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George Ellis and friends

COSAC SPECIAL EDITION

INSIDE THIS ISSUE

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Editorial

Welcome to the new look ISCAST Bulletin. As my first duty, I'd like to thank Jonathan Clarke for all of his hard work over many past issues!

So why the change in format? We want to try and expand our readership to those outside the Christian faith, and the next generation of science graduates, to enable them to think Christianly about their work as worship of the Lord Jesus Christ, and the furthering of His kingdom.

The Bulletin is part of our public face, and as such can be a way in which we can reach out to Christians and those not of the Christian faith. And so the attempt to "jazz up" the Bulletin without sacrificing content. There will be a few new features appearing from time to time.

One new column to debut in this edition is the Biography column. This consists of short interviews of associates or fellows of ISCAST sharing something of their Christian faith and how it illuminates their science. Email me with some short answers to the questions in this issue with a small picture of yourself.

You will notice a few photos in this edition from COSAC 2005. ISCAST is not a collection of disembodied minds, but local gatherings of Christian believers coming to worship Christ together with minds and hearts. Please send me images of your gatherings. It would be good to get some letters too, and any ideas you have on issues to cover.

And now to the contents. We have summaries of some of the excellent presentations from COSAC 2005.

Enjoy! Cheers, Mick…

PS. Some news: The next edition will be on Intelligent Design. It should be good, if not a little controversial. COSAC 2007 will be in Melbourne on issues of sustainability.

At COASC, 2005, the new Bulletin editor pontificates to the board of ISCAST on how he thinks the Bulletin should look.

The board wonders at what an amazingly bright, talented and modest individual the new Bulletin editor is!

George Ellis—talks summary

This summary has been written by Mick Pope. Several of the presentations that George Ellis gave are available on the ISCAST website.

Anyone who heard any of George Ellis's talks will understand the breadth and depth of his understanding of so many issues. He ranged far and wide, from the beginning of the universe to its end, from the very small to the very large, from the simple to the complex. But there were two main themes that he pursued throughout, those of emergence and kenosis. In this short summary, I will attempt to do justice to the scope of the material covered and these two major themes.

That the universe is expanding, has been known since the work of Edwin Hubble in 1929. This implies that at some time in the past, it had a beginning. It also raises the question of what the future of the universe is, which is dependant on the shape of the universe. It appears that the universe is flat, and so will go on expanding forever. One issue with this is that we cannot see enough matter to ensure the universe is closed. Dark, unseen matter contributes to this mass, but this is still not sufficient for a flat universe. Given that the universe is currently accelerating in its expansion, Einstein's greatest mistake, his cosmological parameter, has made a comeback in the form of dark energy.

many who advance theories with no need of God, like those involving a "multiverse" do so precisely to avoid the question of God.

The problem with the beginning of the universe is that it lies behind a shroud. In the earliest phases of the universe, matter was so densely packed that radiation was constantly scattered by it. The point at which radiation finally escaped is known as the surface of last scattering. It is from here we see the cosmic microwave background radiation. Perturbations in this surface gave rise to the galaxies we see now as slightly more dense regions collapsed due to the force of gravity. This surface of last scattering forms the shroud beyond which we cannot see.

Hence, Ellis rightly points out that any theory that describes what happened before this is metaphysics, not physics, because we have no evidence to validate any theory (and there are no shortage of these theories).

On a personal note, Ellis noted that many who advance theories with no need of God, like those involving a "multiverse", do so precisely to avoid the question of God. It simply delays the inevitable – where did the multiverse come from? (Note that Ellis agreed with me that theists do the same thing, our answer is that God is a necessary being and as such has no creator. The materialist could do the same and claim that the multiverse just is, but this would lack scientific integrity. As Ellis notes, in the end, it is what makes most sense, not what can be proven with absolute certainty).

One of the major points that Ellis makes is that the universe appears fine tuned for life. A small change in one of six physical constants means no life at all. To answer this with a multiverse delays the question – why this multiverse where at least one universe allows life? So, physics allows for the rise of complex structures such as stars, galaxies and life. However, it does not follow necessarily that life should arise as it does. The information on the surface of last scattering allows for life, but does not uniquely determine every detail. There is, if you like, no cosmological predestination.

It appears that complexity emerges from simpler states, and a modular separation occurs. Simply put, the fact that emergence occurs means that reductionism is not only unnecessary, it is nonsensical. A simple analogy is that of a painting. To analyse the chemical composition of the pigments used tells you nothing of the meaning of the painting itself.

We can then consider a hierarchy of structure that moves from particle physics to psychology. Each level is a strand of reality with its own validity. For example, just because atoms are mostly empty space does not mean to say that a table is not real. This hierarchy of structure allows for both bottom up and top down causation in the universe.

Examples of top down causation include the effect of the state of the universe on nucleosynthesis in the early universe, the mind on the body and the quantum measurement process. Ellis distinguishes between two different hierarchies. The purely "physical" hierarchy progresses from physics to cosmology and then metaphysics. Another moves from physics to psychology, sociology and ethics. This hierarchy involves conscious choices and these choices are real. Consciousness is not an illusion, as Daniel Dennett would have us believe.

Likewise, ethics is not reducible to any level below it, despite the best efforts of the sociobiologists to explain it away. Socio-biology, according to Ellis, leads to social Darwinianism. Therefore, from an initial state of simplicity at the surface of last scattering in the early universe, conscious and ethical moral agents arise.

The result is that science cannot provide values since values are not reducible to science. Science has provided many advantages to humanity, but has also brought much suffering (pollution, global warming, etc). What is more, science has produced nuclear weapons, napalm, biological warfare and computer viruses. Science sins not only by omission but also by commission.

As irreducible, morality is an intimation of the transcendent. This finds its expression in a kenotic morality, characterised by love and self-sacrifice. This is morality that transforms, not coerces.

George Ellis continued ...

Kenosis is a joyous attitude that values love and justice, is generous and creative in pursuing these aims, if needed, is willing to give up personal needs and voluntarily to sacrifice on behalf of others. This attitude of "letting go" has a transformational nature, with the possibility of changing the quality and meaning of the situation facing us.

Kenosis is probably the only approach that has the capacity to change an enemy into a friend (love your enemies and pray for those who persecute you). Ellis sees kenosis reflected in many relationships, e.g. mother and child, foundations of community, learning and true artistic endeavour. It is the basis of deep social action seen in the careers of Gandhi, Tutu and Luther King. It (according to Ellis) occurs in all of the major religions.

Above both metaphysics and ethics is theology. Theology discusses the world of ultimate reality, to which both creation and revelation give intimations. Morality, ethics, aesthetics, love, creativity, science, creation, existence, and spiritual existence all point beyond themselves to the world of ultimate reality. To Ellis there is excess in all of this, more than is necessary for a universe to exist, and underneath it all is a unifying kenotic theme.

Kenosis is probably the only approach that has the capacity to change an enemy into a friend.

The key idea is that the fundamental aim of loving action shapes the nature of creation and transcendence in practice, setting their meaning, implications, and limitations. The meaning of the phrase "in practice" is that the Creator could have ordered things differently, but has restricted the nature of creation to that required for this purpose. We take seriously the concept that the purpose of the universe is precisely to make this kind of sacrificial response possible, and pursue the implications. This hypothesis, that goes back to the earliest days of Christianity is tested by its consequences.

A number of things follow, linking back into Ellis' long discussion of physics. Firstly, free will cannot function in a universe where there are no rules governing the activity of natural phenomena.

Secondly, an anthropic universe is required that allows the existence of intelligent beings. Ellis expects that intelligent life will be common in the universe and much like us in many ways.

Thirdly, we live in a providential universe where the natural laws operate impartially. Therefore, the will is unrestrained to either acknowledge or deny the divine.

Fourthly, Ellis sees a need for a certain hidden nature of reality, i.e. God, so that a free and open response to God is permitted rather than some manner of forced response.

Finally, there must be the possibility of revelation to those who wish to receive it.

In investigating the spiritual/religious option in life we need to take seriously the scandal of the particularity of religious experience and test the evidence of religion in terms of texts, traditions, authority and community, the consequences, being impartial, and overall consistency and coherency. This kind of measure means abandoning certainty and living in a covenant with faith (indeed faith is used in everyday life as a short cut in decision making because we never have all the facts). This for Ellis implies two challenges. The first challenge is testing this vision and developing an understanding of the nature of ultimate reality. This is where Ellis sees the importance of interfaith dialogue.

The second challenge lies in being aware of this whole set of interlocking themes, i.e. seeing the whole (Ellis's true spirituality). True spirituality in action is global in orientation, caring for the poor and weak and using scientific and technological vision to help transform their lives.

For Ellis there are two dangers. The first is fundamentalism, a desperate hanging on to some partial truth, treated as if it were the whole truth. The second is an academic approach that lacks involvement or human understanding.

I've tried to trace the themes of emergence and kenosis through his many presentations. Now it is time to ask some questions. It is unclear on what basis we are to carry out this kenotic ethic. Is it already within our grasp to do so? Ellis sees a progression of morality through history, but is this really the case? As Christians, we are also entitled to ask, what role does Jesus play in this? Is he merely an example? Likewise, what is the role of grace? Finally, Ellis advocates an interfaith dialogue to obtain the true nature of reality, avoids dogmatic atheism and fundamentalism. However, how will this look in practice? Will it flatten religious differences?

George Ellis has given us much to think through. There are many open ends, particularly for an evangelical viewpoint. We are indebted to Ellis for the many issues he raised, the many threads drawn together and the scope of his interests.

Further reading

Simon Conway Morris, Life's Solution: Inevitable Humans in a Lonely Universe
S Vogel, Paws and Catapults
Martin Rees, Just Six Numbers
Roger Penrose, The Road to Reality
Murphy and Ellis, On the Moral Nature of the Universe

Phenomenal Cosmic Power, Itty-bitty Living Space?

Andrew Sloane is a lecturer in Old Testament and Christian thought at Morling College, Sydney.

The title of this paper is drawn from Walt Disney's movie Aladdin which, in my view, nicely sums up an important view of the dilemma facing Christian theology in a Newtonian universe. There the genie, speaking of the drawbacks of being a genie, in particular being stuck in a lamp until called for, speaks of his 'phenomenal cosmic power', but 'itty-bitty living space'. That, according to Torrance, is precisely the problem for Christian theology. For, in a Newtonian universe, space and time are viewed as being an absolute 'receptacle', independent of and containing the beings and events that take place within it. Therefore any physical body, which itself exists in space and time, must be conceived of as a finite receptacle. However, God is usually seen as being the infinite creator of all. How, then, if the Incarnation is the 'enfleshment' of the Son of God, God the Son, can the infinite Son 'inhabit' a finite body?

our notions of space and time should be conformed to the biblical portrayal of God as both creator and Incarnate

How can all that 'phenomenal cosmic power' fit into such an 'itty-bitty living space'? This is the issue that I address in this paper, drawing on the seminal work of Thomas Torrance. My primary focus is on the theology, especially the theology of the Incarnation, and the relationship between physical theories of space and time and theological accounts of God's action in the world and the Incarnation of the Son of God.

I begin by outlining Torrance's account of Trinitarian orthodoxy, noting a number of key features. Torrance's is a robustly critical-realist theology in which both theology and science make claims about reality, albeit with different foci and methodologies. It is also thoroughly Trinitarian in shape and deeply rooted in Nicene and Chalcedonian (classical Trinitarian and Christological) orthodoxy. At the heart of Nicene theology is the claim that in the person of the Lord Jesus Christ God himself was incarnate, enfleshed if you will, in space and time. But this idea required a radically new concept of space and time itself, one driven by and in conformity with the gospel, resulting in the rejection of then current theories of space and time.

This illustrates one of Torrance's key ideas—that our notions of space and time should be conformed to the biblical (and Trinitarianly orthodox) portrayal of God as both Creator and as Incarnate in the person of Jesus rather than vice versa. God, then, both transcends space and time and creates and maintains it, but he himself is independent of space and time and is not bound by it.

Furthermore, space and time is open, not only to the Transcendent One's action in history, but his entrance into history in the person of Jesus, who is truly God and truly human. Torrance argues that the loss of the conceptual priority of the gospel, and its accommodation to early modern theories of space and time (notably Newton's) resulted in crucial problems for articulating an orthodox Christology.

These problems are well illustrated, in my view, in the 'liberal' theologies of Schleiermacher and Macquarrie and the 'receptacle' model of space and time that they adopt in light of their understanding of contemporary scientific accounts of causation. The result is that they both effectively deny special divine agency in the world, and limit the Incarnation to Jesus' perfect expression of God-consciousness (Schleiermacher) or perfect expression of Being-itself in an individual human life. Truly, there are problems fitting God's 'phenomenal cosmic power' in such an 'itty-bitty living space'.

The primary problem is not, however, the particular model of space and time that they adopt—after all, the Incarnation of the Son of God is not a matter of trying to squeeze a being of infinite size or eternal duration into a finite container in space and time; in classical orthodoxy size and duration (in the normal sense, at least) are concepts strictly irrelevant to the being of God. Rather, both Schleiermacher and Macquarrie are classical instances of what Helmut Thielicke calls 'Cartesian theology', a theology that conforms the word of the gospel to predetermined conceptual categories derived from human subjectivity or 'knowledge'.

Torrance, in contrast, seeks to give priority to the gospel, and consequently to develop a model of space and time that conforms to it. To use Aladdin again, God is neither 'shut out' of the bottle, nor is God locked in. The one who transcends space and time is also sovereign over space-time; and as we see in the Old Testament, is free to act in history to demonstrate his character and purposes.

There is, then, in both creation and divine action in history, a voluntary 'binding' of God to the creation (and of the creation to God), which does not limit God to space-time and natural causation. Indeed, in the Incarnation, God enters history and becomes the organising principle of space-time; while space-time retains its creaturely integrity, it is open to God. This requires, then, that we develop a dynamic and relational view of space-time, rather than an absolute, static receptacle view of space and time. Torrance does this with reference to Einsteinian relativistic physics, seeing it as more consistent with the gospel that Newtonian receptacle notions.

These ideas are explored further in the work of Wolfhart Pannenberg, who consciously develops ideas introduced by Torrance.

Itty bitty continued

Richard Bauckham, while he takes a different line and does not directly interact with Torrance, develops a Christology consistent with Torrance (and, more importantly, classical orthodoxy).

In light of this, it seems to me that more significant than which physical theory is adopted is the question of whether concepts of space and time derived from, say, contemporary philosophy or science, are brought into conformity with the gospel, or vice versa. And here Torrance and Pannenberg show us fruitful ways forward. But equally, the notion of the Incarnation, understood robustly, suggests that we might need to rethink our theology of God—especially notions of divine immutability and impassibility and, I would argue, how God might be at work as the omnipotent one precisely in the weakness, suffering and death of the Son. And here Torrance and Bauckham are of value. The Incarnation forces us to reconsider, not just our notions of 'itty-bitty living space', but also of 'phenomenal cosmic power'. But such reflection must await another occasion.

Science and Christian Belief
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Einstein and his Religion

Robert Stening is at the University of New South Wales School of Physics.

Albert Einstein was born on 14 March, 1979, at Ulm in southern Germany. His father, Hermann Einstein, recorded his birth at the local town hall and entered his religion as "Israelitic". While Albert's father and mother acknowledged their Jewish heritage, they did not practise Jewish customs. They did not go to the synagogue or pray at home. Their cooking was not kosher and they enjoyed a good pork meal.

Albert attended a big Catholic primary school. It was reported that "One day that teacher brought a long nail to the lesson and told the students that with just such nails Christ had been nailed to the Cross by the Jews". This was an example of the anti-Semitism which led to Albert becoming a "stranger" or "outsider".

A Jewish custom which the Einsteins did follow was to have to Sabbath lunch a poor Talmudic scholar. Max Talmud brought popular science books for Albert to read. Talmud provided young Albert with books on science and mathematics which he consumed with breathless speed. He relates two mysterious experiences of "wondering". The first was with a compass needle which seemed to be affected by some invisible force. The second was what he called his "sacred little geometry book" which he started to study at age twelve. "The clarity and certainty" provided in Euclidean geometry "made an indescribable impression on me", he said later.

Just before his seventeenth birthday he was released from German citizenship. The document of his release shows the entry "no religious denomination".

Writing in *The World as I See It,* Einstein comes to specifically discuss the topic of Religion and Science. This work was written in Berlin in 1920 but published in America. One of his biographers describes it rather contemptuously thus:

"These cozy ideas might have been set down by any professor or schoolmaster".

Nevertheless it gives us some insight into what were those ideas which meant the most to him. He starts by stating that the main driving forces experienced by people are their "satisfaction of felt needs and the assuagement of pain". "Feeling and desire", he says, " are the motive forces behind all human endeavour and all human creation".

So what, he asks, lead men to religious thought and belief? In more primitive societies it is fear – "fear of hunger, wild beasts, sickness, death". Because man does not understand how to control these things, he creates a being or god who is able to control them and then seeks to propitiate the god. A later development, he felt, was the social or moral conception of God.

Einstein continued ...

As parents may be unreliable, a higher providential power is invoked, a source of love, comfort and satisfaction of inner longings and one who will preserve the soul beyond death. But both the gods of fear and of morality are anthropomorphic. Einstein sees a higher religion that does not have this property, what he calls "cosmic religious feeling".

"The individual feels the nothingness of human desires and aims, and the sublimity and marvellous order which reveal themselves both in nature and in the world of thought. He looks upon individual existence as a sort of prison and wants to experience the universe as a single significant whole".

Einstein sees evidence of this type of religion in many of the Psalms of David, in some of the Prophets, in Buddhism and the writings of Schopenhauer. His heroes are men like Democritus, Francis of Assisi and Spinoza. Maybe somewhat egotistically, Einstein sees that only a few people are capable of this higher religious feeling, but that the communication of it, through art and science, is an important task.

The Lord God is subtle, but malicious he is not.

He sees that the historic conflict between science and religion is inevitable, since the scientist regards "the universal operation of the law of causation" as inviolable and the idea of a being who might interfere with this is anathema. This is indeed a very basic problem in the relation of Science and Religion. He says

A man's ethical behaviour should be based effectually on sympathy, education and social ties; no religious basis is necessary. Man would indeed be in a poor way if he had to be restrained by fear and punishment and hope of reward after death.

Yet there are glimpses of other thoughts. In writing to Queen Elizabeth of Belgium on the occasion of the deaths of her husband and daughter-in-law, Einstein reflects on the first sunshine of spring and of "something eternal that lies beyond the reach of the hand of fate and of all human delusions".

At the beginning of the 20th century Einstein was critical of the general mode of thinking about physics:

There was dogmatic rigidity on matters of principle. In the beginning (if there was a beginning) God created Newton's laws of motion, together with the necessary masses and forces. This is the lot: everything else derives by induction from the development of suitable mathematical methods.

This sounds a lot like deism.

In considering the bending of light by a gravitational field and comparing his theoretical prediction with results to come from observation of a solar eclipse, he said, if he turned out to be wrong

"In that case I'd have to feel sorry for God, because the theory is correct".

In 1921 Dayton Miller repeated the Michelson Morley experiment and established that there *was* a movement of the earth through the ether. This threatened the collapse of the theory of relativity. Einstein commented with the famous saying

The Lord God is subtle, but malicious he is not.

Three weeks before his own death, Einstein wrote of his special friend Michele Besso

Now he has preceded me a little by departing from this strange world. This means nothing. To us believing physicists the distinction between the past, present, and future has only the significance of a stubborn illusion.

Lessons and Questions

1. In Einstein's case we can see how critical were the early influences on his life, both from his parents and from Max Talmud. This should be a lesson for us in dealing with our own children.
2. We see how Einstein's absorption in his work might have badly affected his marriage, though clearly there were other influences involved as well.
3. We should ask the question as to whether it is helpful to refer to Einstein's beliefs in our apologetics and evangelism. Only last week I happened on an "Hour of Power" broadcast with Robert Schuller referring to Einstein's perception of a "power in the universe" as a positive recommendation.
4. We might go even further as Alister McGrath has done recently, to ask whether natural theology is really only helpful to those who are already within the Christian fold.

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R.Highfield and P. Carter, The Private Lives of Albert Einstein, Faber and Faber, London, 1993.

A. Einstein, The World as I See It, Trans. Alan Harris, Wisdom Library, NY, 1949.

The Impact of Einstein's Relativity on Christian Thought

John Pilbrow is Emeritus Professor of Physics, Monash University and an ISCAST Fellow.

INTRODUCTION

In 1990, Arthur Peacocke wrote:

"relativity theory, in its special and general forms, and, even more iconoclastically, quantum theory, together caused a complete revolution in human understanding of the physical world, the consequences of which are still to be absorbed into philosophy – and hardly yet into theology".

The purpose of this presentation is to expose the extent to which a representative collection of Christian writers – theologians, scientists and scientist/theologians, have incorporated Einstein's relativity into their thinking. I have sought:-

1. To identify those who addressed relativity in a consistent manner.
2. To see how relativity impacted on their thinking, if at all.

Amongst theologians, TF Torrance has championed Einstein's views more than most. This is widely acknowledged. Torrance, however, focused more on Einstein's religious views and his philosophy of science rather than on how specific ideas from relativity theory might be applied to Theology.

It is now widely agreed that the observable universe had a beginning ... to raise far more questions than it answers ... deeply religious questions

On the whole, relativity took a back seat compared with topics such as divine action, *creatio ex nihilo*, *creatio continua*, contingency, evolution and necessary rebuttals of 'The God of the Gaps'.

Regarding God and Time St Augustine was frequently mentioned. There is not time to discuss relativism in the social sciences – a 20th Century social construct that parallels 19th Century evolutionism. *"Relativity and Christian Thought"* is the title of an article by JW Haas [1988] showing that our topic is not new. This is a historical analysis that exposes a love-hate relationship between theologians and relativity in the 1920's and 1930's.

WHAT ABOUT THE IMPACT OF RELATIVITY ON CHRISTIAN THEOLOGY?

Scientist turned theologian **Alister McGrath** notes

"One of the most dramatic changes in recent scientific culture has been Albert Einstein's theory of relativity, … Yet many theologians were unwise enough to assume that Newton's ideas, were permanent features of the intellectual landscape, and based their theologies upon them. …" .

McGrath follows Torrance in seeking to define Theological Science.

"It is now widely agreed that the observable universe had a beginning. Yet that brief statement may well be judged to raise far more questions than it answer ... deeply religious questions which are raised by modern cosmology…".

Yes indeed!

Mark Worthing has this to say,

" By 1921 … it was clear that Einstein's theories were making a significant impact in the fields of philosophy and theology … relativity has made it impossible to think in terms of absolute time, and subsequently, in terms of simultaneous or sequential events as we did before."

This would seem to be at odds with Peacocke's observation previously noted and Haas.

Worthing continues:

"While many physicists, at least initially, seemed uncomfortable [with the Big Bang] …., not a few theologians found in the emerging view of a nonstatic universe with a seemingly definite beginning a greater compatibility with the idea of a Creator God who providentially governs the world …"

A broader task for Theology was laid down by TF Torrance – I quote,

" Any attempt to explicate knowledge of God outside of or apart from those structures of space and time [that God created] is inevitably and essentially irrational……It is only from within the ..universe and through the medium of its contingent realities that we may articulate the knowledge God gives us of himself".

These are fine-sounding words but did Torrance and/or others really succeed in embedding their theology in space-time? I remain somewhat skeptical. The most pessimistic comment I found regarding the relevance of relativity to Theology was due to physicist, Chris Isham.

"What can these new scientific ideas on creation contribute to the theological archive of metaphysical wisdom? I suspect that the honest answer is 'not very much'..

Impact of Einstein's Relativity cont...

In addition to dangers inherent in attempting to link our theology too closely to any particular cosmological model, we should not attempt to constrain biblical chronology into "the scientific chronology". And this applies equally to creation narratives and eschatology. In particular, regarding Genesis 1-2:4a and Big Bang Cosmology with t = 0, Russell, Polkinghorne, Peters and others caution against trying to find the wrong kinds of links.

Or put another way, Murphy and Ellis warn that "people repeatedly try to extend the conclusions of physical cosmology to areas it cannot handle …".

More plausible misconceptions have also repeatedly clouded the discussion. These are the use of the Big Bang theory in Christian apologetics, and the corollaries of this argument: the idea that either the Steady State theory or the Hartle-Hawking no-boundary proposal leave no role for God. These arise from confusion of the scientific idea of a beginning with the concept of ultimate causality."…

…"*A priori*, any of the possible ultimate causes could be compatible with any of these modes of realization of a physical universe. In essence this truth has been known since the time of St Augustine…This qualification does not mean …in terms of ultimate causation or metaphysics nothing can be gained from cosmological studies…".

These conclusions are supported by Polkinghorne when he says,

"theology could have lived with either … Big Bang or Steady State Theory" .

theology could have lived with either …Big Bang or Steady State Theory

In the light of these considerations it is worth noting, as Ernan McMullan has put it,

"…the doctrine of creation is not an explanation of cosmological beginnings at all, but an assertion of the world's absolute dependence on God in every moment".

HOW DO WE UNDERSTAND GOD AND TIME,,,. GOD'S FOREKNOWLEDGE etc?
Pannenberg, a theologian who is keen to promote dialogue between theology and science, comments:- "…. absolute space and absolute time, which the theory of Relativity denies, were no longer the absolute space and absolute time of Newton conceived as the expression of the presence of God in creation."

Regarding God's foreknowledge, Nancey Murphy says…."I don't think that the changes in science made much difference to our view of God's foreknowledge. We have always claimed that God is in some sense outside of time or beyond time... God is in some sense present to the whole of time, however we describe that in physical terms".

CONCLUSIONS
It is without doubt that Relativity has withstood rigorous testing in the 20th Century and the implications of the linking of space-time and matter-energy into our modes of thought cannot be ignored either inside or outside of physics and cosmology. Is Peacocke's 1990 observation still valid? Substantially yes, because I do not yet see consensus regarding embedding modern theology in the arena of space-time. Perhaps it cannot be achieved?

My conclusions are:-

1. Relativity impacts theology whenever theologians refer to it [WEAK IMPACT]

All authors I have referred to have written intelligibly about Relativity. Many tended to be somewhat tentative, even speculative, regarding how it impacts on their theology, even when they tried to take the next step.

2. Relativity impacts theology whenever there is reference to God, God and Time, Time and Eternity etc. in the context of space-time [MODEST IMPACT]

I have reported a few examples that indicate how Relativity may have impacted on our understanding of time in theology, something which Augustine grappled with so long ago. However, much of the discussion regarding God, God and Time and God's foreknowledge, could, I suggest, have involved no reference to Relativity at all! Pannenberg (and others) discuss both God and Space and God and time. However, most writers after they have mentioned space-time tend to focus on God and time,,,, .

3. Relativity impacts theology whenever the primacy of General Relativity in underpinning credible cosmological models is acknowledged. [INDIRECT IMPACT]

Of course I referred only to authors who accepted Big Bang cosmology. All of them universally recognised the dangers of tying their theology too closely to particular scientific models currently in vogue. Church history shows that when new paradigms begin to be adopted, there is often great controversy -– witness Galileo's difficulties as he embraced Copernican cosmology. In due course central ideas from Relativity and modern cosmology will eventually find their way into more universally into theology and philosophy but it may take time.

4. There is a possible fourth conclusion. I suggest that the linking of space-time-matter-energy in Relativity shows that we are even more intimately connected to the universe than implied by evolution, beyond the fact that we are made of the stuff of burnt-out stars. I have not anywhere seen this point discussed.

Report from Vic

In the last Bulletin we reported on the excursion to the Ballarat observatory where Dr Michael Drinkwater opened our eyes to the fascinating world of Cosmology. Since then we have explored other very different worlds.

The first world was our Christians response to the world of pain and suffering. This sought to move beyond the theoretical theological questions, "Where is God?" or "Why do pain and suffering happen?" to the practical question what should we do in the face of pain and suffering? We had presentations from a Barbara Hayes, a palliative care physician, David Clarke, a psychiatrist and John Olley, a theologian. One theme that emerged is that we can, without all the answers, still stand by the person suffering and reassure them they are not alone.

The next world was a "Thinklings" on "God and the Weather" with Mick Pope. Mick explored how his meteorological and theological studies were merging. Challenging questions included: "Was God the ultimate weather forecaster?" "To what extent could we explain meteorological phenomena presented in Scriptures by our more recent understandings of El Ninos and the like?" We look forward to the next version of an ongoing exploration, in the form of a paper.

If Michael Drinkwater's cosmological thoughts blew our minds, Professor George Ellis' delivering the ISCAST Vic Annual Lecture at the University of Melbourne blew us away. About 600 -700 people heard him talk on "Curved Space and Compassion" which ranged from the very small and the very early, that is fundamental particles and the big bang, to the very large and the very final, the big crunch or the big freeze. He asked:

- Were there other universes? (We cannot know)
- Were there other living beings in the universe? (Almost certainly)
- How would the other beings in the universe respond to us? (It depends on how they perceived us, were we moral and harmless or immoral and dangerous – our television transmissions do not give a very encouraging picture!
- Would human-kind survive for long on this planet? (Only if our ethical development was able to outpace with our technological development).

George argued that there was a deep ethic fundamental to our universe. This was a self-sacrificial (kenotic) ethic seen in the life of Christ. This had to come from within us. Anything that was externally imposed was doomed to fail. There was a palpable buzz after the lecture, with people agreeing and disagreeing and carrying the thoughts well into the night. George's slides are available on the ISCAST website.

ISCAST Vic has three more sessions planned for this year. They will be advertised on the website as soon as they are finalized.

Alan Gijsbers.

Report from ACT

In the Manning Clark lecture theatre at the Australian National University on Friday night 15 July Professor George Ellis spoke on the subject

"Cosmology – Universal questions",

This was a public lecture, the Burgmann Lecture, sponsored by the Australian National University, its Research School of Astronomy and Astrophysics, the Templeton Foundation, the Institute of Physics and

ISCAST. The lecture covered the evidential and theoretical foundations of modern cosmology, treating what was knowable after the "last scattering surface' had formed and what was "in principlr" unknowable before that. The limitations as well as the strengths of modern physics were presented as well as the possibilities and basis for believing that other sentient species might be present in our universe.

400 Canberrans and visitors for the COSAC 2005 meeting attended and the lecture was followed by lively questions, scientific, philosophical and religious. An interesting discussion on the role played by faith, belief, chance and luck in relation to cosmological events.

The photo shows groups around George Ellis after the lecture.

Biography – Because Scientists are People Too!

Name: Mick Pope

When & how became a Christian: 1988 in 1st year Uni through the Navigators. The Hall of Residence at Monash University was full of them — I was surrounded!

Occupation/science interests: Meteorologist, lecturer/instructor & part time PhD student studying tropical thunderstorms, their role in the tropical climate and how models represent them.

Science/faith interests: God's sovereignty in the weather, the role of the weather in natural evil and the issue of theodicy. Thinking about the role of climate in the origins of life and humanity and its relationship to evolutionary creationism

How faith affects how you behave at work: I agonise over time spent on the phone and internet, how to handle some of my more difficult colleagues and students, and accurately filling in my timesheet.

How faith affects how you think about your science/profession: Meteorology is a science directed towards the common good, and this is a work for God. Improving our understanding of the weather enables us to save lives and property. Properly communicating the climate impacts of our lifestyles will hopefully lead to better stewardship of creation. Studying the weather is as an act of humility (who has wisdom to count the clouds) but also an act of praise.

How ISCAST helps you: As well as fellowshipping with godly and thoughtful Christians, and making me think about many issues, it gives me a sounding board for my ideas on meteorology/theology.

If you want your name and face here, please email me the answers to these questions and a photo.

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For circulation concerns, contact the state representatives. To submit articles contact the editor. For news of forthcoming meetings please consult the web page.

The views in this Bulletin are those of the individual authors or the editor. They do not necessarily reflect the official views of the ISCAST board.

Chatting around the breakfast table—who said that college food is inedible?

Relaxing at morning tea, with a nice shot of the back of the Bulletin editor's head

The deadline for submissions for the next issue of the Bulletin is November 1st.
Word limit for articles is 1,000 words: for letters, reflections and book reviews 600 words. Exceptions may be made in exceptional cases.

Please submit to Mick Pope at **bulletin@iscast.org.au**