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Faith and Thought

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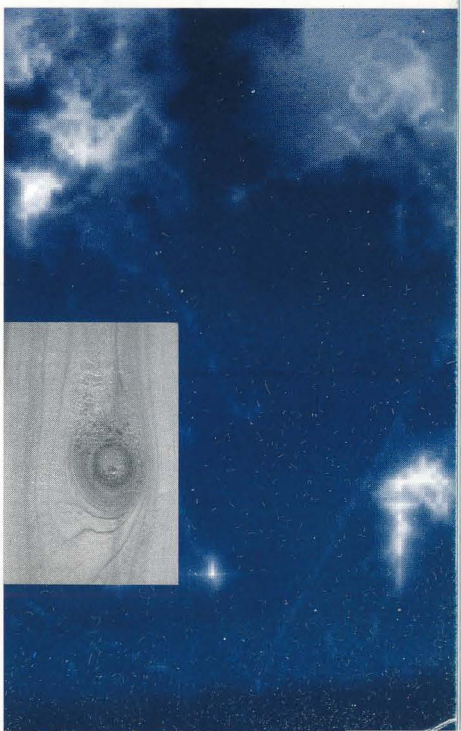

THE VICTORIA INSTITUTE

or Philosophical Society of Great Britain
Founded 1865. Charity Registration No. 285871

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Editorial

To celebrate the new century, and millennium, we are once again offering prizes for essays on the topic of the Human Genome Project. Details of entry for this contest are outlined below. there is also a fuller financial statement than was available at our last AGM.

We have been looking back over past publications of the Institute and become very aware that many of the topics over the years will still be of interest to our readers. Hence, in this issue, we have published the index of authors for the first 43 volumes, and later ones will follow in due course. Our Chairman has written about this.

A recent article in the Scientific and Medical Network has been reproduced here, as it seems of great interest to our readers. Also we include the Editor's summary of a meeting on Bioethics held last September.

Finally, it is hoped to publish in the future some of the writings of Robert Clark, a past Editor, who was often far ahead of his time.

Victoria Institute Millennium Essay Competition

We are able to offer prizes to the value of £500, at the Council's discretion. The closing date for the submissions will be 30th April 2001, and the particular subject for the essay will be: *"Christian Implications of the Human Genome Project".*

The essay should not exceed 7000 words, excluding documentation, and type-written with double spacing, and 2cm margins. It should be accompanied by a sealed envelope with a motto outside, and the author's name within. Each essay should be accompanied by a brief synopsis of 200 words, setting out which parts of the essay are claimed to be original.

The Council of the Victoria Institute will own the copyright of the essay, though will normally permit the author to embody it in a more comprehensive work later. The name of the successful candidate(s) will be anounced as soon as possible after a decision has been reached. In all cases the decision of the Council is final, and it reserves the right to withold the prize if no submission is deemed worthy.

Candidates are assumed to have assented to these rules when an essay is submitted. The Council office is: 41 Marne Avenue, Welling, Kent. DA16 2EY.

Financial Report

The Victoria Institute or Philosophical Society of Great Britain
Charity Registration No. 285871

The report of the 1999 AGM included reference to the provisional Accounts for year ended 31st December 1998. The AGM was held on 7th June 1999. The report appeared in Faith & Thought Bulletin No. 26.

For the benefit of those in attendance who received a copy of the provisional Accounts and for the interest of other members, it is now possible to submit final figures extracted from the Examined Accounts of this charity.

	Provisional	**Final**	**Change**
	£	£	£
Incoming Resources	7,375.13	7,466.31	91.18
Resources Expended	7,361.48	7,208.98	-152.50
Net incoming resources before transfers	13.65	257.33	243.68
Funds:			
General Fund	34,534.71	34,531.13	-3.58
Appeal Fund	32,973.47	33,220.73	247.26
Life Composition Fund	115.49	115.49	
Prize Essay Trust Fund	2,272.43	2,272.43	
Prize Essay Reserves Fund	1,338.11	1,338.11	
	71,234.21	71,477.89	243.68

The transfer from the appeals Fund, approved at an earlier AGM, designed to cover the General Fund deficit for the year, proved to be smaller than first provided.

Following the retirement of the previous year's Examiner and the appointment of Mr. John Watkins of Tonbridge and late receipt of net commission due for the year 1998 the Trustees' Report and Accounts were finally adopted at the Council meeting held on 31st January 2000. These are available from the Secretary.

What a Piece of Work is Man - Humanism, Religion and the New Cosmology

Theodore Roszak, California

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Though they would be the last to admit it, scientists have the same weakness as the rest of us for folklore, by which I mean beliefs that bend the historical truth in order to teach a lesson. Think how often you've come across the story of the Copernican Revolution in astronomy. Before Copernicus, so we're told, the study of the heavens was dominated by human vanity. Popular science writers especially enjoy blaming the geocentric world view on benighted religious authorities who believed human beings were so important that God placed them at the centre of the universe. Only scientists were courageous and clear-eyed enough to overcome such cosmic egocentrism. For example, in a recent book *Full House*, Stephen Jay Gould asserts that "We once thought that we lived on the central body of a limited universe until Copernicus, Galileo and Newton identified the Earth as a tiny satellite to a marginal star." In Gould's eyes, this was the first in a long line of proud scientific achievements, the goal of which was the "successive dethronement of human arrogance from one pillar after another of our cosmic assurance." Similarly, in *The Demon-Haunted World*, the last book he published before his death, Carl Sagan takes up the same cliché. Recounting all the wishfully foolish ideas that science has debunked, he places at the head of the list the notion "that there is such a place as the centre of the universe and that the Earth sits in that exalted spot."

No doubt both Gould and Sagan would be shocked to learn that the story they delight so much in telling is pure folklore. If they could find anyone who ever believed that the centre of the universe was a privileged and exalted location, they would have found the rare exception. But as with all folklore, the truth is not what matters most. More important is the ethical subtext that clings to the tale, in this case the notion that pre-modern astronomy was dominated by pride. Scientists want desperately to believe that they have more to contribute to our lives than a collection of facts and theories about the natural world; they want to offer us moral guidance as well as clear thinking. They believe that, by dislodging the Earth from the centre of the universe, science at one stroke thwarted human self-aggrandisement and called upon mankind to surrender its childish consolations. Like Gould, many scientists would describe themselves as "tough-minded intellectuals", brave souls who can do without the pretensions of cosmic importance that our weak-minded and infantile ancestors needed.

The bravado that attaches to the heliocentric world view is so precious to modern

science that one feels churlish to observe not only that it is wrong, but that it is exactly the reverse of the truth. Where Gould and Sagan find arrogance, they should find meekness if not grovelling abnegation; and where they credit science with a proper humility, they might do better to detect a certain smug presumption on their own part. Their familiar reading of the Copernican Revolution not only distorts religion, but science as well. In brief, it's bad folklore and ought to be discarded.

Even a cursory survey of intellectual history should be enough to remind us that the geocentric cosmos is neither Christian nor Biblical in origin. It was inherited by Western Christendom from Greek astronomers who were the best scientists of their time. The Greeks, of course, did not see the cosmos as "God's universe" nor did they regard centrality as a "privileged position". In the Ptolemaic system, geocentrism was a matter of naïve empiricism. The Earth seemed motionless; the heavenly spheres appeared to move around it. Heliocentrism, on the other hand, seemed contrary to observation. After all, if the Earth went around the Sun, then one should be able to detect parallax - the apparent movement of any sighted star against the distant heavens. Relying on the naked eye, no one could, not even Copernicus.

Since the goal of ancient astronomy was, like that of subatomic physics today, to "save appearances", the Greeks sought to find a simple and consistent way to account for the observable data, even if one could not always explain why things were as they seemed to be. In this respect, the Ptolemaic universe not only appealed to everyday experience, but it was practical. It served as the basis for navigation until modern times.

Quite as important as achieving overall empirical consistency, Ptolemaic astronomy was created in obedience to the principles of Aristotelian physics. In Greek physics, the Earth functioned as the gravitational core of the universe. The centre was the bottom of Ptolemy's cosmos: that is why heavy things fell "down". Objects containing Earth moved toward the place where they "belonged", and indeed they accelerated as they fell because they were jubilantly approaching their proper sphere. This, again, had nothing to do with arrogance. Rather it derived from the qualitative bias of Aristotelian physics. It was assumed that, in a perfect Aristotelian universe, the core of the cosmos would be a solid ball of earthen matter, qualitatively the most ponderous of the four classical elements. Next would come a sphere of pure water, then a sphere of pure air, finally a sphere of pure fire, the latter two elements possessing the buoyant quality of "levity" that one observes in their tendency to lift toward the skies. But ours was clearly not a perfect universe; so in the world we inhabit, the qualities were seen to be intermingled chaotically. Hence, our lives were beset by restless movement, change, decay and death. All this stood in stark contrast to the

superlunary universe, where the fifth element, quintessence, reigned. quintessence, from which the heavenly bodies were fashioned, was special and totally unearthly; it was weightless, imperishable and moved perpetually in perfect circles.

These were the teachings of the most rational and empirical scientific thinking of the ancient world. It was a self-consistent and logical system that had nothing to do with privilege or vanity. Greek cosmology stayed admirably free of moral interpretation for a great deal longer than, say, evolutionary biology did in modern times at the hands of social Darwinists. There were, however, certain ascetic schools of thought in the Greek world that derived a moral lesson from this world-picture. For Pythagorean and Platonic philosophers, heavy matter was at the bottom of the universe metaphorically as well as physically. The body. as a material object, was made from the "lowest" of all substances: hence it was impermanent, perishable, mortal. Moral perfection and epistemological clarity soared high above in a changeless, spiritual realm far above the flesh.

Moral teachings like this were not the basis of ancient science; they were a metaphysical overlay that was quite dispensable. But once Christianity entered the picture, natural philosophy took a back seat to theology. Christians, especially of an Augustinian persuasion, readily seized upon these hierarchical distinctions to support their moral code. They eagerly made much of the fact that the Earth was at the "bottom" of the universe, the most distant point from God. In contrast, heaven and the seven orders of angels were at the "top". In their view the lowly Earth was the only fit habitat for human beings who had "fallen", or bottomed-out both morally and physically. Far from being in privileged position, the human race lived in the cesspool of creation where all the gross, decaying, flawed things in the universe flowed together. That is what it meant to be at the "centre". Centrality could be pressed to even deeper level of degradation. For what, after all, did Christians believe lay at the core of the Earth, deep in its fiery volcanic interior? Hell, filled with all the damned souls that had yielded to the tempations of the flesh. Dante went one step farther. In his *Divine Comedy*, one finds Hell at the centre of the universe, and at the centre of Hell one finds Satan, frozen into the final icy circle of damnation.

This darkly misanthropic view was carried forward into the Reformation. For example, the seventeenth century Christian divine John Wilkens believed that "bodies must bee as farre distant in place as Nobilitie ... The Earth is a more ignoble substance than the other Planets, consisting of a more base and vile matter." Calvin was even more emphatic. "If God had formed us of the stuff of the sun or the stars, or if he had created any other celestial matter out of which man could have been made, then we might have said that our beginning was honourable ... But ... we are all made of mud, and this mud is not just on the

hem of our gown, or on the sole of our boots, or in our shoes. We are full of it, we are nothing but mud and filth both inside and outside." It would take the new science to teach us that even mud, slime and dirt are wondrous in their complexity and fertility.

We are creatures of "vile matter". That is the true, historical meaning of being at the centre of the Ptolemaic universe. Not pride, but guilt. Not privilege, but radical unworthiness. Centrality meant fallenness. For Christian theologians, that cosmolgical connection served to excoriate human presumption. By the time modern science made its appearance, the war upon human vanity was old business. The new development on the scene, with which science allied itself, was Renaissance humanism. Proudly outspoken humanists dared to court ecclesiastical displeasure by reversing this dark calumny upon the earth. Pico della Mirandola, arguing for the "dignity of man", was striking a bravely innovative note in western culture. Shakespeare, caught between two worldviews, could turn either into great poetry. Here he is invoking the dour, old cosmology that taught us our lowly place in nature, far below the magnificence of the starry heavens:

Look how the floor of heaven
Is thick inlaid with patinas of bright gold;
Theres not the smallest orb which thou beholdst
But in his motion like an angel sings,
Still quiring to the young-eyed cherubims.
Such harmony is in immortal souls;
But whilst this muddy vesture of decay
Doth grossly close it in, we cannot hear it.

But then here he is echoing the rising humanistic spirit of his day:

What a piece of work is man, how noble in reason, how infinite in faculty ... In action how like an angel! In apprehension how like a god!

The Bard's Puritan contemporaries would have rushed to agree with the first passage but they would have cried "blasphemy!" at the impertinence of the second.

Ironically, then, scientists like Gould and Sagan, in their effort to lower the status of humanity, are unwittingly allying themsleves with the misanthropy of premodern theology. But if they wish to score points against their hypothetical religious opposition, they would do better to move in exactly the opposite direction. It is humanistic modern science that has shown us the hidden glories within "base and vile matter" and the astonishing capacity of the human mind, even within its "muddy vesture of decay", to understand nature.

We may also have reached the point where we can dispense with another, closely related scientific cliché, namely that the size of the Earth is a measure of its significance. How many times have we heard it said that we live on an infinitesimal planet orbiting around a thrid rate star on the edge of a minor galaxy adrift in the infinite void? The Earth may be a mere speck when it comes to size, but what does that have to do with value? If science has taught us anything, it is that physical stature implies nothing regarding significance. The tiniest things in nature, down to the level of the quarks, reveal remarkable complexities worthy of a lifetime's study.

By unjudgingly taking all things great and small into its purview, the science of our day has discovered an extraordinary fact about the "vast impersonal cosmos". We now know that in an expanding or inflating universe, time, size, temperature and atomic/molecular complexity are intimately related. All these evolve through a unique history. It is only in a universe of a certain age and size that the heavy elements essential to life could ever have come into existence. In a "smaller" universe (meaning in this universe at any time before the most recent several billion years) nucleosynthesis could not yet have taken place, nor would the requisite cooling have occurred. Far from being humiliatingly dwarfed by the size of the cosmos, life on Earth has emerged from a process of stellar evolution that required this much time and this much expansion. At least with respect to the appearance of an inhibited planet, the universe is exactly the "right" size. As John Gribbin and Martin Rees put it, "the conditions in our universe really do seem to be uniquely suitable for life forms like ourselves." Or, to put it more flippantly, but no less accurately: "hydrogen is a light, odourless gas, which, given enough time, turns into people." Meaning that hydrogen could only weave itself into life in a universe just this big, no smaller.

Scientists continue to struggle with the baffling interplay of chance and coincidence in nature, especially when coincidences threaten to add up to the appearance of design. For example, in 1992 the COBE satellite sent back messages that have been called the most important finding in the history of science: "the Holy Grail" of cosmology as Michael Turner of the University of Chicago termed it. Another member of the COBE team, George Smoot, remarked, "If you're religious, it's like seeing God." COBE was launched to make minute measurements of the cosmic background radiation that is the vibrant relic of the Big Bang. Until COBE, that radiation seemed to be absolutely uniform in all directions, which left cosmologers unable to account for the galactic structure of the cosmos. Where did the galaxies come from in a universe that was formlessly smooth in all directions? COBE discovered that there are irregularities in the background radiation, which the the project directors attributed to early cosmic turbulence. From that turbulence came "topological defects" in space; and

from those defects "clumps" formed that might have produced the gravitational clustering that transformed primordial matter into galaxies.

"Lumps", "clumps", "defects", "turbulence". These are the words most often used to summarise the results of COBE: curiously lacklustre terms to describe the "Holy Grail of cosmology". They are also highly misleading when one realises that not just any old "irregularity" will do to build a galaxy. It must be the "right kind" of irregularity. No doubt when the process is fully understood, it will be added to the lengthening list of cosmic coincidences that just happen to make the universe a fit home for living, thinking beings.

Words like "lumps" and "clumps" are left over from the agnostic science of the late nineteenth century; they are casually dismissive phrases that are meant to avoid the implication of intelligent structure. But one can use very different images to describe what COBE uncovered.

Clumps have also been depicted as gravitational "seeds" from which galaxies sprout like flowers of fire. In any case, when the COBE findings were reported to the world, members of the research team were willing to call their discovery the "handwriting of God", as their astonishing discovery required some grander rhetoric than science itself could provide.

When Stuart Kauffmann titles his book *At Home in the Universe*, or when Hubert Reeves tells us we are the "children of this universe", they are doing no more than drawing metaphorically upon what the best cosmological thought of our time tells us about the place of life in the nature of things. We may no longer be at the centre of the universe, but we do inhabit the frontier of unfolding cosmic time. And that makes us, at the very least, participant observers in a universe that would seem to have gone to remarkable pains to make life possible. Reeves, who is among the most moving of the new cosmologers, puts it this way:

> There was this old attitude that ... people do not belong here, that we are an impossible chance ... that we're foreign to this universe. I think that what cosmology shows is that this is not true. We are a product of the evolution of the universe. And we are in the same history, in the same evolution as the stars and the frogs. We are all part of the same universe and all part of the evolution, which has led to different objects, aspects, beings and in this sense we belong to this universe ... we are made out of stardust.

Stardust. What would Calvin say had he lived to know that we are indeed created from "the stuff of the sun or the stars"? Would that brighten his dark vision of humanity?

Nothing has greater religious significance in modern science than the service it

has done in redeeming nature from the inferior and fallen status to which mainstream religions of the past so often condemned ti. The new cosmology and the sciences of complexity have returned us to that humanistically relevant universe with which modern science began its proud history. There may be hard-headed types in the sciences who still feel compelled to debunk and belittle, but they are beginning to look rather like the adversaries Galileo challenged in his famous debate on the new world system. For a variety of reasons ethical, theological, literary and metaphysical Galileo's foes simply could not let go of the familiar old Ptolemaic cosmos. So too in our time, scientists who have taken their stand in life on what Bertrand Russell once called "the firm foundation of unyielding despair" will no doubt do the same, continuing to speak of our living planet as lost in the stars, adrift in the void, a result of mere chance, a cosmic absurdity, etc., etc.

But the universe no longer seems to be on their side.

Prof. Theodore Roszak is the author of several works that explore the relationship of science and religion, among them Where the Wasteland Ends, The Voice of the Earth, The Memoirs of Elizabeth Frankenstein *and most recently* The Gendered Atom: Reflections on the Sexual Psychology of Science. *He teaches at California State University, Hayward.*

Bioethics and the New Biology

A day's discussion meeting was held at Partnership House in London on September 25th 1999 under the above title. The participants were members of Christians in Science (CIS) or the Christian Medical Fellowship (CMF) since the conference was organised jointly by these bodies. The conference secretary was Andrew Fergusson who introduced the day and apologised that the first speaker Roy Clements, was unable to be present. His place had been taken at very short notice by Ernest Lucas. The chairpersons for the morning and afternoon sessions were, respectively, Dr. Janet Goodall, recent President of CMF and until retirement paediatric consultant, and Dr. Caroline Berry, Secretary of CIS and retired consultant in genetics.

No papers had been circulated in advance, by deliberate decision, and what follows is a summary of the main points of the day, and hence a little 'sketchy'. Smaller discussion groups were held in the afternoon on the main themes of the meeting, namely: theology, the human genome, cloning and aging. It was only possible for an individual to attend one of these, and the writer chose the last. This is therefore the only one to be reported upon. The conference participants

came from a wide variety of backgrounds, medical and scientific, and it was gratifying to see a number of general practitioners present.

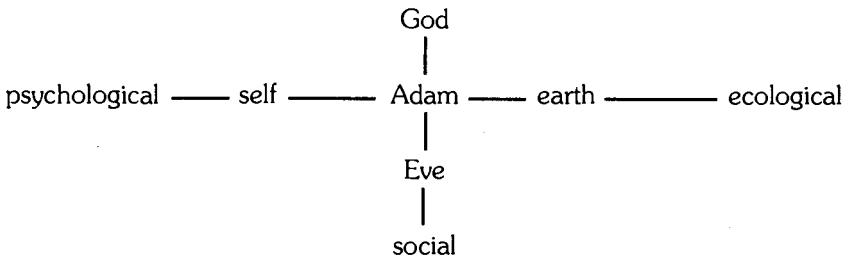
The first speaker, the Rev'd Dr. Ernest Lucas, Tutor in Biblical Studies at Bristol Baptist College, gave an introduction to the overarching theological principles that ought to guide our ethical judgments. We do not live up to what we recognise as the best standards - there is somethng that needs to be put right. Our basic premise is that we are made in the image of God and have the ability to reflect God's character in our personality, but we fall far short of this. The three aspects of personality - body, mind and spirit - are not separable: we are a unity. Being made in God's image, and intended to reflect His glory has implications for the Christian understanding of human responsibility. Thus:

1. Human dignity must always be conserved, enhanced and preserved.
2. There are no easy, slick answers as to the beginning of a human life, nor as to its end, but we are encouraged to take a cautious view of these issues.
3. People must not be manipulated as merely physical entities. Thus, the borderline between 'healing' and 'manipulation' is often blurred. We must be aware of 'grey areas' such as change of personality, the effect of genetic makeup, etc.
4. People should not be viewed as commodities, an attitude which is seen sometimes when issues like abortion, and the reasons for it, are discussed.

Another key matter for the Christian is human responsibility. We are answerable to our creator (Gen. 1:28) which does not give us license to ravage creation. We rule in God's name as His agents. In Gen. 3 Adam and Eve are commanded to conserve the garden - a priestly function, and the naming of the animals does not entitle us to control them, but to be discerning. We must remember our ideal of reflecting God's character when we discuss, for example, bioethics. This is an enormous subject at the present time. God's character would have us work to alleviate suffering, remembering that His love is to do with our overall good, and not merely our needs. We must always reflect God's justice, which may bring us up sharply against decisions when resources are limited. For example, in the U.S.A., when funds are limited, there is little research into members of the black population. Again, how far is medical research so driven by Western money that we forget the more needy parts of the world? We should always reflect God's wisdom and consider the consequences of our actions. Another controversial matter is animal welfare - we need discernment here also.

After human dignity and responsibility, the third key issue for the Christian is human salvation. Many early scientists realised that the renewing of creation was also salvation. By this is meant the restoration of the relationship between

God and creation which was lost at the Fall. We could illustrate these relationships as follows:



All these relationships can be restored by Christ, who re-creates them. We are in the world to fulfil God's purpose. The world is a training ground for God's children by which we may become more Christlike and restore God's image within us.

Dr. Lucas gave a short summary fo the Christian view of bioethics. We must be aware of idols, perfect health for example (remember Paul's thorn in the flesh); or the idol of physical perfection (remember the wounds of Christ). A very prevalent hope today is immortality, maybe another idol (remember death's sting - 1 Cor. 15). Our Christian solutions will include living with limitations, and not necessarily seeking for medical answers. We should rather seek for wholeness.

Alan Fryer, consultant clinical geneticist on Merseyside, gave the second paper, and addressed the topic of predictive genetics, especially with reference to the human genome project (HGP). The aim of the HGP is to sequence all 3 billion DNA base-pairs, which means about 80,000 genes. There is an expectation that this year 2000 will see about 90% of the target achieved. A major result of this will be the hope of a better understanding of disease, and therefore of better targeting of treatment and/or diagnosis. Moreover, gene therapy is a distinct possibility in future treatment. The whole issue is fraught with ethical implications and, cynically, only about 5% of available funds are allocated for discussion of ethical matters. However, it must not be forgotten what has already been achieved. For example, the diagnosis of rare diseases has been a singular success, diseases such as Duchesne muscular dystrophy and cystic fibrosis are good illustrations, but even here the mutation detection rate is only 60 - 90%. Heterogeneity of the gene is another problem, with multiple loci.

It is generally accepted that it is better that people **know** the risks they face rather than remain in ignorance, **providing** that counselling is available: this is vital.

In the future we may see the increased risk to which some are exposed will be diagnosed and predicted. The resultant benefits may be that an alteration in life-

style will reduce the risk. However, even when all the susceptibility genes for a given disorder have been identified, it will still not be possible to predict the development of a disease with certainty. It is necessary to identify the environmental risk factor and understand the nature of the various interactions. Obviously there is more work to be done.

One major concern facing us in the future is the question of commercial testing, so to speak, 'over the counter'. There is a danger of the introduction of testing before proper evaluation, especially in private-sector health care. There could well be inequality of care, and many safeguards need to be put in place. The screening of the population could be attended by adverse effects. For example, those who are suspected of being vulnerable might modify their life-style, whilst others might reverse this tendency, considering themselves to be invulnerable. The whole population should be encouraged to modify a life-style if evidence exists of benefit, even if only for some.

The matter of health- and life-insurance will surely be a large issue in the future. We ought not to ask people to have a test for any ger etic trait before they are offered life-insurance. Committees exist already to look into this matter, and we need co-operation between insurers and scientists, etc. However, many people are concerned about more common problems, such as blood pressure, heart abnormalities etc. How will they be affected by the decisions of life-insurers in the future? And what of old-age and its care? There is a danger of over-emphasis on genetic factors in planning health-care which would lead to too much emphasis on high technology, whereas what is needed is attention to social and environmental needs.

Finally, the speaker warned of a danger in the research into non-disease genetic traits - for example the genetic basis of IQ. Is it wise, or necessary, to know in what way our intelligence, personality or abilities may be determined by our genetic make-up? There has been talk of a gene for criminality, for instance. The danger lies in the possible manipulation or discrimination of groups, and in seeing people from a narrow, mechanistic perspective. We are more than the sum of our genes.

Dr. Donald Bruce, Director of the Church of Scotland Society, Religion and Technology Project, spoke about cloning and its future. The cloned sheep 'Dolly' is now an icon - have we started on the road of unstoppable 'progress'? A book on 'Engineering Genesis' was a sold-out best-seller last year, which indicates the public interest in the subject.

Why clone at all? We have had selective breeding throughout history and by small changes are able to produce a large effect. Dolly was the outcome of this, but other stages along the way have been: embryo-transfer, artifical insemination

etc. The starting point is usually the introduction of 'foreign' DNA into a cell, but it has never been certain where it went subsequently. The transfer of a nucleus changed this uncertainty and eventually a whole animal could be grown from the transferred nucleus, hence Dolly. It is now possible to engineer genetically the DNA transferred, and this raises fears about the human species. Is it right or wrong to consider human cloning? Are we 'playing God'? Even secular society has become concerned about such matters, and feels that we are challenging human dignity. Why do we feel it is wrong? Because of the consequences? Or is it wrong in principle? There are several issues here to be unpacked.

1. It is 'unnatural'. But if it is common in other species, why should we be concerned when human beings are involved? Creation is continually being directed by the human species, and 'playing God' need not necessarily lead to a negative response.
2. Are we altering the diversity of nature? Could we be going backwards in the creative development?
3. One natural aspect of cloning is twinning, but twins result from random, unpredictable processes, which have not been expressed before. In cloning we are involved in an intentional and directed process. We are exercising control.
4. There is a relational aspect involved in cloning. The new individual would have no biological parents. There could well be reasonable grounds for objection - by the individual at least. Psychologically, what would it feel like to be such a parentless individual? As regards the physical risks, we have no idea what the future will hold.

Therpeutic Advantages of Cloning

It could be possible to reprogramme an embryo for benefit, as a form of treatment. A poll carried out as to the ethics of proceeding with research along these lines showed that 54% might be against the idea, with 34% in favour, but the general clinical opinion was to proceed with research with government backing. One question we shall need to answer is: is it right to clone the embryo if we have already decided against cloning a whole person? How do we view an embryo - merely as a means to an end?

In conclusion, various points were suggested to focus thoughts, and to summarise:

1. Cloning is copying, not creating.
2. The issues of relationships (e.g. with the donor etc.) are unknown, but a cloned individual, whenever he or she arises, must be treated as fully human, with all human rights safeguarded.

The final speaker was Dr. Cameron Swift, Professor of Health Care of the Elderly

at King's College Hospital, London. His subject was 'Aging and Its Biological Control'. Two books which he had recently read, and recommended were: *A Matter of Life and Death* by Wyatt, and *Time of Our Lives* by Kirkwood (Weidenfeld and Nicolson, ISBN 0-297-84247-1). This writer has read the latter and endorses Dr. Swift's recommendation.

Aging is a process which varies greatly over the known species. Not all show aging at all (e.g. hydra and many lower species). The process is generally marked by impairment of function, which is progressive from an early age. There is loss of adaptation to stress, and the increased risk of age-associated disability or disease. Age-specific death-rate is used to correlate the chance of dying with present age and this risk obviously increases with age.

Various phenomena are associated with aging, which may be studied. Among these are the interface between aging and disease, cumulative pathology over time, inter-individual variability, inter- and intra-species diffferences and the proportional probability of death. There is a range of objective bio-markers which may be used e.g. renal plasma-flow decreases with age.

Why do we age? Certainly we are subject to wear and tear, but we must not be fatalistic about this. There is a distinction to be drawn between the germ-line cells, which do not age, and the somatic line cells, which do. There is also a mathematical approach, which uses natural selection as an explanation. (The chronological age of an organism is a deficient marker.)

The Disposable Soma Theory

This is a useful explanation for the aging process. Those species which reproduce rapidly (e.g. mice) die early. There is a balance between investment in resources for maintenance, and that for reproduction, which may be driven by natural selection. Again, aging may be due to the accumulation of damage, e.g. in DNA, and several explanations use this as a basis. The process is stochastic rather than programmed, and changes in cells, molecules, immunology and organs have been invoked. It is possible that the menopause in humans is a 'good design' for the survival of the species.

Molecular Basis

Several mechanisms suggest themselves - DNA damage, the effect of free radicals, oxidantion, abherrant proteins and defective mitochondria are some of these. A more recent proposition is that the telomeres at the terminus of the chromosome become shorter with successive cell divisions.

Can We Influence Aging?

Dietary restriction has been used to extend life-span in animals, and this has also been tried in the human species. There is a gender difference between men and women - why do women live longer? In a highly-selected population, investigations

are proceeding as to the genetic influences. Unravelling the human genome may help with this, and perhaps throw light on any possible genetic cause or pre-disposition for aging.

Premature Aging - Dementia

In dementia, and especially in Alzheimer's disease, several markers have been found to correlate with loss of brain function. Chromosome 21 and B-amyloid have some genetic linkage, and in selected patients pre-senillins 1 and 2 are found. All patients seem to show the presence of apolipoprotein E and alleles 2,3 and 4. Epsilon 4 is rare, but ACE is common in centenarians. In a long-term care group, insurance agencies took the view that the presence of apo-E correlated with a 10% increase in the risk of Alzheimer's disease. This was their bench-mark.

Should We, Or Can We, Intervene?

There is no sound, established, genetically based measure as yet, and life-style changes, for example smoking and diet, will certainly slow down aging. Bombardment with anti-oxidants has been suggested as one method, and hormone replacement therapy is effective. On the whole, better care is the most hopeful prospect for the future. Aspirin is now widely used, and blood pressure modifiers are very important. There is no evidence that these interventions become less effective with increased age.

Attitudes

We must beware of'agism' and exploitation, and certainly of prejudice. There is often the view expressed that economically speaking the older person is expendable - 'he's had a fair innings'. This is a 'slippery slope' to euthanasia. It is vital to be positive, and to treat older persons as valuable contributors to the whole of society. The Biblical perspective is that aging is common to all species, and our relationship with God is still there, whatever our age. We must care for the vulnerable and be vigilant against contrary views. it is important to practise **Christlike professionalism** and demonstrate citizenship for the future. We need to restore people and maintain relationships, as previous speakers have stressed. James 1: 19,20 is a useful check on our attitudes.

The discussion group which the writer attended, chaired by Dr. Swift, was a useful sharing of views and experiences, which were many and varied. Several of the group were GP's with thoughts to contribute, and the majority of the group were of an age where the subject was particularly relevant(!). Although we came to no conclusions, one or two members were able to help each other - for example in facing the care of an elderly relative.

In conclusion, this writer was reminded of a statement pinned up in a home for the elderly: "We must look after older people - they are like maps, and without them we can get lost".

The Journal of the Transactions of the Victoria Institute

The *Journal of the Transactions of the Victoria Institute (JTVI)* ran from 1868 until 1957, when it was replaced by Faith and Thought. Over the eighty-nine years during which it was published it contained papers on a variety of subjects which reflect the controversies of the times in which they were written and as such provide valuable source material for the historian of religious thought. In the field of archaeology which I take to include the study of Biblical manuscripts, many of the contributions are still of value. This is particularly true of Assyriological papers of Theophilus Goldridge Pinches, a scholar still held in very high esteem by specialists in the field, and also the contributions of Archibald Henry Sayce, perhaps better known but today less highly regarded than Pinches, but of interest in a different way since he had wide ranging interests, less carefully pursued, and was much involved in the disputes about the higher criticism of the Old Testament. Other useful contributions are the textual papers, particularly relating to New Testament studies, by Sir Frederick Kenyon and F.F. Bruce, both distinguished former Presidents of the Institute.

It is for this reason that in the British Museum the Department of Western Asiatic antiquities, one of the two successor Departments since 1955 of the former Department of Egyptian and Assyrian Antiquities of which Pinches had been a member, was very pleased as recently as 1997 to acquire a run of the *JTVI* from volumes 29 (1895-96) to 66 (1934). The Department would like to complete the set, that is to say, to acquire volumes 1-28 and 67-89.

This instance has suggested to the Council that it would be useful in general to know whether there are members of the Institute who hold runs of the JTVI, for which they might consider finding a new home. There are other libraries which are seeking to complete their sets, and there may be others who would like to acquire complete sets. Dr. Robins will be arranging in forthcoming issues of the *Bulletin*, from time to time, to republish indices of early articles, and it will be useful to readers to know were they can get access to the JTVI.

The Evangelical Library at 78a Chiltern Street (open 10.00 am - 5.00 pm, Monday -Friday, and Saturdays except Bank Holiday weekends), near Baker Street Underground station, has a number of volumes: 11-12 (1877/78), 20 (1886/87), 27 (1893/94), 32-41 (1898-1909), 43-89 (1911-57), that is up to and including 89, the last *JTVI* before it was renamed *Faith and Thought* with volume 90. The Evangelical Library is therefore lacking volumes 1-11, 13-19, 21-26, 28-31 and 42.

In the light of this, if any member of the Institute is in the position of being ready

to consider selling or presenting a run of the journal, we would be very glad to co-ordinate information. The easiest thing would probably be for contact to be made with Mr. Weller at the Administration Address on the back of the *Bulletin*.

Terence C. Mitchell

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Book Reviews

R.J. McKelvey
The Millennium and the Book of Revelation.
The Lutterworth Press, 1999. 112pp. pb. ISBN 0-7188-2998-0. £9.99.

Reviewed by Simon Woodman.

At a time when the word "millennium" has once more entered into popular usage, R.J. McElvey provides his readers with contemporary interpretation of the biblical image of the millennium from Revelation 20.

His starting point is an overview of the history of millennialism, and he provides a fascinating and accessible romp through the minds of many who have sought to make this controversial text relevant for their own contexts. From the Anabaptists and the Fifth Monarchists of the latter Middle Ages, through the early days of the Jehovah's Witnesses and the Seventh Day Adventists, to the apocalyptic vision of Hal Lindsay and various millennial cults of the twentieth century, McKelvey draws out the common thread of millennial expectation. Many readers will be able to identify their own contact with millennialism amongst the different groups examined, and will benefit from seeing those beliefs set against other interpretations. The missionary endeavour of the protestant churches is also weighed against its early millennial impetus, and conclusions are drawn about the eschatological dimension of contemporary mission.

The first section of the book serves to demonstrate the wide variety of interpretations which result when Revelation is interpreted literally. Against this, McKelvey offers his own reading of the book of Revelation, focussed specifically on the image of the millennium, which he sees as being foundational to an understanding of the whole book. Rather than attempting a full-scale exegesis, McKelvey instead homes in on the dominant images and themes which John employs in describing his vision. This technique is particularly effective, because it allows for a thorough examination of the broad sweep of Revelation, without becoming bogged down in the minutiae of verse-by-verse discussion - something which has led to many an unbalanced interpretation.

McKelvey's picture of Revelation is of a book with a strong critique of the beast and all its forms as it appears in corrupt power structures. The parallels he draws between the Roman Empire of John's time, and the current global economy and consumer lifestyles of our own culture, make for a thought provoking discussion. Against this he sets the constant call for the church to 'overcome'. For McKelvey, as for John, the cost of this discipleship is ultimate. Christ is seen as the proto-typical martyr, dying in order to gain victory. Those who are called to follow him in taking a stand against the beast will also face the possibility that overcoming may mean martyrdom.

This is the context in which McKelvey interprets the millennium. He sees it as a metaphorical description of the vindication of the martyrs - a theme which he finds throughout the book of Revelation. He asserts that the millennium is unrelated to the notion of the Second Coming, but instead functions as part of an overarching theme in the book that overcoming will mean facing death. The millennium thus provides assurance that such a death is victory rather than defeat.

This short and readable book will be of value to anyone who has an interest in contemporary interpretations of Revelation. It is accessible and scholarly, and raises interesting questions not simply concerning the interpretation of the book, but also of its application in a modern context.

Simon Woodman is a Baptist minister from Bristol, and is currently completing a Ph.D. in Revelation.

Mark Kidger
The Star of Bethlehem: an astronomer's View
Princeton University Press, 1999. 306 pp.hb. ISBN 0-691-05823-7. £14.50.

Reviewed by Ernest Lucas.

Most Christmases there is a report in the media of yet another theory about the nature of the Star of Bethlehem, assuming that it was some kind of natural, if unusual, astronomical phenomenon. In fact there are only a limited number of possibilities, so that any 'new' theory is really only a reworking of an old one.

Mark Kidger is a professional astronomer, working in an observatory in Tenerife. On the basis of the biblical and historical evidence he concludes, as many others have done, that Jesus was probably born in March/April, 5 B.C. He then surveys the various candidates that have been put forward to explain the Star of Bethlehem: comets, meteors, novae, planetary conjunctions, occultations. In doing so he explains each of these phenomena clearly so that readers without any astronomical knowledge will be able to understand their nature. For this reason alone, the book will be an interesting read for many people. Another interesting aspect of

the book is his discussion of the ancient Chinese and Korean astronomical records that have become well known only in the last two decades or so. Kidger's conclusion is that the Star was a nova which gained its significance for the Magi by the fact that it was preceded by three other astronomical 'signs'.

In my view Kidger's argument suffers from three weaknesses (assuming one accepts that the Star was a natural phenomenon and not a purely miraculous one). The first is that his treatment of the biblical material is rather naive. For example he assumes (like many Christians, it must be admitted) that passages like Isa. 9 & 11 were understood in a fully 'messianic' sense right from their first utterance. As a result he surveys unusual astronomical phenomena throughout the first millennium B.C. However, these prophetic oracles have the form of ancient Near-Eastern birth or coronation oracles and use the kind of hyperbolic language that these normally contained. *El gibbor* (Isa. 9:6) can quite legitimately be translated as 'outstanding warrior' rather than 'mighty God'. Initially they seem to have been understood as expressing the hope for an ideal, but perfectly human, king. It was only in inter-testament times that these, and other Old Testament passages, came to be understood in a genuinely 'messianic' sense - which their hyperbolic language made possible. So, Kidger could have restricted his survey to 500 B.C. to 1 B.C.

Secondly, he assumes that the star must have been an optically striking phenomenon, which leads him to rule out a number of possibilities because they were not all that eye-catching. However, the implication of the story in Matthew is that the Star was not at all striking. Herod and his advisors seem not to have noticed it. Maybe what was striking about it was not its optical appearance, but the astrological significance it had for the Magi. Since at that period the Jews did not delve into astrology, Herod's advisors would not have been aware of this.

This leads to the greatest weakness in his argument. He assumes that in the astrology of the time Judea was linked with the zodiacal sign of Pisces. This linkage, however, can only be traced back to the Middle Ages. Evidence from much closer to the time of Jesus , Ptolemy's *Tetrabiblios* (mid-second century A.D.) links Judea with Aries. If the thought that God used the astrological interests of pagan Magi to alert them to the birth of Jesus is an uncomfortable one, then one needs to meditate on the grace of God who 'desires all men to be saved and to come to the knowledge of the truth' (1 Tim. 2:4) and so is willing to speak to people in ways that they will understand.

Despite these weaknesses, the book is a good read, and an interesting introduction to the various theories about the Star of Bethlehem and the astronomy related to them.

Ernest Lucas is Vice-Principal of Bristol Bapist College and an amateur astronomer.

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