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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 Olcott@theosophical.org.net. 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.

The Springbrook seminar in May was highly successful and much appreciated by the participants. A brief summary is given in this Newsletter and a slightly reduced version will appear in *Theosophy in Australia* for November. As for previous seminars, it is planned to include in forthcoming Newsletters, more detailed accounts for each talk, provided by the speakers. This issue includes the talk by Dr. Dara Tatray, who has recently been awarded PhD in The History and Philosophy of Science at the University of New South Wales in Sydney. Her thesis is entitled: “Rebuilding the Foundations of Deep Ecology: A Nondualist Approach”.

For a variety of reasons, this Newsletter has been rather long in preparation and that may well become a pattern in future. In addition to the Springbrook summary and Dara Tatray’s talk, there is, as promised last time, a brief summary of the very interesting book by the Dalai Lama entitled *The Universe in a Single Atom*. The next issue will include The Springbrook talk by Dr Victor Gostin, (who is currently lecturing at the Krotona and Olcott Centres in USA). Also included will be a summary of an inspiring talk on “The Emergence of Mind” by George Ellis, Professor of Applied Mathematics, (and Templeton Prize winner), given at the “From Stars to Brains” Conference in Canberra in honour of Paul Davies (See N59). There is a new book by Davies: *The Goldilocks Enigma- why is the universe just right for life?* - Allen Lane (Penguin), 2006.

THEOSOPHY-SCIENCE SEMINAR

Springbrook, Friday May 19 to Sunday May 21, 2006.

Summary by Victor Gostin and Hugh Murdoch

There were 11 speakers and 27 participants in all including the kitchen staff who participated enthusiastically when time permitted. Every day saw four presentations, each of 75 minutes, including 30 minutes for questions and discussion. Evenings involved discussions on ways that Theosophy may contribute to a synthesis of religion, philosophy, and science, and on ways that the Theosophy-Science Group may help in promoting the Society. Time was left free after lunch to

enable social interaction or short walks in the surrounding forest. There was a wide geographic spread of participants with long term Sydney group member Chris Pang Way coming down from his retirement home in North Queensland; Douglas Greypower a sprightly and engaging gentleman in his late eighties came from Perth with his daughter Jane King, while perpetual participant to our seminars, Vicki Jerome came from the South of New Zealand.

Following a welcome to Springbrook and the Seminar by Dr Dara Tatray and Dr Victor Gostin, the latter presented a talk on contrasting scientific views of evolution, and whether it involved any specific direction. Using new discoveries from laboratory evolution experiments, and extensive palaeontological research showing repeated convergence of physiology within unrelated biological families, it may be concluded that evolution will lead to increased complexity and eventually to intelligence. He then explored the role that the senses of perception play in all living things, commenting that our world looks very different depending which senses are used. In addition our consciousness is highly selective in what we choose to see, and it may be difficult to “recognise” unfamiliar things. Creativity and insight depend on our ability to “open our mind” to inspiration.

Dr Hugh Murdoch spoke about “Peopling the Earth,” the story of the spread of our species homo sapiens across the globe from its origin in Africa about 170-200k BP (i.e. thousands of years ago). The evidence comes not only from archaeology but more particularly from studies of the mitochondrial DNA of living humans from around the world. This is passed on only through the female line. The evidence is supported by studies of the Y Chromosome passed on only through the male line. Astronomically driven temperature cycles and resulting changes in sea level affect when and where migration is possible. All non-Africans are descended from a small Group which crossed the mouth of the Red Sea at a time of low sea level 85k and proceeded along the coastline, eastward to Arabia, India, South-East Asia and then to Australia by 65k at a time of very low sea level. Migration from South Asia Northward to Europe and Asia commenced during a relatively warm period about 50k and continued over time throughout Asia and North to the continent of Beringia (based on what is now the Bering Strait) thence to North America prior to the last ice age peak around 20k. The approximate cyclicity involved in the story contrasts strongly with the very precise cyclicity described by Geoffrey Barboroka.

Maikel Annalee presented a talk on the “Unmanifest Theosophy of the Theosophical Society”. He referred to the writings of Douglas Adams, Arthur Dent and Stephen Hawking. Patterns are important in speech, geometry and art. He also showed that $42=54$ if one simply changed the bases. (See “Strange New Universe” *New Scientist*, 22 April 2006).

Douglas Greypower presented, in very clear diction, his own particular alternative thinking on two topics from his self-published booklets. Firstly: “What Einstein missed”, discussing the relationships between the basic parameters of modern physics. The uniting of Classical Physics and Quantum Theory is, of course, the “Holy Grail of Physics”. In the second part, Douglas presented his alternative idea to the current “Big Bang” theory by outlining a “Cold Start” to our Universe. This involved the formation of very heavy matter when neutrons are stripped of their electron components after a neutron star is swallowed by a black hole. An energy bolt or ultra-gamma ray galvanised this, creating the initial huge inflation of the universe normally attributed to the Big Bang.

First speaker on the second day was Professor Richard Silberstein who is the Foundation Professor of the Brain Science Institute at Swinburne University, Melbourne. He is also Honorary Senior Principal Research Fellow at the Howard Florey Institute of Medical Research. His topic was the interface of

Neurobiology and Theosophy, or “Theosophy from a neurobiological perspective”. The current common view of neurobiology is monist, i.e. that all human abilities emerge from the physical brain. This is strongly challenged by parapsychological research that presents a view of radical dualism. He discussed recent experiments involving telepathy, reincarnation, and near-death experiences. He explained his research on ADHD (attention deficit hyperactivity disorder) and on the link between this and creative genius. We now better understand the disorders of perception: epilepsy, depression, and schizophrenia, as affecting the hippocampus. Our brain is indeed the organ of perception. A recommended reference is the book “Why God won’t go away; Neurobiology of mystical experience” by Richard Davidson, Univ. of Wisconsin, Madison. During the following morning, Richard had another opportunity of presenting us with several other research topics including the dream/sleep cycles, short and long-term memory, and the need to develop the voluntary attention system through regular meditation.

Dr Geoffrey Miller who lives adjacent to the Springbrook Centre, spoke on “Achieving optimum brain function”. The physical body is a biological engine, and whatever we put into it determines how well we function. Minerals and vitamins are essential to healthy cell functions, so unless food is grown properly (organically) it does not contain the required nutrients. Geoffrey discussed the range of good foods and exercise needed to avoid dementia. Exercise is needed to make new brain cells; natural light and anti-oxidants are important, but these are destroyed by microwave heaters. Steaming is the best form of cooking. Removing stress is essential, and regular meditation and deep breathing are recommended.

This theme was followed by Dr Alek Kwitco M.D., a new member from Adelaide, a specialist in immunology, and alternative medicine. His theme was “The science of meditation”. In his well illustrated powerpoint lecture, Alek pointed out our stress-filled lifestyle and said that an untrained mind is not truly under control. As a solution, regular meditation has now been scientifically shown to have a measurable effect in increased immune response, health, creativity and happiness.

Chris Pang Way, now retired in his home country of Atherton Tableland, had worked for 28 years as Senior Chemist with the NSW EPA. He described several cases of interesting chemical-detective investigations during his career, mostly dealing with environmental pollution. Chris’s incisive mind yet throughout, a quiet non-attached attitude, especially during times of departmental stress, was clear to all his audience.

At the start of the third day, Dara Tatray presented a lecture titled “The fundamental question concerning intelligent design”. Unlike physical monism that postulates consciousness emerging from “matter-energy”, the theosophical view is that life equals consciousness and was involved at the very beginning of our universe. Dara took us on a journey through Eastern philosophy and metaphysics to show that karma refers to the underlying principle of order or harmony holding everything together. She distinguished between intellect and intelligence, between thought and consciousness, and between two ways of knowing. Thus intuitive insight and direct perception where there is no separation between the knower and the known, the observer and the observed, is very different to discursive knowledge, of science and the arts. Analytical thought is always conditioned, whereas pure consciousness, especially as described in the Vedanta, is intelligence or truly universal Mind. Consciousness is what remains after all other categories of existence are negated or transcended. This universal consciousness is pure intelligence. The Upanishads maintain that everything in the universe is guided by this intelligence, and supported by this intelligence. Dara related these ideas to the views of David Bohm and Krishnamurti. Thus, pure consciousness or intelligence beyond thought, may

represent the ultimate generative or implicate order (Bohm) from which all manifestation emanates. This is consistent with Plato's treatment of the Good and Plotinus' treatment of the One.

Another new member of our Group, Dr. David Allan who holds a higher doctorate in engineering, D.Eng., from the University of Queensland, spoke on "Science, Pseudoscience and Metaphysics". He commented on the battlegrounds of science vs popular metaphysics such as: dowsing, crop circles, extrasensory perceptions and telekinesis. Applying science to the paranormal has generally produced mixed results. Believers have had positive results whilst sceptics had negative ones. Entrenched beliefs have required exceptional evidence to be overturned. David discussed the unorthodox theories of Velikovsky in his books dealing with planetary catastrophes and their effects on human civilizations. He described reality as containing an indefinite number of truths perceived as reflections on the intellectual plane. Each truth is valid within a limited area, but we seek the universal to be impossibly expressed as one aspect of the multitude.

Carl Sarelius presented and demonstrated the EFT = Emotional Freedom Technique. This practice of psychotherapy is used for removal of negative emotions and phobias. It involves repetitive positive statements (reminder phrase) while tapping specific energy points on the face and torso.

THE FUNDAMENTAL QUESTION CONCERNING INTELLIGENT DESIGN

(A talk by Dara Tatray at the *Theosophy-Science* Seminar, Springbrook May 21, 2006)

This talk is a discussion of what I regard as the fundamental question concerning intelligent design; or at least the fundamental question from a particular point of view, and that, not necessarily the view of science. There are other questions concerning intelligent design which may be more productive from a scientist's point of view; but no question is more fundamental, in my opinion, than the question relating to the nature of intelligence. A further consideration arises towards the end of this discussion: whether or not we can rely on the intelligence of the designer, when the designer is a human being rather than a metaphysical principle. It also provides background information with which to better understand four important words and how they interact with one another: Life, Consciousness, emergence and karma.

According to the doctrine of physical monism, what exists is matter/energy out of which life and consciousness emerge at a certain stage of complexity. According to theosophical teachings, however, Life and Consciousness are involved in the beginning. The process of emergence is what makes them explicit in the end. We tend to think of karma in purely human terms - action and its consequences, as you sow, so shall you reap, and so forth. But the doctrine of karma also refers to the underlying principle of order or harmony that is holding the whole process together and guiding it all the way. Not as a guide which forces, but rather like Whitehead's idea of the divinity as a "lure" that gently entices. Surprisingly, perhaps, the law of karma can be seen working at the grossest material level. Every species is the result of a unique series of events and interactions, engaging in adaptation, ecological opportunism and niche construction. Life, in process of evolution, changes the environment in which it lives and then further adapts to that environment. This history of past events and their consequences is karma - action and its results. Underlying the whole process is a force tending towards equilibrium or Order. So let us examine the meaning of Life and Consciousness from the top down, as it were.

Let us begin with a few rhetorical questions. Is intelligence something human beings possess, to varying degree; or is it universally diffused - and not just among humans? Is intelligence acquired by the ego or does intelligence (as opposed to intellect) exist in inverse proportion to ego? Is intelligence an epiphenomenon of either the brain or of thought? Metaphorically put, is thought the receiver or the transmitter of intelligence? There is a fairly consistent answer to these questions across diverse cultures and climes, East and West, from the Upanishads and Plato to Bruno, Blavatsky and Bohm: and it is their answer to these questions that I am about to give.

A basic distinction must first be made between intelligence and intellect, and between small “m” mind and capital “M” Mind; between thought and consciousness and between consciousness and its content. Platonists, Gnostics, Theosophists, Buddhists and Vedantists have always distinguished two ways of knowing corresponding to two distinct fields of knowledge. For example, G.R.S. Mead distinguishes between gnosis and ordinary knowledge when he writes: ‘Gnosis is knowledge; but not discursive knowledge of the nature of the multifarious arts and sciences ...’ (Mead 1906 b). Intuitive insight and direct perception, in which there is no separation between the knower and the known, the observer and the observed, is central to Vedānta, Buddhism, Taoism and Patañjali Yoga. It also features strongly in the work of the Presocratics, including Heraclitus and Parmenides, in Plato and the Neoplatonists, and also more recently in the philosophy of Spinoza, Schelling, Bergson and Bohm. Gnosis, direct perception, unitive perception, whichever of these near-synonyms you prefer, is a way of knowing not mediated by thought: a mode of knowing of which Aldous Huxley once observed that when there is a change in the mode of knowing there is a corresponding change in the mode of being (and vice versa when there is a change in the mode of being there is a change in the mode of knowing).

Intellect is related to discursive, analytic thought, which is always conditioned, and intelligence relates to the present moment, the unconditioned, the spaces in between thought. Then there is the nature of consciousness to consider. Professor E.A. Burt presented a valuable insight into the general Western conception of consciousness, when he pointed out that the Westerner generally:

... defines “consciousness” as always implying awareness of some object. By contrast, the Eastern thinker sees something of vital importance beyond and underlying all objects - namely, the universe that encompasses them, and the self that apprehends them - the knower, which by its very nature is the subject of consciousness and always eludes us when we try to make it an object. In fact, he is sure that when its essence as knower is fully realized ... the separation between subject and object that is necessary for rational knowledge is transcended, and the self becomes aware of itself as a unity in which that separation has been overcome. He is likewise sure that consciousness - so far from disappearing in this realization - only then becomes freed from its prison and fulfils its intrinsic nature (Burt 1965, p.286).

In nondualistic systems, the universe in which objects exist and the Self that apprehends them are one and the same no-thing often described as pure consciousness.

Consciousness carries different connotations in South Asian philosophical systems than in the West. Consciousness without an object, that is, contentless consciousness, is regarded as consciousness *per se* or pure consciousness, which is sacred or divine, infinite and universal. Thought and representation are not consciousness itself but part of its content, just like all material objects. In the classical Indian metaphysics known as Sāṅkhya the distinction is made between pure consciousness, *Purusa*, and

prakriti, which is matter or nature, a metaphysical principle underlying all physical manifestations or phenomena (Schweizer 1993, p.847). This latter category not only includes all physical objects and processes but also all mentalistic qualities such as thought, desire, volition, the sense of I-am-ness and so on. In Sâmkhya the category of mind includes three distinct but related functions, all of which are regarded as material: 1) *buddhi*, which is a highly refined or subtle material substance, comparable to the Greek *nous*, it refers to the higher reaches of human intelligence including intuitive and unitive perception; 2) *manas*, which is the cognitive faculty itself, the rational discriminating analysing intellect, the organ of cognition as such; and 3) *ahamkâra* the I-maker or ego which ‘appropriates all mental [and other] experiences to itself’ (Schweizer 1993, p.848). In this system, the only thing that is not material, is not a thing at all, but pure consciousness without content, *Purusa*, which never becomes anything but without which nothing can come to be.

One of the benefits of the mind/consciousness dualism of Sâmkhya metaphysics is that it sheds light on the nature of consciousness. Consciousness is what remains after all the other categories of existence are negated or transcended. Consciousness is what underlies every object and every representation. It was present in the beginning and remains when all else has passed away. In the Vedânta the same no-thing, the same totality called *Purusa* in Sâmkhya, is described as Brahman of which it is predicated only ‘that it is, that it perceives, and that it enjoys eternal bliss’ (Müller 1883/2002, p.176). The authors of the Upanishads discovered something ‘behind the veil of the body, behind the senses, behind the mind, and behind our reason’ which they called the *âtman* the universal Self (Müller 1883/2002, p.176). They argued that the *âtman* is finally identical to Brahman and that this universal consciousness, which is pure intelligence, is our true nature, the eternal element in us. Furthermore, the authors of the Upanishads maintain that everything in the universe is guided by this intelligence, supported by this intelligence and established in this intelligence (Aitareya Upanishad III, 3 in Radhakrishnan 1953/1990, p.523). We must not forget that intelligence, in this usage, must be distinguished from discursive reason, the cognitive faculty, and the I-making principle or ego in any form. Small “m” mind and intellect are personal, whereas intelligence and capital “M” Mind are universal in every respect.

Moving right along to the present day, let us take a look at David Bohm’s understanding of intelligence. Bohm described his theory of the implicate order as making possible, ‘the comprehension of both inanimate matter and life on the basis of a single ground, common to both’ (Bohm 1980/1997, p.193). That ground he variously described as consciousness, the generative order, and the holomovement. So-called inanimate matter and life are both to be understood on the basis of a common ground, the nature of which is intelligence. Distinguishing between thought and intelligence, Bohm and Krishnamurti began by defining intelligence as mental alertness, the capacity to read between the lines, particularly to read thought and to understand it. They then moved on to consider the deeper levels of intelligence, where intelligence may be regarded as synonymous with God (Dialogue with Bohm in Krishnamurti 1986, p.509/526). Krishnamurti suggests: ‘Religious people, instead of using the word intelligence, have used the word God’. Bohm replies: ‘God is perhaps a metaphor for intelligence ... God means that which is immeasurable, beyond thought’ (Dialogue with Bohm in Krishnamurti 1986, p.525-6). Krishnamurti agrees and then reminds us that our image of God and our ideas of God have been created by thought to satisfy its desires and assuage its fears:

... the desire for this intelligence, through time, has created this image of God. And through the image of God, Jesus, Krishna, or whatever it is, by having faith in that - which is still the movement of thought - one hopes that there will be harmony in one’s life (Dialogue with Bohm in Krishnamurti 1986, p.526).

This is not to deny the existence of an intelligence, or God, beyond thought, desire and fear. They are not saying that there is no such thing as God, when God is divested of our superstitions and fears: they merely point out that the word, the image, and the ideas constructed by our thoughts are not God. Thus, the way to harmony in life is not through the image, but only through the actuality of God, or if you prefer, the actuality of “what is”. In this understanding it is not until the entire process of thought is understood that there is any likelihood of being inspired, guided or touched by anything other than thought in the long term. We may have our moments, but until our lives are grounded in universal intelligence, they remain what Mead described as processions of fate. Perhaps the ground or totality of which Bohm speaks, the highest generative order, is the same as the pure consciousness of Vedânta: both being beyond thought and immeasurable.

In *Science, Order, and Creativity* Bohm and Peat use fractal geometry to illustrate how order can exist within apparent randomness (Bohm and Peat 1987, p.173). The Mandelbrot fractals contain a hidden order - the base figure and the generator - which manifests the most remarkable array of complex images, including six-pointed stars, snow-flakes, mountains, images of the Buddha, and so forth: all based on a simple figure with a generator applied at different scales (Bohm and Peat 1987, p.152-4). This model may help to answer the question, where does order come from? If order can be hidden within apparent geometric randomness, then perhaps order can also be hidden within the apparent randomness of life more generally. That hidden order is Intelligence. In the Platonic system it would be described as the Good, and in the Gnostic system as Mind, all of which are often capitalised to distinguish them from their lower and often very distorted reflections.

Bergson held that disorder does not exist. In his view there are only two types of order: geometric and vital (Lorand 1992, p.580-87). Geometric order includes the movement of particles through space and time, the order of number, the functioning of machines and the more subtle orders evident in the growth of plants and the development of language (Bohm and Peat 1987, p.111). Geometric order is secondary, vital order is fundamental. In Bergson’s view, the intellect creates an artificial or mechanical order, which may be of practical value, but is not the truth about reality. It is the vital order that orders nature; ‘the order of the intellect is lifeless’ (Lorand 1992). This understanding informs Bohm’s treatment of the generative order or the holomovement - the totality. What Bohm calls the totality appears to be the same no-thing called *Purusa* in Sâmkhya and Brahman in Vedânta. Thus, pure consciousness, intelligence or Mind may represent the ultimate generative or implicate order from which both mind and matter and all its evolutes arise. Furthermore, as all manifestations of order -mechanical, biological, hermeneutic and other - derive from the generative order, this raises the possibility that the totality, the holomovement and pure consciousness are of the nature of order, and that ultimately, it is order that unfolds from them. This is consistent with Plato’s treatment of the Good and Plotinus’s treatment of the One. I suppose it could basically be described as a form of emanationism.

In this model, it is proposed that although the totality is of the nature of order, and ultimately only order unfolds from it, the same cannot be assumed of the semi-autonomous parts of nature such as the human intellect or thought. Further, in this model it might be proposed that order, peace and happiness are part of the deeper orders of being, so that we need not think in terms of creating order out of chaos, surviving a hostile world, struggling to find happiness or anything of that kind; but, instead, find out what it means to live in harmony with the natural order, and not merely the order of physical nature. Do Intelligence and Order come from the personal empirical self, or from the universal Self, the totality, variously described as pure consciousness, Brahman, the *âtman*, the Ultimate Principle or God?

The ultimate source of order, for Bohm and Krishnamurti appears to be the intelligence beyond thought, which is synonymous with God, pure consciousness and Brahman. They argue that thought is a material, mechanical, measurable electrochemical process, which takes place in the brain and is largely a reaction to the past; whereas intelligence is neither mechanical nor measurable, nor is it the product of thought or time. They finally agree that the relationship between intelligence and the brain, or between intelligence and thought, is that the brain can be an instrument of intelligence, thought can be a “pointer” to intelligence; whereas in itself thought is “barren”. It has no value without intelligence (Dialogue with Bohm in Krishnamurti 1986, p.520). It becomes important, then, to clearly understand the difference between thought - which is a movement in time away from “what is” - and intelligence, which exists in the depths of life, or the deeper recesses of the generative order, and can be contacted only by a mind that is free from desire and fear, pleasure and pain, the twin impulses propelling the mind outward, further and further into confusion. We might ask, what is this intelligence that is potentially our pilot through life? We have already seen that it is not a personal possession, it is not desire, it is not thought or intellect. Nor is it social convention dictating to us what is right and what is wrong. Rather it is the light of universal intelligence or pure consciousness; a reflection within us of the holomovement, the whole movement, which is synonymous with the Good in Plato’s sense.

So where does all this leave the question of the cosmic design and its designer; and the related but separate question concerning the intelligence or otherwise of human designers, let us say scientists or geneticists? The human being can be, and ultimately is, a microcosm or mirror of pure intelligence or pure consciousness, which is inseparable from the Good or the totality. In the meantime, we are in large measure the embodiment of desire, fear, and conditioned thought. Does this imply that scientists and the rest of us should not be doing what we do because we can’t be trusted? That would be a rather idiotic position to take, not to mention impossible. As the *Bhagavad Gîtâ* eloquently points out, it is not possible for a human being to remain actionless even for one second. However there is also to be taken into account the inescapable difference between ourselves as creators, inventors, manipulators - and the action of the totality, Brahman or God, in which worlds endlessly appear and disappear in a regular ebb of creation and dissolution the nature of which is order. The Good in us, the Intelligence in us, which is universal, is tempered by having become embodied in an instrument that has been taken over by conditioned thought. That is the Krishnamurti/Bohm position. By contrast, the action of the totality is not distorted by the personal element. It is by definition whole, complete, unlimited. Our actions are all limited, fragmentary, conditioned and so forth. It doesn’t matter how clever we become or how uneducated we might remain; our basic status as conditioned contingent beings remains unaltered.

Would it make any difference to my basic argument concerning intelligent design, if advanced scientists from another world created all “life” on earth? I think not, because Being not beings “created” life. I believe that this universe and everything that comprises it is the creation, expression, or emanation of Being or pure consciousness. If we wish to speak in terms of “multiverses,” which personally I would not, then equally I would say that the totality of all multiverses is the creation or emanation or expression of Being not beings. That would be the view of Plato, Blavatsky, Bruno and Bohm among others I might choose to rally round me. In this argument, if advanced scientists from another world created life on earth that would not amount to saying that they created Life itself. Life is the totality, the immeasurable, the vastness of which space is just a reflection and of which all that exists is an emanation. All that beings can do, whether they be terrestrial or extra-terrestrial, is tinker around with what Being has already produced: namely, the necessary conditions for existence - on earth, in heaven, or on Mars as the case may be. I believe that we can rely on the intelligence of

Being, which is of the nature of intelligence and bliss - *sat-chit-ânanda* - in a way that we cannot rely on the intelligence of conditioned limited beings such as humans. Does this have any implication as to how we might view the scientific endeavour? I think it implies only that we view all human and alien endeavour with caution, with humility, and where possible with safeguards against the unintelligence that flesh is heir to, whether that flesh be pink or green. But this should not just be a story of caution, either, for you never know what is really acting behind the things we do: particularly since that intelligence upon which we can rely is within us. All that we have to do is find our own way back to it.

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“THE UNIVERSE IN A SINGLE ATOM” by THE DALAI LAMA

(This book was mentioned briefly in the last Newsletter N59, in connection with an extract in *New Scientist* 14 January, 2006 under the title “The Om of Physics”).

The Dalai Lama comes across as a truly remarkable individual. He is steeped in his Buddhist tradition. His teaching began at the age of 6 when he was chosen as the 14th Dalai Lama and given detailed instruction by his personal teachers. He also has much wider interests, especially in science and in the spiritual welfare of mankind generally, together with fostering a better understanding of the relationship between religion and science. We need, he says, both science and spirituality since the alleviation of human suffering must take place at both the physical and psychological levels. Interestingly, his “first encounters with spiritual teachers who were seeking an integration of science and spirituality was with members of the Theosophical Society in Madras” during a visit to India in 1956 for the 2500th anniversary of the Buddha’s death.

He showed a precocious scientific bent when as a young child, looking through a telescope at the full moon, he focused on “the rabbit in the moon”, a feature known in the West as “the man in the moon”. Noting shadows, he deduced that the Sun shines on the Moon as well as on Earth. As a teenager he was very interested in the workings of mechanical things such as watches and generators. He says that, as an internationalist, he is impressed with the willingness of scientists to share their knowledge with others without distinctions of East and West, even during the Cold War. He says one of the

causes of Tibet's political tragedy was its failure to open itself to modernization. He has encouraged monastic colleges who teach classical Buddhist thought to include science in their curriculum.

He sees a number of parallels between science and Buddhist thought, including the one discussed in the *New Scientist* article. As in science, there are different interpretations of the role of the observer. According to one Buddhist school, "matter cannot be objectively perceived apart from the observer – matter and mind are co-dependent".

Buddhism can make an important contribution to science with regard to its motivation. "Unless the direction of science is guided by a consciously ethical motivation, especially compassion, its efforts can fail to bring benefit. It may even make things worse. In Buddhism the highest spiritual ideal is to cultivate compassion for all sentient beings and to work for their welfare. ... Science is vitally important, but it is only one finger of the hand of humanity ... What matters above all is the motivation that governs the use of science and technology." It is also important that we recognize that "many aspects of human existence, including values, creativity and spirituality, as well as deeper metaphysical questions, lie outside the scope of scientific inquiry".

Cosmology

The Buddha never answered questions about the origin of the universe. However, "ancient Buddhist cosmologists conceived that any universe system goes through stages of formation, expansion and ultimate destruction" in other words, a cyclic universe. "Buddhism and science share a fundamental reluctance to postulate a transcendent being as the origin of all things. This is hardly surprising given both these investigative traditions are essentially nontheistic".

The Dalai Lama had, at the age of 20, been taught a form of cosmology known as Abidharma which he found has too many contradictions including a flat Earth whereas he already knew the Earth is round. He takes seriously the modern theory of the big bang, with the temperature decreasing rapidly to the point where elements could form while space expanded. "Thus all of space, time matter and energy as we know and experience them came into being from this fireball of matter and radiation". He refers to confirmation of this model from current measurements of the background radiation. He also refers to the earlier debate concerning the steady state theory supported then by Hoyle and other great minds. (He wrongly describes this theory as assuming the universe expanding at a steady rate, whereas the rate of expansion in that theory was considered to increase exponentially). "Today (he says) the evidence from the microwave background is a wonderful example of how in science, in the final analysis, it is the empirical evidence that represents the last court of justice". He adds: "At least in principle, this is also true of Buddhist thought". Nevertheless, concerning speculation about the origin, he says: "I am not subject to the professional and ideological constraints of a radically materialist worldview. In Buddhism the universe is seen as infinite and beginningless, so I am quite happy to venture beyond the big bang and speculate about possible states of affairs before it". There are quite a few cosmologists today who like to at least speculate on this and even on a cyclic universe.

Consciousness

Not surprisingly, a substantial portion of the book deals with Consciousness. I will attempt a limited summary of some key features of his presentation. There is no real consensus in science on what consciousness is. With its characteristic third person method – the objective perspective from the outside – science has made strikingly little headway. ... It does not possess a fully developed methodology to investigate the phenomenon. Noting such approaches as behaviourism, Cartesian dualism of matter and mind, and attempted definition in terms of neural correlates etc., he asks;

“What about the direct observation of consciousness itself? Given the highly subjective nature of our experience of consciousness, is a third person understanding ever possible? For Buddhism, understanding consciousness as a defining characteristic of sentience is of great importance. An important discourse of the Buddha opens with “mind is primary and pervades all things”. ... There must be a basic mind which maintains continuity throughout life. The Buddhist concept of three distinct features of the world – matter, mind and mental states is compared with Popper’s three worlds approach.

Some pertinent questions asked are: “What are the necessary and sufficient conditions for the emergence of mental experiences”? “How do we explain the emergence of consciousness”? “Can we have both upward and downward causation?” Referring to speculation on a point of contact in the brain for consciousness, the Dalai Lama says that despite tremendous success in observing close correlation between parts of the brain and mental states, he believes current neuroscience has no real explanation of consciousness. In fact Science needs a paradigm shift to be able to explain consciousness. On this score, he says: “I believe it is possible for Buddhism and modern science to engage in collaborative research in the understanding of consciousness while leaving aside the question of whether consciousness is ultimately physical”.

“Consciousness is a very elusive object, and in this sense, it is quite unlike the focus on a material object, such as biochemical processes. ... Whatever our philosophical views about the nature of consciousness, whether it is ultimately material or not, through a rigorous first-person method we can learn to observe the phenomena, including their characteristics and causal dynamics. On this basis, I envisage the possibility of broadening the scope of the science of consciousness and enriching our understanding of the human mind in scientific terms. ... Given that subjectivity is a primary element of consciousness, it will have to be a fully developed and rigorous first person empiricism. There is tremendous potential for contemplative traditions such as Buddhism to make a substantive contribution. ... Moreover there may well be substantial resources in the West’s own philosophical traditions”.

Genetics

“The primary purpose of Buddhist contemplative practice is to relieve suffering” and science has done much in this area through modern medicine and modern genetics is likely to play an increasing role. However, we have to ask how much is too much? “For the first time in history our very survival demands that we begin to consider ethical responsibility, not just in the application of science but in the direction of research and development as well ... This is a question which must be considered by scientists as well as the public at large. ... The higher the level of knowledge and power the greater must be our sense of moral responsibility. ... With the new era in biogenetic science, the gap between moral reasoning and our technological capacities has reached a critical point. ... The issues here are not just moral but ethical”.

He sees both pluses and minuses. He has no objection to cloning as such but all decisions must be based on ‘compassionate motivation.’ He says “When I think about the new ways of manipulating human genetics, I can’t help feeling that there is something profoundly lacking in our appreciation of what it is to cherish humanity”. On the plus side he says: “One of the most striking and heartening effects of our knowledge of the genome is the astounding truth that the differences in the genomes of the different ethnic groups around the world are so negligible as to be insignificant” he has always argued that there is no substance to “the differences, of colour, language, religion, ethnicity etc”.

“We must rise to the ethical challenge [of the genetic revolution] as members of one human family, not as a Buddhist, a Jew, a Christian, a Hindu or a Muslim. ... We need to examine the questions from the perspective of a global ethics that is grounded in the recognition of fundamental human values that transcend religion and science”. Speaking also of the challenges we face from the misuse of technology, he says: “We need to relate to the challenges we face as a single human family, rather than as members of specific nationalities, ethnicities, or religions. In other words a necessary principle is a spirit of oneness of the entire human species. Some might object that this is unrealistic but what other option do we have? He firmly believes it is possible and takes hope from “the fact that despite our living for more than half a century in the nuclear age, we have not yet annihilated ourselves. ... The fate of the human species, perhaps of all life on this planet, is in our hands.”

Summing up

In the course of a short final chapter, the Dalai Lama says: “Throughout this book, I hope I have made the case that one can take science seriously and accept the validity of its empirical findings without subscribing to scientific materialism. I have argued for the need and possibility of a worldview grounded in science, yet one that does not deny the richness of human nature and the validity of modes of knowing other than the scientific. ... Today, in the first decade of the twenty-first century, science and spirituality have the potential to be closer than ever. ... May each of us, as a member of the human family, respond to the moral obligation to make this collaboration possible. This is my heartfelt plea”.

2005 NOBEL PRIZE FOR MEDICINE

Listening recently of the 2006 Nobel Prize awards reminded me that I had omitted to mention at the time the award of the 2005 Nobel Prize for medicine to two West Australians, Gastroenterologist, Barry Marshall and bacteriologist Robin Warren who had won the Prize for their discovery that stomach ulcers are caused by a specific bacterium. The story was told in N51, March 2003 of their titanic struggle for recognition, following an extended battle against the firmly entrenched belief that stomach ulcers are caused by excess stomach acidity. After extensive research, Barry Marshall was so convinced that, much to the chagrin of his wife, he took a large dose of the H Pylori bacterium to give himself an ulcer, and then cured himself with an appropriate antibiotic; all of this being carefully verified.

Saddest of all was the story of a Greek country doctor who, in the 1960's had an ulcer but took an antibiotic for another infection to find that his ulcer was cured as well as the infection. He subsequently treated with antibiotics many patients who came from all over Greece after news of his cures spread by word of mouth. However, the medical establishment would not listen and he was prosecuted for misconduct.

Regards to you all,

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