’ and, in stark contrast, tenuous and subjective ‘religious belief’. Science masquerades today as a pursuit of ultimate truth. Hence, an idea promoted constantly within academia and the mass media is that people can be classified as either ‘religious’ or ‘non-religious’, depending on whether or not they carry any religious baggage in their heads, together with the so-called religiously neutral, objective facts of science.

By way of illustration, let me recall an announcement

earlier this year by the BBC concerning the new art exhibition in London's National Gallery—Seeing the Light. The public was informed that the curators had posted explanatory captions against each picture for the benefit of those who were 'not religious'. Although people think they are merely being informed, this announcement subliminally reinforces the myth that people can be categorized as 'religious' or 'non-religious'. It is, however, philosophically dishonest to make such a division. Everyone believes in something. The issue is not that some have beliefs while others don't. Rather some believe what is true, while others believe what is false.

So, is Christianity and the Bible true—historically, scientifically and objectively, or is atheistic, humanistic, materialism true? One's allegiance to either requires a certain leap of faith. For example, the archetypal secular humanist believes that:

- nothing but blind impersonal chance directs the energy which drives the universe.
- all that exists are photons and atoms (waves and particles) which behave uniformly and consistently.
- all processes are natural processes which may ultimately be understood as a single mathematical equation. Hence, mathematicians and physicists hold the keys to real/absolute knowledge and truth.
- all thought and feeling are comprehensible in terms of natural electro-mechanical processes.
- death is simply physical obliteration.
- God and spiritual ideas are helpful (utilitarian) figments of imagination etc.

If he is ruthlessly honest (but why should he be?), the secular humanist should realize that reason and rationality have no more claim upon his thoughts than irrationality. If blind, purposeless chance is the sole driving force behind the universe, why should there even be such a thing as reason?

It ought to be apparent to thinking individuals that none of the above are hard facts: demonstrably or empirically true. Hence the science built upon such foundational assumptions is tantamount to atheism—a belief.

Christians, with good reason, consider the Scriptures of the Old and New Testaments to be accurate and reliable. They are not merely religious documents. They provide us with a true account of Earth history, which we ignore at our peril. Many who parade as competent scientists today unwittingly ask the same question which Satan first uttered back in Genesis, 'Did God really say ...?' (3:1).

A true knowledge about the nature of everything (i.e. the goal of true science) will inevitably lead to the realization that we have been supernaturally and specially created by Jesus Christ. This same God therefore has a rightful claim upon our life—indeed, by virtue of his historical creative act, he actually owns us (Col 1:17). Ownership logically implies accountability and accountability anticipates judgement.

True science then should confirm the students' realiza-

tion that they are rational, spiritual beings of infinite worth, with immortal souls, whose eternal destiny, because of their sin, is placed in the balance. True science is no enemy of true religion. Indeed, the fear of the Lord is the beginning of knowledge and of wisdom (Proverbs 1:7 and 9:10). As the 17th century astronomer Johannes Kepler remarked, his work consisted of 'thinking God's thoughts after Him'.

May it please God to raise up a new generation of scientists who are duly respectful of their Maker and who, recognizing the limitations of human scientific enquiry, give full respect to the statements of propositional truth of Holy Scripture—being the authoritative Word of God.

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