MAKING SENSE OF FAITH IN THE AGE OF SCIENCE AND TECHNOLOGY

SCIENCE WEEK SERVICE,

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Scripture Readings: John 1:1-5, 10-14 & Colossians 1:15-20.

Let us pray,

Heavenly Father, give us faith to receive your word, understanding to know what it means, and the will to put it into practice, through Jesus Christ our Lord, Amen.

Scottish theologian William Barclay described the first chapter of John as *"one of the greatest adventures of religious thought ever achieved by the mind of man*"[2]. It begins with the prologue, read just before, where John employs the concept of the *Logos,* translated as *Word* to reach out to both Greek and Hebrew cultures. The Greek for ***Word*** is ***Logos*** but it can also mean 'reason'. John links it to the important Hebrew idea of 'the Word of God'. John 's approach is relevant as we consider Christian faith in the Age of Science and Technology.

Let us consider just a few of the insights from the prologue[3].

"**In the beginning was the Word. And the word was with God… He was in the beginning with God".**

Not only was the Word with God in the beginning, before we can speak of creation, but the Word was in intimate relationship with God.

Then "**The Word was God".**

This statement anticipates that the Word is Jesus Christ, who represents God *"so perfectly in heart, mind and being that we see in Him what God is like"*[4].

"All things came into being through him, and without him not one thing came into being."

Creation is attributed to The Word and this doesn't imply any particular scientific process. Creation is not just an original act, but is continuing. Creation belongs to God.

"What has come into being (4) in him was life and, the life was the light of all people. …. (9) The true light which enlightens everyone, was coming into the world."

Here we meet two important themes, light and life, that run throughout the fourth gospel. However, light does not refer to electromagnetic radiation, but is a metaphor for spiritual and intellectual insight.

10 "He was in the world, and the world came into being through him, yet the world did not know him".

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2 Barclay, W, 1958, *The Gospel of John Vol. 1*, 3rd Edition, The Saint Andrew Press, Edinburgh, p 2.

3 Bible references are from the NRSV.

4 Barclay, 1998, p 17.

Thus, knowledge of God from natural theology [from patterns and order in creation] does not, of itself, lead to knowing God.

11 …and his own people did not accept him. 12 But to all who received him, who believed in his name, he gave power to become children of God, ….

Jesus Christ was not universally recognised nor universally accepted in his own day, as is true today, but **we can respond to God in Christ or we can choose not to know God at all.**

"14 And the Word became flesh and lived among us and we have seen his glory, … full of grace and truth."

This has to be the most astonishing claim in the whole of the NT. Reaching a crescendo, there is no doubt that *The Word* really is the person Jesus Christ – who entered our world 'in the flesh' and was known by John and his contemporaries when he was on earth. God must surely value His creation, including us, through having chosen to enter the world in human form!

For our purpose today, what is important is that the prologue provides a link between why there is a universe at all and Jesus Christ, the divine Word. This is a helpful insight as we try to make sense of faith in the light of modern science.

Let us now consider the nature and scope of science.

When modern science originated in 'Christian' Europe some 500 years ago, people still accepted Ptolemaic cosmology believing the sun orbited the earth. This was considered biblical!! However new opportunities to explore the world began to open up and eventually Ptolemaic cosmology gave way to Copernican cosmology, where it is believed that planets orbit the Sun. We don't argue about that today, but the issues got Galileo [1564-1627] into a lot of hot water!

A century later, a true intellectual giant, Isaac Newton [1643-1727], arrived on the scene and showed that the new laws of gravity and planetary motion could be expressed mathematically, establishing mathematics as a natural language for physics.

Science depends on empirical observation, repeatable experiments, testing of hypotheses and establishment of theories that can both explain existing phenomena and predict new phenomena. Science explores what is the case, not what might have been, by investigating the regularities in a world that really exists. Scientific laws, which only make sense in an orderly universe, codify the regularities we find in nature, but they do not cause things to happen.

The practice of science is universal. Scientists come from all cultures and religious traditions - or even no religious tradition at all. They share one thing in common, a commitment to scientific methodology which has an important in-built safeguard - peer reviewing of scientific papers, in contrast to items in Wikipedia. Published science is not just somebody's opinion!

Science also depends on trust. Since it is impossible to know everything, even in a single discipline, we have to trust others. Although my own experience is laboratory-based, I am persuaded by what biology, geology and astronomy reveal about the world. On the basis of the evidence, Big Bang cosmology and biological evolution provide the best understanding of the nature of the physical world available today.

Charles Darwin arrived at his theory of 'descent with modification', or evolution, without being aware that Gregor Mendel, a Czech monk, had already discovered principles of inheritance that would have made his case even stronger! Long before the modern genetics revolution, evolutionary biologist and Russian Orthodox Christian, Theodocius Dobzhansky stated *"Nothing in Biology Makes Sense Except in the Light of Evolution"*. The relative simplicity of the genetic code, common to all living organisms, shows how intimately linked we are to the rest of creation. In fact our genetic history is recorded in our genomes and we share half of ours with bananas and 98% with chimpanzees! Such knowledge does not in any way diminish what it means to be made 'in the image of God'.

Around 1900, many physicists thought there was nothing more to discover! How wrong they were! The birth of quantum ideas involving discrete energy quanta and Einstein's relativity proved a watershed and physics dramatically altered the scientific landscape. Relativistic mechanics, which superseded and encompassed Newton's long-established laws of motion and gravitation, must be used if we want to understand the properties of electrons circulating near the speed of light in the storage ring at The Australian Synchrotron.

The vocabulary of modern physics includes quarks, gluons, strings, superstrings, 11 dimensions, symmetry breaking, black holes, neutron stars, chaos theory, dark matter and much more besides, all of which involve counter-intuitive ideas about reality far removed from everyday experience. It may surprise you to realise physics can be summarised in little more than a dozen mathematical equations. We can undertake ***'what if'*** experiments by computer and run the equations backwards in time, but that doesn't help much since natural processes follow the arrow of time.

Big Bang Cosmology is confirmed by two critical observations. **1.** Galaxies are all moving away from each other as the universe goes on expanding; the further away they are, the faster they move, from which the age of universe is deduced to be 13.7 billion years. **2.** The faint microwave 'hiss' from the very early universe, first detected in 1964, provided the final piece of the puzzle. The history of the universe from near time zero, when space, time and matter came into existence, is fairly well-understood but puzzles remain.

Modern quantum physics reveals a shadowy and unpredictable world at the atomic and sub-atomic level which, coupled with chaos theory, complexity theory and self-organizing principles of matter, points to a world open to new potentialities. The universe is not totally predictable and God is not capricious!

We live the age of science and technology and depend heavily on technology. As scientific knowledge may be used for good or evil, we cannot avoid the moral and ethical dilemmas raised by technological applications of science such as cloning or atomic and nuclear weapons. Ethical questions cannot be answered within science, but require the tools both of metaphysics, which is based on abstract general reasoning. and theology

What sense can we make of faith in today's post-modern world? Is it reasonable for a scientist or a science teacher to be a Christian? To begin to answer these questions some popular myths need to be exposed.

A popular myth - science is all there is and it leads to atheism.

Whether practicing scientists recognise it or not, science rests on assumptions about the world and the nature of intellectual enquiry which cannot be derived within science. Dr Francis Collins, former Director of the Human Genome Project in the USA, says, by way of response,

"*Science is not threatened by God; it is enhanced. God is most certainly not threatened by science. He made it all possible. So let us together seek to reclaim the solid ground of an intellectually and spiritually satisfying synthesis of all great truths…"*[5]

The scientific method, while extremely successful, cannot account for love, forgiveness, altruism, aesthetics or purpose in the universe. Musical acoustics is informative regarding frequencies and patterns of notes but not about the aesthetic experience of listening to Bach or Beethoven.

The claim that science, especially evolution, leads to atheism, promoted particularly by atheists such as Richard Dawkins and supported by young earth creationists, is a metaphysical assumption that reflects a wrong understanding of science!!

A second popular myth - science and faith are in conflict.

This is regrettably true in some circles. The good news is that science and faith complement each other and responsible dialogue at the science-faith interface is achievable. Connections between concepts from faith and theology on the one hand and science on the other involve metaphysics. A reading list may be found on the insert in your service booklet.

Another popular myth - Christianity is based on unsupported evidence.

Christianity relies on empirical evidence concerning the life, death and resurrection of Jesus Christ. This evidence is not taken just as revelation but is subjected to proper historical and linguistic scrutiny and it stands up. These events in the life of Jesus are pivotal to understanding our relationship with God and each other, and the Christian hope that this life is not all there is.

Yet another popular myth – The post-modern assertion that we can't be certain about anything.

The success of modern science is actually a denial of post-modernism. Why? Because science represents a body of knowledge that is not about personal preference or mere opinion. While people holding different worldviews will disagree at the metaphysical level about the meaning of science, the consensus amongst scientists about the main findings in science is a fact to be reckoned with. While science remains a work in progress, and our knowledge is incomplete, what we do know points to a universe that really exists.

A personal note that is not a myth!!

Upon embracing Christian faith as an undergraduate, I realised that science was about exploring God's world, not looking for God in the laws of nature. My encounter with the living Christ had little to do with natural theology.

Alister McGrath in his recent Gifford Lectures in Scotland argues for a theology of nature, not to try to prove God's existence, but rather as an outworking of a Christian understanding of reality.

I counted it a great privilege to undertake research and to occupy a small plot in the scientific landscape. Throughout my career, I have sought to respond to three core insights:-

1) God exists and the universe is his creation,

2) All truth is God's truth and the universe may be explored scientifically, and,

3), A career in science is a respectable Christian vocation.

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[5] Collins, F, 2006, *The Language of God*, Free Press, New York, p 233.

While the church adjusted to the paradigm shift from Ptolemaic to Copernican cosmology 400 years ago, the past century has provided more of a challenge as the universe has been shown to be more open and unpredictable than we could ever have imagined. Big Bang Cosmology and Biological Evolution are well established paradigms, yet they continue to be opposed by some sections of the church. The credibility gap results from an understandable lack of appreciation regarding the validity of scientific knowledge and also because the pursuit of science as a God-given responsibility is not well-understood.

We all have questions about faith and science that we cannot answer so we need to seek out those who can help us. I say to high school students and undergraduates here today, who plan to be scientists, to think of a scientific career as a Christian vocation. I urge you to find a mentor who can help you explore a coherent understanding of science and faith. There is ample literature available and we in ISCAST can certainly assist. The insert in the service booklet provides a representative reading list and helpful website addresses.

The prologue to John's Gospel provides a link between the life of faith and the real world investigated by science. I have sought to present a balanced view of the nature of science, drawing on biology, physics and cosmology but regrettably, without having time to discuss advances in neuroscience, medical research or social sciences. Isn't it remarkable that we insignificant creatures are able to make comprehensible and meaningful statements about our amazing universe.

Science is to be understood as God's providential gift to us and thus it is logical for a scientist to be a Christian in today's world.

I want to conclude with some words of wisdom written by St Augustine of Hippo [354-43], that are just as apposite today as when first written some 1600 years ago.

"Usually, even a non-Christian knows something about the earth, the heavens, and other elements of this world, about the motion and orbit of the stars and even their size ..., and this knowledge he holds to as being certain from reason and experience.

Now, it is a disgraceful and dangerous thing for an unbeliever[6] to hear a Christian, presumably giving the meaning of Holy Scripture, talking nonsense on these topics; and we should take all means to prevent such an embarrassing situation, in which people show up vast ignorance in a Christian and laugh it to scorn ...

If they find a Christian mistaken in a field which they themselves know well and hear him maintaining his foolish opinions about our books ***[meaning the bible],*** how are they going to believe those books in matters concerning the resurrection of the dead, the hope of eternal life, and the kingdom of heaven ?"[7]

AMEN

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[6] Infidel was replaced by unbeliever.

[7] Augustine of Hippo, *The Literal Meaning of Genesis*, circa 400, Book 1, chapter 19, section 39; translated and annotated by John Hammond Taylor, S. I., 2 vols. (Ancient Christian Writers, Nos. 41, 42), (New York: Newman Press, 1982), vol. 1, pp. 42-43.

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SCIENCE-FAITH WEBSITES:

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- Faraday Institute, Cambridge UK; http://www.st-edmunds.cam.ac.uk/faraday/
- Christians in Science http://www.cis.org.uk/
- BioLogos http://biologos.org/ [Founded by Dr Francis Collins8

[8] Dr Francis Collins, Director Human Genome Project 1992-2008; Director elect, US National Institutes of Health..

[9] Sir John Houghton, UK, winner of 2006 Japan Prize for contributions to Atmospheric Science and Global Warming