

THEOSOPHY-SCIENCE GROUP

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EDITORIAL NOTES

This Newsletter is prepared by the Theosophy-Science Group in Australia for interested members of the Theosophical Society in Australia. The email version is also made available on request to members of the Theosophical Society in New Zealand and USA by the respective National bodies. Members in New Zealand should contact: john@theosophy.org.nz. Members in USA should contact tsa@theosophical.org. Recipients are welcome to share the Newsletter with friends but it must not be reproduced in any medium including on a website. However, permission is given for quoting of extracts or individual articles with due acknowledgment. Selected items appear from time to time on the website of the TS in Australia – austheos.org.au.

Summaries of talks from Springbrook: May 2008 by Lynne Hume and Victor Gostin are included here. I hope to receive further summaries for future Newsletters.

THEOSOPHY-SCIENCE SEMINAR 2-4 OCTOBER 2009

Call for registration

A Residential Seminar of the Australian Theosophy-Science Group will be held near Adelaide, at the Douglas Scrub Environmental Education, Conference, and Camping Centre, McLaren Flat, 45 km south of Adelaide [www.guidessa.org.au]. This flora and fauna reserve of 13 hectares is run by the Guides of South Australia, and accommodation has been booked for the weekend beginning Friday 2 October evening until Sunday 4 October afternoon. Because Thursday evening, 1st October falls on the regular monthly meeting schedule of the Adelaide T-Sci Group, we invite any interstate visitors to extend their stay by arriving earlier and participating in an extended 4-day programme, beginning on Thursday evening (7pm) at the Adelaide Lodge of the T.S., followed by a geoscience excursion on Friday morning led by Victor Gostin, and an environmental Adelaide Hills home visit in the afternoon. Transport will be provided for interstate guests.

The main theme of the Seminar shall be “Building bridges: science, psyche, and kosmos” with a focus on Consciousness. Our guest speakers from interstate will be Lynne Hume, Anthropologist, University of Queensland, and Richard Silberstein, Brain/Mind research, Swinburne University, Victoria. Adelaide speakers will include Alek Kwitko, Rosanne DeBats, and Colin Darcey. Ample time will be available for questions & comments, and a panel of members will discuss “Pushing the boundaries”.

Catering for the residential weekend will be vegetarian and kindly provided by volunteers led by Sheryl Malone. Total cost for 2 nights accommodation and all meals from Friday dinner to Sunday afternoon tea will be \$140 plus the registration fee of \$10 (non-refundable). Day visitors will pay an entrance fee (\$8/day) plus meals. Final payment will be required by the end of August. Registrants will be reminded during that month, when a detailed programme

will be available. Interstate guests may arrange their own Thursday accommodation in Adelaide, but if preferred, may be billeted by Adelaide members.

Members of the Theosophical Society are invited to apply, but preference will be given to those currently receiving this Newsletter. Accommodation is in shared rooms with bunks. As residential places are limited, please send your registration fee of \$10 ASAP to The Treasurer, Adelaide Theosophical Society, 310 South Terrace, Adelaide, SA 5000. This may be done as a cheque to the Adelaide Theosophical Society Inc., OR by electronic transfer to the account of the Society: NAB 085-00550-762-9203. Please indicate this payment as being for the Science Seminar.

Register your interest by also informing the organiser of your name, contact details and travel plans. There is a regular bus service from the airport to the city. Visitors requiring billeting and/or transport from Adelaide Airport during Thursday afternoon (Oct 1) should indicate this and their flight details to the organiser: Victor Gostin c/- Adelaide Lodge, or by Email: victor.gostin@adelaide.edu.au

ANOTHER PHYSICIST WINS THE TEMPLETON PRIZE FOR PROGRESS IN RELIGION

The recent award to French physicist Bernard d’Espagnat follows a surprising increasing trend for physicists to win the above award, especially cosmologists and fundamental physicists who come up against issues which tend to impel them to seek deeper fundamental causes. The list includes Paul Davies in 1995, Ian Barbour in 1999, Freeman Dyson in 2000, Arthur Peacocke in 2001, John Polkinghorne in 2002, George Ellis in 2004, Charles Townes in 2005, John Barrow in 2006, and now Bernard d’Espagnat in 2009. Especially cosmologists and quantum physicists come up against difficult issues which tend to encourage them to look for a deeper explanation. Biologists (whom one might have expected to see) are very scarce, although Charles Birch won a half share in 1989 and donated half of that to fund an annual Templeton lecture at Sydney University where he spent many years as Challis professor of Biology. The lecture he funded continues to be presented. Before continuing I note that strictly the simple term “for progress in religion” was changed some years ago by the Templeton Foundation to the more cumbersome “for progress toward research or discoveries about spiritual realities” Both this official term and the original term “Progress in Religion” are used today.

d’Espagnat born in 1921, spent his early career at the Ecole Polytechnique in Paris before doing a PhD in particle physics at the Institut Henri Poincare with prominent early quantum physicist de Broglie as supervisor. He then spent seven years with Fermi at the University of Chicago and further time at the European Particle Physics Centre CERN in Geneva before returning to Paris in 1960 where he worked on problems in quantum physics, especially spending much time on the study from a theoretical point of view of the important quantum mechanical concept of nonlocality, now generally known as entanglement, whereby a certain immediate interconnectivity can be possible between objects separated at a distance, in defiance of classical physics. He assisted colleague Alain Aspect in the important tricky and sophisticated experiment in 1982 which verified experimentally for the first time the existence of nonlocality (or entanglement), (See the article on David Bohm in N64 for the philosophical importance of entanglement).

d’Espagnat has been a prolific writer with more than 20 books published, including a best selling book on entanglement, in France, which was also published in English as “In Search of Reality - the Outlook of a Physicist”. A recent book published in English in 2006 was “On Physics and Philosophy.” On receiving the prize, he said in a statement, inter alia: “I feel myself deeply in accordance with the Templeton Foundation’s great, guiding idea that science does shed light on spirituality”. d’Espagnat says that quantum physics points towards a reality beyond the grasp of empirical science.

Tom Hetherington, Religion editor of *PHYSICS WORLD* reports that at the announcement at UNESCO in Paris, John Templeton Jr. (current president of the Templeton Foundation since the death of his father), said that “d’Espagnat’s work in quantum physics revealed a reality beyond science that spirituality and art could help to partly grasp. ... mystery is not something negative which has to be eliminated. On the contrary, it is one of the constitutive elements of being”.

In an interview with Reuters, d’Espagnat said he was born a Roman Catholic but did not practice any religion, considering himself a spiritualist. Some baffling discoveries of quantum physics led him to believe all creatures have a wholeness and interrelatedness that many scientists miss by trying to break problems down into their component parts rather than understand them in larger contexts. One of these is entanglement.

Amanda Geller, writing in an article for the Opinion section of *New Scientist On Line*, 16 March, (which appears not to have made it to the print version), quotes inter alia an extract from the news release of the prize; the following statement by d’Espagnat:

“There must exist beyond mere appearance ... a veiled reality that science does not describe but only glimpses uncertainly. In turn, contrary to those who claim that matter is the only reality, the possibility that other means may also provide a window on ultimate reality cannot be ruled out”.

Ways of Seeing Our World: A Cross-cultural Perspective

(Summary of a Talk at the Theosophy-Science Seminar; Springbrook – May 2008).

Associate Professor Lynne Hume

(School of History, Philosophy, Religion and Classics: The University of Queensland).

Some years ago anthropologist Laura Bohannan wrote an article entitled “Shakespeare in the Bush”, after she had carried out fieldwork in Africa with the Tiv people of West Africa. At one point they admonished her for not telling them stories of her own. Thinking that the story of Hamlet was one that was universally intelligible, [a son struggling to find his place in a family disturbed as much by political events as by intimate relationships, incestuous marriage, the appearance of a ghost, tales of murder], she was somewhat taken aback at their responses.

I told you that if we knew more about Europeans, we would find they really were very like us. In our country also, the younger brother marries the elder brother’s widow and becomes the father of his children. Now, if your uncle, who married your widowed mother, is your father’s full brother, then he will be a real father to you. Did Hamlet’s father and uncle have one mother?

This conversation highlights the fact that individual and community reaction to a story or event exemplifies the multiplicity of meaning attributed to anything according to perspective, and one of the major perspectives is culture. It is useful to keep this notion in mind when making sense of the various ways in which humans ‘see’ their world – from creation stories (how humans came into being), to how to conduct oneself in that world (social rules and mores), to beliefs about what happens after one leaves this world (philosophies about an after-life). Since the Enlightenment, we have adapted the Western ‘scientific’ approach which emphasizes and values reason and objectivity above subjectivity and imagination.

Knowledge stems from cultural and individual perspective, and knowledge can be gleaned in ways other than through a Western scientific lens. Some of the people I want to discuss here to illustrate this idea include: the Dogon of Africa, the Dene Tha of Canada, the Mekeo of New Guinea, and, bringing it back home to Australia, Australian occultist and artist Rosaleen Norton.

* * * *

Briefly, all these peoples have a perspective on the world that includes the notion that there are other realities and sojourns and experiences in those places are validated and become a source of knowledge.

Western systems of knowledge that are based purely on the scientific paradigm, stemmed from the Enlightenment. The Enlightenment heralded many enormous improvements in the West, and an end to witch hunts, torture, the persecution of minority groups, and much of the prevailing superstition. However, it also resulted in a complete blanket disapproval and disparagement of anything ‘non-scientific’, and other ways of knowing such as those I have discussed.

The rational scientific mind is founded on a distance between knower and known, between fantasy and reality, and between dreaming and the everyday world of experiences. Foucault has coined the term ‘subjugated knowledges’, to discuss knowledge that has been subjugated (belittled or ignored) because it does not fit into the prevailing acknowledged paradigms. Yet some of these knowledges (such as intuition and culturally valid practices) are valid and valuable.

However, there now seems to be a merging of knowledges, which is an exciting time for research. Some social scientists have realized that the subject and the object affect one another and are no longer trying to divorce completely the one from the other. A small number of researchers also, are delving into full participation in the occult practices of the people they study.

I certainly would not advocate abandoning the scientific method, which is a highly valuable one that has brought us incredibly useful information and steered us away from charlatanism and blind faith. There has to be an appreciation of both or several methods of inquiry and modes of gaining knowledge. The 21st century will no doubt consolidate the integration of different modes of investigation, without resorting to blind superstition and acceptance, or a radical refusal to entertain other possibilities.

Some scientists are saying that the universe we live in is not the only one, that there could be an infinite number of universes (a multiverse), each with its own law of physics. The most recent thinking is that there are parallel universes, other spatial dimensions and ‘membranes’. Our universe could be ‘just one bubble floating in an ocean of other bubbles’.

What is intriguing in all this is the notion that atomic particles like electrons have the possibility of, in some sense, being in more than one place at one time. It is even possible that the particles do not only exist in our universe, but 'flit into existence in other universes as well', and there are 'an infinite number of these parallel universes, all of them slightly different'.

The Cradle of Humanity in Africa

(Summary of a Talk at the Theosophy-Science Seminar; Springbrook – May 2008).

Dr Victor Gostin

Honorary Fellow; School of Geology and Geophysics, University of Adelaide

Over the last century, archaeologists and other scientists have recorded much evidence that has changed our perception of our human ancestry. Instead of a single lineal descent from a common ancestor (the so-called evolutionary tree), a far more complex picture has emerged suggesting multiple speciation at ground level, rather like a (metaphorical) bush.

Furthermore, the advent of walking upright, and the intelligent use of tools has been pushed further back in time, the latter characteristic being shared with other living apes. The latest theories suggest that the few ape species that evolved into humans could have been from Eurasia rather than Africa as originally thought, dating back to times prior to the rising of the Himalayas, the resulting intensified Asian monsoon, and the advent of the ice ages. Certainly the largest ape known, *Gigantopithecus blaciii* lived in Asia (3m tall, 540kg) and died out only 100,000 years ago, thus co-existing with humans. This may have given rise to the myths of a giant race, and possibly even the stories of the "big foot".

Over the last 10 Ma (= million years), the eastern African landscape changed from a relatively flat homogenous region covered with rainforest to a spectacular heterogeneous region with mountains over 4 km high and vegetation ranging from desert to cloud forest. Southward rifting formed many fault-bound lakes from 10-5 Ma. Marine palaeoclimatic records indicate that the African climate became progressively more arid in step-like shifts about 2.8 Ma, and subsequently after 1.7 Ma and 1.0 Ma, coinciding with the onset and intensification of high-latitude glacial cycles. These events are associated with changes toward dry-adapted African fauna and flora, including important steps in hominid speciation, adaptation, and behavior.

Four different kinds of hominids lived in eastern Africa around Lake Turkana around 1.8 million years ago. This contrasts with the past 25,000 years when our species has been clear of any competition from any related species. Perhaps this has resulted in our profound feeling of being alone in the world. These early hominids culminated in the rise of *Homo erectus* with greater brain size and a capacity for innovation, probably aided by improved nutrition resulting from the application of fire to food. They were the first world travelers, ending up in Spain, China, and Java. *Homo* brain size increased from 600 cc some 2 million years ago, to 900 cc in *Homo erectus* just 300,000 years later, while modern humans (*Homo sapiens sapiens*) have 1,350 cc. Our large brain requires 16 times as much energy as muscle tissue per unit weight, and accounts for a huge 20-25% of an adult's energy needs compared with 8% in other primates and 3-5% in other mammals.

Evidence from both the ocean depths and from very long Antarctic ice cores indicate major climatic changes. *Homo erectus* was thus challenged by, and survived all these climatic and sea level fluctuations and catastrophes. Speculation about past events can sprout theories that may remain firmly anchored. In the late 1800 and early 1900s, for example, the continent Lemuria was believed by many scientists to have occupied the present Indian Ocean, and this was thought to have been home to ancestral humans. The eminent German zoologist Ernst H Haeckel (1834-1919) supported this idea because of the observed similarities of people and fauna on either side of the Ocean.

However there is no modern evidence for a continent in the Indian Ocean. Rather, to the east, the Indonesian Islands are just the tops of a vast former landscape. This veritable "Eden in the East" existed until destroyed by the Toba super-volcanic eruption in Northern Sumatra around 73,000 years ago that almost wiped out humankind. This corresponds to the genetic evidence that all humanity outside Africa is closely related, and indicates renewed world-wide migrations, including to distant Australia. The Toba eruption resulted in a six-year-long volcanic winter followed by a thousand year ice-age. Individuals who co-operated and shared resources with one another, were best equipped to survive these harsh conditions, and pass on their genes to the next generation. Thus human social organization became more complex.

In conclusion, human evolution has been influenced by strong fluctuations in climate and sea levels. Modern humans emerged from Africa after the great Toba catastrophe, and lived alongside Neandertals for thousands of years. Perhaps some residues of these momentous experiences have remained in the human psyche, and in our myths.

GOD or MULTIVERSE - An Open Dialogue

**The Scientific and Medical Network
Downing College, Cambridge, 24th November 2007**

Reviewed by Edi Bilimoria

For world experts to trot out their latest pet theories at a conference is not asking for a lot. But for renowned authorities in cosmology and theology to expound cutting-edge ideas with sympathetic understanding and appreciation of complementary viewpoints is indeed asking for a great deal. However this is what we all experienced at the Cambridge Conference: God or Multiverse – a tribute to the organizers and speakers.

Professor Bernard Carr chaired the proceedings and opened with a useful introduction to the theme of the conference: the 'Multiverse' or the Theological explanation for our existence, and the possible connecting link between the two, to include the Anthropic principle. Concerning the former, he explained that our particular universe need not necessarily be unique because cosmology and particle physics now allude to the possibility of many universes, the ensemble of which we call the Multiverse. Amongst the many arguments put forward to account for our existence, one theory is the fine tuning of the physical constants needed to produce just such a universe as ours; another was that God created the universe, or that He created the laws which created the universe. However, most physicists are uncomfortable with the God theory, for example Stephen Hawking who regards the universe as essentially self-created according to physical law and therefore sees no need for God or a

Multiverse theory. Bernard Carr concluded his introduction with a valuable and somewhat light-hearted depiction of the God-or-No-God / Multiverse-or-single-universe paradigm of the various speakers into four (flexible) quadrants: no God and no Multiverse – Peter Coles; God but no Multiverse – Keith Ward and Sir John Polkinghorne; and Bernard Carr himself straddling the positions between No God but Multiverse, and along with Rodney Holder, that of God and Multiverse.

Moving on to the first of the presentations *Introducing the Multiverse and Physical Theories of Everything*, Bernard Carr treated us to a useful mini-course in physics and cosmology, including the history of the unification of forces from electromagnetic to M-theory. He also outlined the history of cosmology from the Greek geocentric and Copernican heliocentric systems down to our present galactocentric and cosmocentric concepts ushered in by the likes of Einstein who provided the theoretical foundation of modern cosmology; then Hubble's famous law and the cosmic background radiation discovered by Penzias and Wilson from which the big bang was calculated to have occurred around 13.7 billion years ago. He pointed out that cosmology and particle physics suggest that the universe is always growing (evolving) and the observable universe is a miniscule part of a larger reality. More arguments in favour of the Multiverse are: that it represents the culminating connection between the microscopic and the macroscopic theories of physics; that it might explain the fine tuning of the physical constants; then M-theory which suggests extra dimensions; the notion of a cyclical pattern of many universes in time; and finally the notion of branes and the Many-Worlds theories of quantum physics.

Dealing with the question of the total matter in the universe, apparently visible matter accounts for some 5%, 'dark matter' for 25% and the remaining 70% by 'dark energy' associated with the cosmological constant. The latest wisdom is that the expansion of the universe is accelerating and the mass density of space is 10^{-30} gm/cm³. The crucial link between particle physics and string theory is the vacuum energy, or dark energy represented by the cosmological constant which dominates the density of the universe. Bernard Carr also discussed the pros and cons of the Anthropic Principle and informed us that the indisputable fact of the fine tuning of physical constants was not explained by physics, but a prerequisite in order that our universe would come into being.

A recurrent theme of his thesis was that there might be some areas of inquiry outside the purview of conventional science, that the nature of legitimate science changes, that the Multiverse does not disprove Deity, and most importantly, that any cosmogonical or deific theory will necessarily be incomplete unless Consciousness and Mind were invoked in their own rights and not as an epiphenomenon (by-product) of material forces; therefore the idea of a scientific Theory of Everything (TOE) does not in fact say 'everything'. In this wise Bernard Carr's exposition veered to the edge of the theological and esoteric doctrines that assign pre-eminence to Mind. Nonetheless, the triumph of physics and cosmology was very apparent in his lecture.

The cosmologist Professor Peter Coles took a very different position in the last lecture of the day, *Can the Universe Explain Itself?* He opened by stating that the viewpoint of most physicists is: no God and no Multiverse. He outlined the gaps in our understanding with the stark declaration that there is no theoretical basis for predicting the Hubble parameter H_0 (concerning the rate at which the universe is expanding), which relies on experimental measurements. Furthermore big bang theory contains the seeds of its own destruction on account of the free parameters and 'theoretical slack' that is used, and needed to fit

observations. Moreover, this theory is unsatisfactory because it cannot deal with the very beginnings of the universe, hence we do not know how to set the initial conditions for the evolving duration of the universe. He stressed that general relativity and quantum field theory were still unsatisfactory for providing a complete theoretical framework. Furthermore we are nowhere near a TOE, therefore not in a position to talk about it in a meaningful way.

Statistics and probability theory played a central role in Peter Coles' lecture. Apparently, the essence of cosmology now is statistics. He explained that Frequentist statistics where probability lies objectively in the world, not in the observer, had limitations, whereas Bayesian statistics offered greater promise. This latter statistical method is essentially a measure of strength of belief, or subjective probability. It incorporates prior knowledge, specifications of prior distributions and accumulated data experience into making probability calculations and designing future tests. In other words, it is an experimental statistics in which the assumptions about parameters are continually revised in light of new data by using a weighted average of the previous assumption. Probability is interpreted as a measure of one's degree of uncertainty about an event and lies in the mind of the observer, so may be different for people having different information or past experiences. Peter Coles elucidated why probability theory is of such use and its ramifications applied to the question of why our universe is geometrically flat. Probability it seems, emanates not from a randomness in nature, but from our inability to predict things owing to the insufficiency of our knowledge and information, and this probability is conditioned by what we already know.

Finally he outlined four different Multiverse concepts but concluded that all of them rely on speculative physics. Concepts such as fine tuning must be brought within the domain of testifiable physics; and although this has not as yet happened he did not exclude the possibility of Multiverse theories being testifiable. He then warned us about the danger of infinities – in all physics they spell trouble. In conclusion, a lecture that amply displayed the power of mathematical statistics and highlighted the gaps in our scientific knowledge.

Philosopher-theologian the Reverend Professor Keith Ward FBA unfolded the theological dialogue in his talk *Introducing God and Theological Theories of Everything*. He opened with the observation that God for theists as a concept was not a function of the Multiverse, but a personal experience: apprehension was more important than theory. The philosophical-theological tradition gives priority to mind and consciousness, the spiritual and non-material over the scientific premiss of the physical. Whereas reductive explanations (as from the likes of Richard Dawkins) are not incompatible with purposive explanations, we cannot reduce one to the other; neither can the former account for the *raison d'être* of atoms or existence per se. Neither is the theological view incompatible with the Multiverse, because the latter could exist as *possibilities*

(a theological echo of the statistician-cosmologist's view) in the Mind of God. But God is not made up of bits and pieces, rather is a unitary Being, therefore simple, therefore generally (but not always) amenable to a simple explanation to account for the complex. Simple also in another sense: that of law. For example the law of action and reaction is a simple, unitary phenomenon, not a complex of action 'bolted on' to reaction. But if God be timeless, then to ask 'who made God?' or 'what brought Him about?' are meaningless questions. In fact Keith Ward regards the idea of the Mind of God as less extravagant an hypothesis than the Multiverse.

The claims of purposive explanations are that they: (a) afford the possibility of all possible states; (b) deal with the question of evolution and the discrimination of good from bad states; (c) bestow the capacity for enjoyment of good states; (d) impart the power to bring about that good; (e) and are a perfectly adequate explanation of goodness. This led to the overall conclusion that limitless possibilities were subsumed in Divine Mind which would not preclude the Multiverse, but some of these possible universes (the 'bad' ones) God would not allow to exist. In other words, that God created all *good* universes, but not all *possible* universes which would exist as possibilities in the Mind of God. The two streams of purposive explanation and the necessity of the predominance of goodness provide sufficient accounts. Therefore faith in God is primal and not at all irrational.

The next speaker to take up the theological theme was the Reverend Dr. Rodney Holder in *Can a Multiverse Provide the Ultimate Explanation?* However he dealt in roughly equal measure with Multiverse ideas and theistic arguments, comparing and contrasting the explanations that these two camps have put forward. We were treated to a brief history of cosmology including the role of inflation and string theory. He had no doubt that big bang was established by the cosmic microwave background radiation and confirmed his acceptance of the fact of the fine tuning of the initial conditions and physical constants that have conspired to produce our universe. Talking of Intelligent Design arguments, one theory put forward by proponents was to look for the gaps that science cannot explain and then to put 'God into the gaps'. The atheistic alternatives to the design argument were that only one set of laws was possible and the notion of Multiverse was essentially opposed to this idea because it furnished the prospect for there to be lots of sets of laws giving an infinite collection of universes. Why should 'this' Multiverse exist as opposed to another and why does only one set of laws give us what we understand as life. Conversely, theists might welcome the Multiverse idea since it opens a small possibility for the Christian theology of Creation and more significantly, that God expresses his infinite creativity (through the multiverse) rather than creating just a single universe. Only God can supply the ultimate explanation as to why there is something rather than nothing. Therefore God is a necessary existence: He cannot *but exist*, so to ask who created Him is meaningless because He was always there.

Rodney Holder then took a different turn to expand on problems with Multiverse theories such as the speculative physics it invokes at time orders of 10^{-43} seconds, the lack of experimental evidence, its lack of predictability, how this theory would square with claimed successes of the cosmological constant and the fact that fine tuning of constants (for example the mean density of the universe) would still be required for the Multiverse in the first place.

In conclusion, the whole conundrum would seem to devolve upon two explanations: Multiverse, with its complexities and not able to bequeath the ultimate explanation; or God who provides this ultimate explanation plus the reason why our universe is what it is. But which one? Both! Rodney Holder clearly stated his own position by ending with a quote from the cosmologist-priest George Lemaître: 'There are two paths to Truth and I have chosen them Both.' His lecture showed us that science and theology can both be embraced: that Multiverse and Deity need neither be incompatible, nor mutually exclusive. It is fitting to finish this review with the account by Sir John Polkinghorne KBE FRS, pre-eminent in both science and theology. In *Meta-stories of fine-tuning* Sir John opened by declaring that his context was truthful understanding by well motivated beliefs. Such understanding should be comprehensive, economic, free from contrivance and intellectually satisfying. Indeed, understanding for Sir John stands at the top of the tree, above explanation, which in turn stands above prediction. He made it clear that whereas science does not quench the thirst for

understanding, it does however bracket out questions of value and purpose and treats reality as an 'It' – an object. This approach is not the whole truth and we need to move from science to meta-science, i.e. metaphysics. Materialism on its own is necessarily unsatisfactory as it does not deal effectively with the rationally beautiful and orderliness of the world, nor the rational beauty of mathematics. He then argued that everyone has a point of view and a metaphysics – including Richard Dawkins – although fundamental explanations about our universe and existence do not necessarily have to be as naively simple as Dawkins would require. Moreover, no metaphysics is completely self-consistent: every metaphysics has an unexplained basis for its foundational point of view.

Sir John expanded on the two metaphysical traditions in the West: brute force along the materialistic lines of Hume; and theism involving the Will of a Divine Agent. Turning to the question of fine tuning, he stated the case for a deeper explanation than the one of a cosmic accident, which declares that we are here because of the highly improbable, but significant confluence of just the right constants and conditions. The designer point of view requires design to be imprinted in from the beginning. Responses to fine tuning provide a developing range of Multiverse possibilities ranging from: extended physics (incorporating inflation theory), to speculative physics (incorporating the Many-Worlds theories of quantum physics); then radically speculative physics (incorporating string theory which gives some 16 orders of magnitude, and M-theory which gives the possibility of a portfolio of some 10^{500} universes); finally extravagant meta-science for which every possible world must necessarily exist (somewhere) and not just in the Mind of God. Speaking then from the theological perspective, he argued that such qualities as moral imperative, the primacy of ethical behaviour, the experience of the sacred and the transparency and rational beauty of the world were better understood in terms of a Divine Agent than the impersonal laws of nature; that the Mind of God was a simpler concept than a lot of theoretical baggage.

In conclusion, Sir John informed us that we do not as yet understand the causal structure of the world and that we should understand God as ordainer of the world – not as intervening in the 'gaps' that science is currently unable explain.

There was ample opportunity to chat over tea and lunch not just with the speakers but also with the many renowned figures who attended this prestigious event. Memorable contributions from the floor included a short exposition by Professor Brian Josephson where he stressed the need to step outside the box of 'old science' into a newer science. Another speaker told us that the Islamic traditions were not averse to Multiverse ideas but questions like 'who created God' were meaningless. The Indian and Hindu traditions were more compatible with Multiverse as evinced in their symbolism of Vishnu and the Lotus.

To close, the conference was a perfect example of the true spirit of dialogue according to the Network's Mission statement regarding the need for open-mindedness, combined with rigour and care for others: not a whiff of animosity or pointless controversy; no obligation to accept or agree with the ideas propounded. Instead an overriding acknowledgement that any approach towards understanding God and/or Multiverse necessarily demands an open, multi-sided approach with a framework within which diverse points of view can be aired and discussed. It was this fine-tuned (yes, finely tuned!) balance between the quality of presentations, audience contributions and the atmosphere of inquiry generated that made this one day event as fulfilling for individual exploration as it was rewarding as a personal experience.

Footnotes;

1. My thanks to Edi Bilimoria for permission to include this summary. It was intended for the previous Newsletter N64 but there was insufficient room.
2. Edi was commended by the chief organiser, Bernard Carr, for his summary.
3. Carr was an early participant in the concept of the Anthropic Principle in a joint paper with Martin Rees.

REINVENTING THE SACRED
(A New View of Science Reason and Religion)

BY STUART KAUFFMAN

This book is one of many following Dawkins' book *The God Delusion*. Like his earlier book *At Home in the Universe*, Kauffman is rather wordy but he also uses some snappy quotable phrases such as in his earlier book *At Home in the Universe*: "We are truly meant to be here", contrary to the former view that the evolution of humanity is a chance happening. This was widely quoted in the programme for Paul Davies' 60th birthday seminar at the Academy of Science in Canberra in June 1975. In the current book it is: "we must reinvent the sacred", a phrase which he attributes to a well known indigenous Canadian, Scott Momoday.

Life is regarded as having arisen naturally all on its own without obvious cause. This phenomenon is known as "emergence," There follows here a ruthless abstraction from a portion of the preface: [The words are all there but a great deal is omitted]

"I shall show that biology and its evolution cannot be reduced to physics alone but stand in their own right; Life and with it, agency, came naturally to exist in the universe. With agency came values, meaning and doing, all of which are real. The evolution of these cannot be derived from or reduced to physics alone. If no natural law suffices to describe the evolution of the biosphere what replaces it? The web of life, the most complex system we know of in the universe breaks no law of physics yet is partially lawless, ceaselessly creative. This creativity is stunning, awesome and worthy of reverence. One view of God is that God is our chosen name for the ceaseless creativity in the natural universe, biosphere and human cultures. I believe we can reinvent the sacred with one view of God as the natural creativity of the universe".

Kauffman likes to use colourful phrases such as "We must get rid of the Galilean Spell, meaning the supposed complete supremacy of the laws of physics, (referring to the early contribution of Galileo when he carried out experiments rolling balls down an inclined plane).

I will give just one quotation from a rather technical discussion of the details from a chapter on The Origin of Life. "Self organization may require that we rethink all of evolutionary theory, for the order seen in evolution may not be the sole result of natural selection but of some new marriage of contingency, selection, and self-organisation. New biological laws may hide in this union".

I will skip much of the book and turn to the final two chapters: -- "A Global Ethic" and "God and Reinventing the Sacred". Much of this will consist of somewhat isolated quotations. I apologise for the brevity of this summary but I hope it will contribute to an overall view of what Kauffman is trying to portray.

“The task of finding a common spiritual, ethical and moral space to span the globe could not be more urgent.... If we can together build toward a shared global ethic, we can also reach out to those whose retreat into fundamentalism reflects fear not hope, and offer new hope in joint action”.

Regarding the question of a Creator God, Kauffman says: “Against all those who do believe in a Creator God, I hold that we have always created and needed this symbol. It is we who have told our gods and God what is sacred and our gods or God have then told us what is sacred. It has always been us down the millennia talking to ourselves”. He then suggests we should now take responsibility, with the best of our own wisdom, for what we call sacred, and thus treat as sacred, with a good choice being “**the unfolding of nature itself**”. We can call that God if we are so inclined. “Such a God is not far from the God of Spinoza”.

“Much of what we have sought from a supernatural God is the natural behaviour of the emergent creativity of the universe. ... I find it impossible to realise this and not be stunned with reverence. ... The view I discuss, beyond reductionism, partially beyond natural law, sees nature itself as the generator of the vast creativity around us. Is not this new view, based on an expanded science, God enough?”

“What we are discussing here is in many ways similar to Buddhism, a wisdom tradition without a God, based on thousands of years of investigation into consciousness ... wisdom suggests that we should use all the resources we can find”. After raising the question he says we **should** use the word God because no other symbol carries the same power. The following quotation is tricky and needs to be digested carefully. It is typical Kauffman.

“If the new scientific worldview I have discussed is right, a radical view requiring careful examination, we do live in an emergent universe of unending creativity, breaking the Galilean spell that all is covered by sufficient natural law. We can experience this God in many places, but this God is real. This God is how the universe unfolds. This God is our own humanity.”

“The long history of life has given us tools to live in the face of mystery, tools that we only partially know that we have, gifts of the creativity that we can now call God. ... such a quest can serve to bring meaning, community, solace, reverence, spirituality, tolerance and generosity to all of us. This is the task of generations for it can be the next stage of the cultural, moral and spiritual evolution of humanity. ... There is only one humane way forward – we must together invent a shared sacred”.

“There is a place for devotion in this view of God. The planet and all of its life are worthy of our devotion in this reinvented sacred and global ethic. There is a place for spirituality as well ... and we need ritual. It is part of our feeling and knowing”.

Regards to you all,
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