



## The Scientific and Medical Network: GOD or MULTIVERSE

Review of Open Dialogue at Downing College, Cambridge  
on 24th November 2007

*Edi Bilimoria, Surrey*

*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 organisers 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



**Professor Bernard Carr**

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/cm<sup>3</sup>. 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.

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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.

### Can the Universe Explain Itself?

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

#### Professor Peter Coles



**Reverend Professor Keith Ward**

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 testable. 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.

### Introducing God and Theological Theories of Everything

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.

### Can a Multiverse Provide the Ultimate Explanation?

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



**Reverend Dr. Rodney Holder**

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.

### Meta-stories of Fine-tuning

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

### Sir John Polkinghorne



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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 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.

**Dr. Edi Bilimoria** *Edi D. Bilimoria (DPHIL, FIMECHE, FRI, FEI, CENG) works as a Consultant Engineer for the transport, petrochemical, construction and oil and gas industries. He has been Project Manager and Head of Design and Safety for major projects such as the Channel Tunnel, London Underground systems, offshore and petrochemical installations. He is a keen musician and pianist, an international lecturer for the Theosophical Society and an active participator and lecturer for The Scientific & Medical Network. Edi is the author of **The Snake and the Rope - Problems in Western Science Resolved by Occult Science.***





# The Healing Intention: Conscious and Unconscious

John Kapp, Sussex

*This conference was held at the Royal Society of Medicine (RSM) on June 9th, jointly by the Hypnosis and Psychosomatic Medicine section of the RSM and the Scientific and Medical Network, (SMN) attended by 144 people, under the chairmanship of Martin Wall and Claudia Nielsen.*

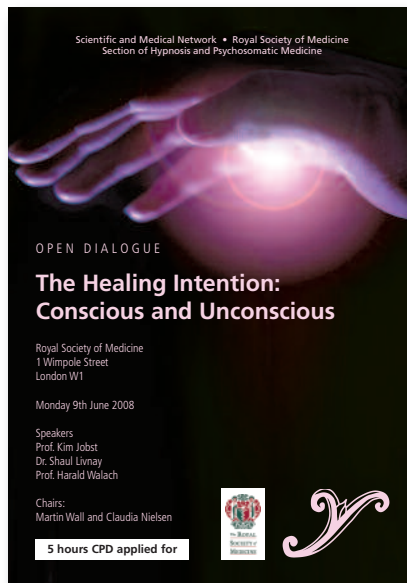
**Dr Shaul Livnay**, psychotherapist, Israeli Society of Hypnosis, opened the proceedings by speaking on the *Relationship/connection between the therapist and the patient*. He uses hypnosis, meditation and trance to stay connected with his patients, yet detached, with no script. In answer to a question about boundaries, he said that he has to trust himself, and work on himself all the time to avoid letting his own baggage interfere.

**Dr Kim Jobst**, Professor of Integrated Medicine at Oxford Brookes University and editor of the Journal of Alternative and Complementary Medicine, spoke on the subject of *Meaning and magic*. As a practicing physician using holistic mind/body therapy techniques derived from consciousness studies, he has not prescribed any drug for 8 years.

He believes that disease is determined by how the patient unconsciously interprets the *meaning* of his life, and his unconscious *intention* for his life's course. That meaning and intention has consequences (outcomes) for him, and determines (manifests) uniquely as his *lifestyle*. What then determines *meaning*?

Conscious thought accounts for only about 2% of brain activity, so 98% of it is driven, determined and empowered by *unconscious* patterns, habits and formulae. All those unconscious patterns have meaning too. In the typical patient the 98% majority of his thoughts are negative, contradicting and sabotaging those in the 2% minority.

All 100% of his thoughts have biochemical, physiological and neurological consequences in his body. If the majority are negative, they will manifest as a diseased body, as if caused by an unseen magic curse. Even if the 2% conscious thoughts are entirely positive (full of good



intentions) the majority will determine the outcome.

The blessing of a healing 'miracle', transforming the patient's life, comes when and if he divines and understands those unconscious negative meanings and intentions (curse) that made him ill, and sees new meaning in them. A mind stretched by new meaning can never go back to its original dimension, so he is immediately and permanently cured of his disease.

**Prof Harald Walach**, Psychology, University of Northampton, spoke on *Healing and non-locality*. He said that the intentional healing effect between the therapist and the patient is often non-causal and non local, which is the new holistic paradigm. The understanding of how this works comes from the work of Bohr, Jung and Pauli, known as Weak Quantum Theory (WQT)

Healing can arise through synchronicity, which he defined as relationship through meaning. It does not rely on cause and effect, but can occur through quantum entanglement, simultaneously in two places at once, known as complementarity. Examples are spirituality v. religion, form v content, love v. justice, belief v. truth.

As said by Dr Jobst, healing is effected if and when the patient's negative belief changes to a new more positive meaning as a result of the therapist or the therapy, which may be only placebo effect. This can happen not only by therapeutic transference when the persons are in personal proximity, but also over a distance, remotely in space and in time.

WQT explains distance healing and remote viewing because it predicts a non-local connection between individuals in which neither time nor space play a role. We should be careful about all our intentions, because they could all have a non-local (distance) component, whether or not those to whom our intentions are aimed are aware of them.

## Short presentations (10 minutes each) from the floor

**Charles Bourne** (cgfb2@hotmail.com) spoke of a *Study on spiritual healing* which found that the inner state of health practitioners (their unconscious positive or negative beliefs mentioned above) play a larger part in their healing activity than is publicly recognised. Depending on their own state, they can have a positive, good (placebo) or a negative harmful (nocebo) effect on their patients.

**Prof Ron Eccles** (Eccles@cardiff.ac.uk) has researched the common

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cold for 30 years in Cardiff. He spoke on the *Placebo effect*, which is the *meaning* that the patient applies to the treatment, and his *belief* in whether the treatment will work for him. His belief affects his immune system by psycho-neuro-immunology. (PNI) Negative meaning (eg side effects) has negative effects, known as *nocebo*.

His belief is heavily influenced by his environment, white coats, advertising. The placebo is the most effective medication known to science. It is subjected to more clinical trials than any other medicine, yet nearly always does better than anticipated. If you want to be well, believe in something good.

**Dr Jean Galbraith**, (jsgalbraith@btinternet.com) is chairman of the Doctor Healer Network in London. She was a GP for 31 years, when she employed 4 spiritual healers in her practice. Over 500 of her patients received spiritual healing, and patients' conditions healed included grief, anxiety, cancer, deafness, IBS, glaucoma and addictions. The healer has to let go of the outcome to enable the healee to heal.

To understand the process of healing intent between the healer and the healee, a different system of anatomical belief (the holistic paradigm) is needed, namely based on quantum physics, spiritual laws, forgiveness (letting go) of actions and identifications, past life, and karma. She believed that she was guillotined in the eighteenth century in one of her past lives, which gives meaning and intention to her present life.

**Hugh Harrison** (hughstandishharrison@hotmail.com) balances mind body spirit by combining homeopathy and craniosacral therapy. The basis of his 'homeocranial' therapy is as follows.

The spiritual vital force retains all parts of the organism in harmonious vital operation so that our indwelling, reason-gifted mind can employ itself for the higher purposes of our existence. (Samuel Hahnemann *Oregon of Medicine* 1815)

*'Within the cerebro-spinal fluid (CSF) there is an invisible element, the breath of life, which is a fluid within the fluid which has an intelligent potency, which makes the fluid move.'* (Dr G. Sutherland *Teachings in the Science of Osteopathy*)

*No organ, no tissue, no cell, no molecule is independent of the activities of the others, but the life of each one of these elements is merged into the life of the whole organism, the whole man.* (D.H.Roberts, 1930s)

The potency of the breath of life orchestrates the tides of the CSF, and embodies and restores original health. The vital force is intelligent and homeostatic. The totality of symptoms is what is to be cured. Cure happens from the centre to the periphery. The practitioner is an unprejudiced observer. (echoing 'letting go of the outcome', above)

**Jacqueline Bradshaw-Price** (jacqueline@forget-me-not.demon.co.uk) is an art therapist, and former breast cancer patient. She understands healing as a force field that we combine with creativity, focus, passion, and responsibility. 'It is no longer about my individual will, but is more about using my intelligence and imagination to work with universal energy. It is about re-creating a life using something which is beyond me as well as being within me. It is a journey that is intensely personal.'

**Ingrid Collins** (ingrid@soul-therapy.co.uk) is a director of The Soul Therapy Centre, spiritual healer, happiness teacher trained by Patch Adams, and animal communicator. Soul therapy has healing intention as its focus, combining psychotherapy, spiritual healing, bio-resonance and other subtle energy techniques. Many positive changes occur in the personal, professional and social life of the clients, with no harmful side effects. She has taken part in significant research projects which demonstrate the effectiveness of these techniques.



**Alison Easter** (s0676587@sms.ed.ac.uk) has a degree in psychology focussing on Buddhist studies. She is a PhD candidate at the Koestler Parapsychology Research Unit at the University of Edinburgh, and is investigating distance healing of arthritis sufferers, and is seeking participants.

## Conclusion

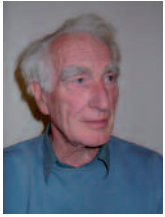
Under its materialist, reductionist, mechanist paradigm, conventional medicine can only see *sickness* in the body. It is blind to the *cause* of that sickness, which is in the *mind*, because it is in denial of the *existence* of non-material mind.

The speakers broke the conventional mould by coming from the *holistic* paradigm, which *accepts* the existence of mind. They showed that the cause of disease is the unconscious limiting belief with which the patient is conditioned (enspelled, hypnotised) that he is a victim. The healing moment comes when the penny drops, and the limiting belief rises from his unconscious into his consciousness, and he understands why he was ill. This understanding frees him from the spell, and he now sees himself as a beneficiary.

This conference showed that sickness cannot be cured or healed unless and until that limiting belief is *understood* by the patient. The purpose of symptoms is to help the penny to drop. However, conventional medicine, as a sickness service, *hinders* that healing by masking his symptoms, so that he continues with business as usual.

As we celebrate the NHS diamond jubilee and Lord Darzi's ambitions to change the NHS into a true *health* service, this conference illustrated the paradigm shift to holism required to bring this about.

**John Kapp** was much influenced by his father, Reginald's book *'Science versus Materialism'* published in 1940, and his mother, who was a doctor. He has been working as a patient representative in the NHS since 2000, trying to make it more patient-centred and holistic. He has republished his father's books, and many papers of his own on [www.reginaldkapp.org](http://www.reginaldkapp.org)



## Towards A Science Of Consciousness – Tucson 2008

*Max Payne, Yorkshire*

Nearly 1,000 delegates assembled in the convention auditorium for the 5 day Tucson conference *Towards a Science of Consciousness*. Fascinating as much of the proceedings were, to some degree the conference was a victim of its own success. Apart from 12 plenary sessions there were 3 concurrent sessions with 6 talks each, and several hundred poster sessions with each contributor arguing their case. Every possible perspective on consciousness studies was represented, but while brief time was allocated for questions after talks, there were no real dialogues between differing perspectives. Listening to presentations on panpsychism meant missing out on 'Altered States of Consciousness'. The programme was just too full. There were earnest and wise arguments in assorted eating places during the intervals, but the participants got dispersed in all the alternative meetings afterwards and never met again, so with three different conference hotels in no sense could the conference become a 'gathered' meeting. The 'Network magic' of a good SMN conference was missed.

There were a wide variety of offerings ranging from the effects of Advaita Vedantic meditation to research claiming that sexual intercourse can precipitate non-ordinary transcendental experiences. Nevertheless the main axis of the conference was excitement at the progress of brain imaging techniques. Adrian Owen examined the scans of patients in an inert vegetative state. Most showed little activity, but a few showed patterns identical to healthy subjects even though they could neither speak nor move. By asking the patient to imagine either the rooms of their house, or the activity of playing tennis, a code of signalling 'yes' or 'no' was worked out. These subjects later had a partial recovery. The thought of someone being totally paralysed yet consciously aware was worryingly creepy.

Stuart Hameroff proposed an answer to the 'hard problem' of exactly how the brain produces



Credit: NOAO/AURA/NSF

subjective experience. The brain runs the body most of the time on 'auto-pilot'. Consciousness supervenes just to correct and guide the 'auto-pilot'. This is to be detected in the axonal firings that are detected as brain waves at 30 to 90 Hz. These in turn relate to the gap junctions in the dendritic web connecting the neurones. These microtubules are capable of quantum computation, and the gamma wave synchrony enables them to take over the 'auto - pilot' modes of brain activity. Afterwards one possibly statistically unrepresentative seminar decided over beer and burger that Hameroff had not solved the 'hard problem'. One microtubule in a quantum state multiplied by a billion is still just a billion quantum states. The problem of how that translates into a subjective thought is still unsolved.

Interesting as the conference was, for this observer the most mind blowing experience was a visit to the Kitts Peak observatory. 7,000 ft up in the clear cold Arizona desert sky we looked through giant telescopes into the night sky. At a distance of one light hour the rings of Saturn stood out clearly with three of its largest satellites alongside. 3,000 light years away the ring of gas surrounding an exploded star could be seen, and at 30,000 light years distance the separate stars of a globular cluster

could be discerned. Lastly at the limits of the naked eye two tiny blobs could be seen, which were distant galaxies containing many billions of stars that were 25 million light years away. The light from them had left their origin before human life on this planet had even begun to evolve. And beyond them, detectable only by more sophisticated equipment and long photographic exposure, are even more distant galaxies stretching away to the edge of the universe 13 billion light years away. Those vast distances in space and time relativise the narrowness of human experience. The thought occurs of what would it be like to go into the opposite direction, into the atom, beyond the quark and into the infinitesimal negative powers of ten where the Planck interval is the minimum at which space and time can exist. What would matter look like from there? And if indeed the quantum state of the microtubule is where consciousness resides, what is that 'inside' like from the inside? And what is the difference between the inside of a microtubule in a human brain, and the microtubule in the ganglion of a slug? Perhaps the whole conference was only intellectual froth on the surface of a deep mystery.

*Max Payne is a Vice-President of the Network*