

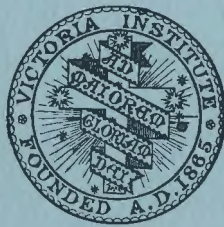
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## ABOUT THIS JOURNAL

**FAITH AND THOUGHT**, the continuation of the **JOURNAL OF THE TRANSACTIONS OF THE VICTORIA INSTITUTE OR PHILOSOPHICAL SOCIETY OF GREAT BRITAIN**, has been published regularly since the formation of the Society in 1865. The title was changed in 1958 (Vol. 90). **FAITH AND THOUGHT** is now published three times a year, price per issue £1.50 (post free) and is available from the Society's Address, 130 Wood Street, Cheapside, London, EC2V 6DN. The price of recent back issues (when available) up to the end of vol. 100 is 80p (post free).

**FAITH AND THOUGHT** is issued free to **FELLOWS, MEMBERS AND ASSOCIATES** of the Victoria Institute. Applications for membership should be accompanied by a remittance which will be returned in the event of non-election. (Subscriptions are, **FELLOWS** £3.15; **MEMBERS** £2.10; **ASSOCIATES** aged 25 or under together with certain other categories £1.05; Library Subscribers £4.00. **FELLOWS** must be Christians and must be recommended by a **FELLOW**). Subscriptions which may be paid by covenant are accepted by Inland Revenue Authorities as an allowable expense against income tax for ministers of religion, teachers of RI, etc. For further details, covenant forms, etc, apply to the Society. The Constitution and Aims of the Society were last published in **FAITH AND THOUGHT**, vol. 98, No. 1.

### EDITORIAL ADDRESS

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# FAITH AND THOUGHT

*A Journal devoted to the study of the inter-relation of the  
Christian Revelation and modern research.*

1974

VOLUME 101

NUMBER 2

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## ANNUAL GENERAL MEETING

Held in the Heringham Hall, Bedford College, Regent's Park,  
London, N.W.1 on Saturday, 18th May, 1974.

The President, Professor R. L. F. Boyd, C.B.E., F.I.E.E.,  
F.R.S., in the chair.

Following the adoption of the Minutes of the previous Annual  
General Meeting, the Chairman moved that resolutions be passed,  
carrying into effect the proposals listed in the Notice of Meeting  
and accordingly, by unanimous vote:

Lord Denning the Master of the Rolls, Professor F. F. Bruce  
and Professor D. J. Wiseman were elected Vice-Presidents.

The retiring Officers and Members of the Council were  
re-elected.

The annual accounts and report presented by the Secretary  
were duly adopted.

Messrs. Metcalfe Blake and Co. having indicated their  
willingness to continue to serve as auditors to the Society, were  
re-elected.

The meeting was declared closed and was followed by a symposium on **THE CHRISTIAN AND MODERN CULTURE**. Mr. PETER E. COUSINS, M.A., B.D. (Principal Lecturer in Religious Studies, Gipsy Hill College of Education) took the Chair. Miss D. R. ETCHELLS (Vice-Principal, Trevelyan College, University of Durham) spoke on "LITERATURE"; Prof. H. R. ROOKMAAKER (Professor of History, Free University, Amsterdam) on "IS IT NECESSARY TO BE MODERN TO BE CONTEMPORARY?"; Mr. ROWLAND COTTERILL, M.A., F.R.C.O. (Lecturer in Music, Warwick University) on "MODERN MUSIC" and Mr. ROGER POOLEY, M.A. (Lecturer in English, University of Keele) on "BEYOND THE TWO CULTURES".

It is hoped to publish these Lectures in due course.

## MEMBERSHIP

The following new members were declared elected:-

### FELLOWS

S. J. W. Evans, London, E.1 ; C. E. T. Flanagan, B.A., Dip.Ed., Ballymena ; Janet Rees, Warlingham ; A. W. Fowler, M.B., B.S., F.R.C.S., Bridgend ; Rev. M. J. Townsend, B.A., B.D., Barnstaple ; Mrs. M. Boyd, Dorking ; Dr. E. C. Lucas, M.A., Ph.D., Oxford ; R. L. Johnson-Taylor, Birmingham ; C. R. Gray, A.C.A., C.M.A., Auckland, N.Z. ; Dr. N. J. Cutland, M.A., Ph.D., Cottingham ; Dr. M. J. Collis, B.Sc., Ph.D., Kingston-upon-Thames ; Dr. G. D. Cagle, Ohio, U.S.A. ; J. Rutherford, B.Sc. (Eng), M.I.C.E., Harpenden ; Prof. J. N. Hawthorne, Nottingham ; Dr. P. G. Farrell, B.Sc., Ph.D., Canterbury ; R. J. H. Banks, B.Sc. (Lon), F.R.I.C., Westcliff-on-Sea ; P. S. F. Rowden, Chelmsford ; G. T. Walker, L.R.I.C., Hailsham ; Rev. J. F. H. Stewart, M.D., F.R.C.S., Perth, Canada ; Dr. A. B. Calder, Ph.D., F.I.S., F.R.I.C., Newcastle-upon-Tyne ; Dr. Morag Ellison, B.Sc., Ph.D., London, N.5.

### MEMBERS

T. W. Tyhurst, Maidstone ; W. R. Mohon, Teeside ; Dr. F. Fernando, M.B.B.S., Rep. of Sri Lanka ; S. Holloway, Bristol ;

Rev. R. C. Lucas, London, E.C.3 ; A. Radcliffe-Smith, Hounslow ; R. T. Forster, M.A. (Cantab), London, S.E.3 ; T. W. Jordan, Wellington, N.Z. ; D. R. Shell, M.A., B.Sc. (Econ), Bristol ; J. R. Anderson, B.Sc., Ph.D., Canberra, Australia ; S. Chun, Hawaii, U.S.A. ; R. D. Doidge, Peterborough ; J. Horowitz, Utah, U.S.A. ; Rev. R. H. Peskett, Singapore ; Dr. T. R. Griffiths, B.Sc., A.R.I.C., Ph.D., Leeds ; B. F. E. Rice, Barnet ; K. J. Fulton, Woodford Green ; J. A. Lyttle, B.Sc., M.B.B.S., F.R.C.S., London, E.3 ; Pauline R. Fulton, Woodford Green ; B. Wigley, B.A., B.D., Retford ; Mrs. S. W. Habermann, B.D., L.R.A.M., Cambridge ; C. C. Parker, A.R.I.C., Old Alresford ; S. Ibbett, Biddenham ; P. J. Hocking, B.Sc., Cardiff ; H. C. M. Smith, Twyford ; M. R. Rablen, Leicester ; P. M. Chettle, B.Sc. (Eng), A.C.G.I., Southampton ; P. D. Holdsworth, London, S.W.19 ; D. R. Holt, B.A. (Oxon), Chatham ; N. J. Mason, Ashford, Middx. ; Dr. D. B. Prowse, Victoria, Australia ; Dr. D. M. Nessett, Ph.D., Canberra, Australia.

#### ASSOCIATE MEMBERS

D. Whitehead, B.A., Harpenden ; M. H. Kean, London, E.1 ; G. K. Fletcher, Ashford, Kent ; M. I. Watson, Blackburn ; Mrs. Wade-Stubbs, Ferndown ; D. P. Clark, B.A., Bristol ; G. Harman, Ashford, Middx. ; D. M. Holohan, Bradford.

#### LIBRARY ASSOCIATE

St. Mark's Collegiate Library, Institute of Theology, Canberra, Australia.

#### MALCOLM GUTHRIE

The death on the 22nd November, 1972 at the age of 69 of Professor Malcolm Guthrie, a Vice-President of the Victoria Institute and Professor Emeritus of Bantu Languages in the University of London was mentioned in our last issue. The following account of his life is based (with his kind permission) on Professor D. W. Arnett's Obituary in the *Bulletin of the School of Oriental and African Studies* (1973, 36 (3), 629 - 637).

Guthrie was born on the 10th February, 1903 : his early life and school years were spent at Ipswich after which he took a

B.Sc. (Eng.) in metallurgy at Imperial College, became a minister (to 1932), married (in 1931) and went to the Belgian Congo as a missionary with the Baptist Missionary Society. There he made himself proficient in native languages (especially Lingala and Mfinu) wrote a grammar and dictionary of Lingala, translated the NT and hymns, and even composed native hymns himself.

In 1940, owing to the serious illness of Mrs. Guthrie, he returned to England and, after applying at the SOAS for further training, was offered a lectureship in Bantu languages. From around 1950 to 1970 he was Head of the African Studies Department and Professor of Bantu Languages at the SOAS. In later travels in Africa he made comparative studies of nearly 300 languages, studying two further languages in depth.

The work he accomplished was immense. His magnum opus *Comparative Bantu* (1967 – 71) in four volumes covers 900 double-column pages. He compared the Bantu languages, classifying the sound correspondences derived from series of related words in different languages. These series, represented on cards, numbered over 2,300 with more than 21,000 items drawn from nearly 300 languages and dialects. In his later years he speculated on Bantu origins, his views arousing considerable interest and some controversy.

Despite foreign travel, direction of the SOAS, membership of many committees and extensive writing, "he was able to continue his active participation in Christian work — as a lay pastor and deacon in his local churches at Amersham and Kingston, on the Council of Spurgeon's College for over 20 years and on committees of the British & Foreign Bible Society and in preaching appointments which continued until shortly before his death. Those who knew him best were well aware of the deep personal Christian faith which sustained him throughout his life and which he expressed in a series of talks given in 1955, later published under the title *Learning to Live* (Marshall, Morgan and Scott, 1955)."

### INCREASES IN ANNUAL SUBSCRIPTIONS

The Council has regretfully decided that the membership subscriptions to the Institute will have to be increased on the

1st January, 1975. This will be the twenty-fifth anniversary of the last increase in subscriptions (except Library subscriptions which were increased on the 1st October, 1973): the Institute must therefore be almost unique amongst learned societies in holding its subscriptions constant for a quarter of a century.

The Council has no miraculous influence on printers, and can claim no credit for this achievement, which results largely from very generous donations to the Institute from certain charitable trust funds. I am sure all members would join with the Council in expressing sincere gratitude to those responsible for such donations.

It has been the Council's hope that increasing membership of the Society would offset increasing expenses but, although there has recently been an encouraging net increase in membership, it is now recognized that, with the current rate of inflation of printing costs, such a hope is unrealistic. Furthermore, there are indications that the Institute cannot continue to rely upon regular charitable donations as hitherto.

The Council views it as a matter of principle that the Institute should stand on its own feet, and that membership subscriptions should be fixed at a level that permits it to meet all current expenses. Should donations be received (and the Officers will continue to seek such donations) these will then be a bonus which can be used to extend the Institute's work.

It has accordingly been deemed necessary to increase the annual subscriptions to £7·00 for Fellows and £5·00 for Members. This more-than-doubling of subscription rates may appear excessive, but it should be pointed out that, at present costs, the total regular income of the Institute roughly pays for the printing and postage of only one of the three issues per year of the journal. The new rates merely bring our Society into line with other similar organizations and, if the increase seems large, it is because, for many years, we have been under-subscribing towards our expenses.

The Council would regret it very much if the increased

subscriptions led to a decrease in the number of people who could afford the benefit of membership of the Institute. It has therefore decided that the annual subscriptions for Associates should be raised only to £1.50, and that this category should be widened to include (a) *bona fide* full-time students below the age of 25 years, (b) full-time or retired Clergy or other Christian workers, who, because of a small income, cannot afford to pay the above subscriptions, and (c) those who cannot otherwise afford to *remain* in Membership.

It has further been resolved that Members who have joined the Institute since 1st January, 1973 and prior to the announcement of these increases should not be asked to pay the increased subscriptions until 1st January, 1976.

The Council trusts that members of the Institute will accept the increases as reasonable, and will continue their Membership, realizing that they are not just paying for services which they themselves receive but are also supporting a work of potential benefit to the world-wide Church.

GORDON E. BARNES,

Chairman of the Council.

## VICTORIA INSTITUTE MEETING

2nd February, 1974

The programme for the Meeting of the Institute held in Bedford College, London, on Saturday, 2nd February, 1974, was a varied one and attracted a good attendance. Many Fellows and Members of the Institute were present as were a larger number of others who had not been to a Meeting of the VI before. Modesty forbade the Chairman to point out that the largest number of student visitors were from a certain College of Education north of London.

Four papers were delivered throughout the morning and afternoon sessions and some lively discussion ensued from a number of them. The proceedings were opened by Dr. Andrew Miller, at present working in the field of Molecular Biophysics



in the University of Oxford. His address, entitled 'The Origin of Life' reminded many present of papers delivered to the Institute in the past, notably that by Dr. R. J. C. Harris in 1953. Dr. Miller's address evoked some interesting and provocative discussion and the Editor hopes to be able to record this, together with Dr. Miller's paper in a forthcoming issue of the *Journal*.

Mr. Martyn Baker, Lecturer in Psychology at the Middlesex Hospital Medical School, discussed the two ways of assessing conversion and gave an interesting critique of Dr. William Sargant's approach. This paper was the first of its kind specifically addressed to this subject since the question concerning the psychology of conversion was raised some years ago by the late Dr. Ernest White.

Mr. T. C. Mitchell, Assistant Keeper in the Department of Western Asiatic Antiquities at the British Museum, opened the afternoon session with a survey of more recent and notable advances in archæological discovery and analysis in the Near East. Particular note was taken of the Assyrian and Palestinian finds, among them the 'stables' of Solomon at Megiddo and the Kenyon excavations at Jerusalem. The final paper was delivered by Professor F. F. Bruce on 'New Light on the Canon of the New Testament'. It was gratifying to note, the Chairman remarked, that this was the eighteenth major contribution which Professor Bruce had made over the years to the proceedings of the Institute; the first was a paper on '*The Sources of the Gospels*' delivered in 1943. The Canon of Scripture is a subject upon which christian people are often unwilling to speak, perhaps not least because that Canon has been accepted as closed for something like sixteen hundred years. But with more insights into the processes, doctrinal and historical, which led up to the fixation of the New Testament books, the subject, as Professor Bruce indicated, is by no means one that is dead.

**D. J. ELLIS**

## EDITORIAL

*Professor Anderson.* We extend our congratulations to Professor J. N. D. Anderson on becoming a QC and honorary DD, St. Andrews.

*Accounts.* Owing to industrial troubles at the beginning of the year the audited accounts of the **VICTORIA INSTITUTE** show the payment of only two instead of three printer's accounts and therefore give a misleading picture of the Society's finances. It has been decided, therefore, not to publish them on this occasion. A copy is available on loan to any Fellow who makes application to the Assistant Secretary.

*Payment.* Bankers order forms to vary or initiate annual payment of subscriptions and application forms to transfer to an alternative roll will be supplied on application to the Institute at 130 Wood Street, London, EC2V 6DN.

*Binding.* Arrangements have been made for any members who so wish to have their copies of **FAITH AND THOUGHT** bound. (Hard case in blue unless another colour is ordered, gold lettering.) The back issues should be sent to the Editor together with a remittance for £2·50 (which includes return postage), made payable to the Victoria Institute. Two volumes (6 issues) will be bound together in one for the price of one volume, or the volumes will be bound singly, as desired. Allow 3–4 weeks for return. The covers of the magazine will be bound at the back of the volume.

*Erratum.* On p. 12, vol. **101**, Dr. D. G. Wigmore-Beddoes is described as the Minister of the First Presbyterian Church, Belfast. This should read "... First Presbyterian Church (Non-subscribing) Belfast".

## IN THE NEWS

**Intuition — Menial Jobs and Analogies — Nuclear Dangers — The Origin of Life — Ordered Universe — The Subjective Side of Science — Mammoths — ‘In the News’ Updated — Short Notes.**

### INTUITION

Eric Laithwaite, well known to the public for his work on linear motors (hovertrains, etc.), has recently described an experience he had at the Royal Institution when he was giving the annual series of Christmas lectures. He had arranged so that when a switch was turned on it would occasionally (about 3% of occasions) but unpredictably cause a ball to leap into the air. He was prepared to turn on the current a hundred times if necessary and he began to do so . . . once, twice . . . the ball did not jump. Before doing so a third time his inner thoughts were “invaded” by a man’s voice which said quite clearly “You know it goes next time”. In astonishment he replied mentally “Does it?” “Of course” said the Voice, “Why don’t you tell the children?” From that moment on he regarded the event as in the past, he held up the ball with delight in front of the youthful audience and said “But this time . . .” and held out his hand in readiness to catch the ball. It leapt up as expected and he caught it with ease. “Now I know how St. Paul heard a Voice on the road to Damascus . . . The nature of the message — the prediction of a highly uncertain event, is enough to change one’s whole philosophy of life” he concludes. (*New Scientist*, 20 Dec. 1973).

### MENIAL JOBS AND ANALOGIES

Professor R. V. Jones’s writings are always of absorbing interest, not least his recent *Command and Complementarity* (4th Bernal Lecture, Birkbeck College, 1973). One section of this slender pamphlet might be a comment on 1 Corinthians 12: 14f (the body has many members, all are important though they may not seem

so). Though early work on computer science was British we have largely lost its commercial application to USA. The reason, says RVJ, is that the British concentrated on the clever bits and our largest computers became jammed by paper tape in the punches. Such menial parts of the machines "were not thought the merit of high grade designers" with the result that British machines did not sell. Many jobs, RVJ reminds us, do not attract attention: no praise is given and no notice is taken of those who do them 'till something goes wrong. Many of his illustrations are taken from the military sphere.

In the same Lecture RVJ discusses *analogy*. Science is peculiarly liable to make its influence felt on society in the analogical way. When temperatures have become equal no work can be obtained from heat — which makes you wonder what will happen when men become equal. Van Holst removed the front part of the brain of a minnow. At once it lost its timidity with the result that the other minnows followed it for food. Which makes you wonder if mental defectives are prone to become dictators. The doctrine of complementarity in physics raises many thoughts, e.g. discipline and initiative in a fighting force may be viewed as complementary.

Not long ago the Institute of Physics published *A Random Walk in Science* (An Anthology compiled by R. L. Wheeler, 1973, £4). This also contains a section by RVJ ("The Theory of Practical Joking" pp. 8–14). *Inter alia* he discusses technical spoof in war. In WW2 thin metal strips ('window') were dropped by aircraft to confuse echoes in enemy radar. They resonated only to the particular frequency used by the Germans who learned to distinguish real aircraft from 'window' by various methods, e.g. by using two radar stations working on widely separate frequencies and by detecting the absence of the Doppler shift produced by moving objects . . . To make a complete spoof aeroplane the metal strips would need to be of all conceivable lengths and they would have to be dragged through the air at the speed of aircraft . . . and so on. "If we allow the enemy controller to use sound and infrared detectors and other aids, we find that the only decoy which can mislead him into thinking

that there is a British bomber flying through his defences is another British bomber flying through his defences.”

The philosophical and theological importance of this is obvious enough. In discussion we must need use analogies: A is like B, we say (God is like a slave owner or even like a thief, as in the Gospels), therefore so and so. But an opponent can *always* object that somewhere along the line the analogy breaks down (God does not approve of slavery and can hardly be like a slave-owner, nor is He dishonest like a thief) . . . RVJ's point is that no analogy is or can ever be perfect: the perfect analogy would be another of the same thing (a second God, perhaps !).

### NUCLEAR DANGERS

It is now becoming increasingly evident that the dangers inherent in an atomic energy programme for energy have not been exaggerated.

A disaster at a power station is a serious if (as we may hope) remote possibility but more insidious by far is the risk of theft of fissile materials by unscrupulous persons and this is going to prove difficult if not impossible to prevent (Conference on *Preventing Nuclear Theft*, Kansas, 1971 ; published NY, 1972). The hope that amateurs would find it difficult to fabricate a crude bomb is unfortunately groundless — according to the Ford Foundation's *Energy Policy Project* (*Nature*, 248, 725). Inspection of three USA stores of fissionable material revealed appalling laxity: all three might have been burgled easily (*Nature*, 246, 241). Employees of state factories where plutonium is separated or uranium enriched might be tempted by bribery to remove small quantities periodically and detection of the loss would prove very difficult if not impossible. Adequate safeguards against the possibility of theft during transit cannot be guaranteed, the highjacking of lorries being a common enough event. Transit will be increasingly necessary especially if high temperature 'Dragon' breeding reactors come into use.

As far back as 1966 it was reported that over 100 kilos of enriched uranium had disappeared: it has never been traced. Several consignments have also gone astray: one intended for Los Angeles vanished and later turned up in Mexico (*New Scientist*, 23 Nov. 1972, p. 450).

By 2000 AD it is reckoned that USA alone will have enough fissile material to make 250,000 bombs. Blackmailing threats to explode a single bomb (requiring 6 – 10 kg. of plutonium or its oxide or 15 kg. of 90% enriched uranium), say in the sensitive area of the Middle East, might have devastating repercussions.

Even without nuclear bombs the dispersal of small quantities (grams) of plutonium in the air by means of conventional explosives would prove more than frightening: it is claimed to be the most poisonous substance known.

As evil men get worse and worse it seems inevitable that statesmen sooner or later will find themselves faced with problems far more serious than any yet encountered. The only ultimate answer will be a world wide police state in which everyone spies on his neighbour: how else can society protect itself against the back garden bomb maker? After a few disasters men will be willing enough to forego their liberty and to give absolute power to a world ruler who successfully rids the world of political blackmailers. The prophetic world state, so often ridiculed in the past, in which even buying and selling are rigorously controlled, makes excellent sense today.

### **THE ORIGIN OF LIFE**

The Haldane-Oparin theory of the origin of life is now being subjected to some hard knocks. Under reducing conditions (methane, hydrogen, ammonia, carbon monoxide and dioxide) and with a supply of energy (electric discharge, ultra-violet light, radioactive bombardment) traces of many biologically interesting molecules are formed (amino acids, sugars, pyrimidines, purines and some polymers but excluding nucleic acids) together with much other organic matter which is not so interesting.

The theory supposes (1) that the Earth's early atmosphere was reducing; (2) that the earth was cold, say below 100°C; (3) that organic compounds were formed over a very long period of time and collected in the primitive ocean converting this to a 'soup'; (4) that in this 'soup' by chance (or by the operation of some law according to Oparin's somewhat obscure suggestion) living matter arose and after that evolution by natural selection took over.

J. Brooks and G. Shaw in their *Origin and Development of Living Systems* (Academic Press, 1973, £6) provide a fine objective study of the problem. Very briefly what they say is this.

Contrary to the earlier slow accretion theory of the Earth's formation, evidence is now accumulating that the Earth's core must have formed very rapidly and that it was at first very hot. The inert gases were lost almost completely (neon is only  $10^{-10}$  as abundant on Earth as in the cosmos) and light gases (hydrogen, methane) which are not retained by molten metal or rock must also have been lost. At first there was no atmosphere at all, but later, as a result of volcanic activity, an atmosphere which was never reducing was slowly formed. It consisted mainly of water vapour and carbon dioxide while the rocks below remained very hot, about 600°C. Though there might have been some local pockets in which the conditions were reducing, the general picture of the early Earth which emerges is not one in which organic compounds could have been formed in any quantity. (It has previously been pointed out that the supposed strong energy sources would not only cause synthesis but also decomposition. At some state optical activity must have become important but the energy sources would, as Brooks and Shaw point out, prove ideal conditions for racemisation, i.e. destruction of such activity.)

Not only is the suggestion that the Earth became covered by a vast ocean of organic compounds dissolved in the sea intrinsically unlikely, but it can be tested by direct observation. Outcrops of early rocks, believed representative of the basement complex over the entire Earth, bring us back to around 4·0 aeons (1 aeon =  $10^9$  years ago), not long relatively speaking after the

Earth's formation at 4·6 aeons. Examination shows that they were once molten and they contain no signs of micro fossils. Suppose that after this an oceanic 'soup' of nitrogen-containing molecules had been formed over a long period, what should we expect to find today?

Immediately above the earliest rocks we should expect to find sedimentary rocks with a high nitrogen content. Many of the molecules formed in the pristine sea (some of them very stable and all easily absorbed on rocks and clays) might remain unchanged to this day but later, if subjected to high pressure and temperature, there would have formed an abundance of highly nitrogenous graphitic or coke-like material. But "no such materials have been found anywhere on earth" (p. 359). The old precambrian sediments contain only miniscule quantities of amino-acids and even this is doubtful. In short there "never was a primitive organic soup on this planet".

It is basic to the usual theory that the earliest forms of life were cells without nuclei (*prokaryotes*). Now the much more advanced cells with nuclei (*eukaryotes*) contain the very stable chemical substance *sporopollenin*, believed to be connected with the sexual process, in their outer membranes; those without nuclei do not. Of course this rule *might* not have applied in the earliest times but the fact is that the organic matter found in the earliest 'fossil' bearing rocks (3·7 aeons) contains organic matter of the sporopollenin type and degradation products, and is very low in nitrogen. So the presumption is that the earliest form of life on this planet was eukaryotic — a state of affairs which seems quite inconceivable if life arose from non-living matter by an 'evolutionary' process.

No doubt this new approach will be argued fast and furiously: meanwhile it would be foolish to give much credence to the Haldane-Oparin theory or its variants. At best such theories never seemed very plausible especially as evidence of early reducing conditions on Earth has always been unsatisfactory. However it is disconcerting, as Brooks and Shaw remark, that so many scientists have simply accepted the theory without asking



awkward questions ; and if this be so of scientists, it is equally so of theologians. (Brooks and Shaw believe that their arguments disprove the origin of life on earth : life *must* therefore have arrived from elsewhere in meteorites . . . hardly positive evidence !)

### ORDERED UNIVERSE

Evidence that the Universe had to be created in a very special way if it was to support life has been growing steadily ever since the early days of science. It is especially obvious in chemistry as was convincingly argued over a century ago by, for example, William Prout (*Bridgewater Treatises*, 1833 - 40 ; vol. 8).

Cosmological studies are now enforcing the same point and an article in *Nature* (249, 208) was recently devoted to the topic. Life's "requirement of highly special conditions" implies a universe "created in a singularly convenient form for the presence of intelligent life . . . It is truly remarkable that modern theoretical physics can make a contribution to this philosophical question." F. Dyson (*Sci. Amer.* 1971, 225, 51) showed that if the 'coupling constant of the strong interaction' between nuclear particles had been only a few per cent higher the hydrogen would all have been used up in the 'big bang' and stable stars like the sun would have been incapable of existence. Other evidence comes from the dimensionless constants of nature and it has also been argued recently that our existence is dependent on the remarkable fact that the 3° K radiation background is the same (to within 0.1%) in all directions which is said to imply that very special conditions pertained in the 'big bang'.

Inevitably the subject is highly technical but that the existence of life imposes severe constraints on the structure of the universe is now accepted. Naturally enough atheists, especially in Russia, seek to avoid talk of God. A popular 'explanation' is that we live at the time of a statistical fluctuation of nature, a proposal first suggested by Boltzmann in the 19th century. This seems a somewhat desperate effort to clutch at a straw and if taken seriously it would undermine all science (for the freakishness of

the coincidences which we call laws is vastly less than the freakishness of the event which called them into being). It is more rational to suppose that thought and design lie at the back of nature.

### SUBJECTIVE SIDE OF SCIENCE

Interest in the psychology of scientists has increased steadily since Anne Roe published her epoch-making book *The Making of a Scientist*, in 1952. Now Ian Mitroff of the Philosophy of Science Center, University of Pittsburg, has come up with a three year study (his book *The Subjective Side of Science* is to be published shortly by Elsevier) of 42 eminent scientists who have handled lunar rocks (*New Scientist*, 21 Dec. 1973, p. 900).

The findings are interesting. Not one of the 42 supported the traditional view that scientists function as "disinterested observers". It was accepted that belief in such "simple minded nonsense" is confined to the general public and first year students.

There are rival theories about moon rocks but attempts to discuss them objectively do not lead to useful conclusions. Each theory is sponsored by a group of scientists who seek to select evidence to prove their own point of view. However, the moon scientists do not regard this situation as objectionable. They argue that a scientist *ought* to have made up his mind before starting work: "without commitment one wouldn't have the energy, the drive, to press forward, sometimes against extremely difficult odds."

A failure to be objective is not to cheat. "You don't consciously falsify evidence" but, subconsciously, definitely not consciously, you give less weight to facts which might be taken to support your opponent's views rather than your own.

In the end science leads to truth because each possible point of view is well represented by its supporters: without subjective prejudice many possibilities would be missed.

And of course a scientist will sometimes change his views in response to evidence ! In the end genuine knowledge emerges from conflict.

Asked how they thought science differs from other disciplines, the view was elicited that in science, but not in other disciplines, there is general agreement about the practical methods to be used — balances for weighing, clocks for measuring time, established methods for dating rocks, etc. About these, as distinct from questions of interpretation, there is relatively little disagreement.

It was noted that scientists can be classified into two types. Some try hard never to extrapolate beyond available data: others “wouldn't hesitate to build a whole theory of the solar system based on no data at all.”

Scientists of the second, the speculative, kind are more likely to become resolute adherents of their theories than those who are wary of extrapolation. It is the speculative scientists who commonly reach the tops of their professional ladders and then push their views with unrelenting energy. Not infrequently they back the wrong horse.

## MAMMOTHS

*Polar Record* (1974, 17, No. 106, 3 – 12 Jan.) contains an interesting article on the mammoths by N. K. Vereshchagin who has recently investigated their remains in a locality in N. Yakutia, USSR. He outlines the history of the area where in the last ice age the plain extended 500 – 600 km. further north than now and where, in the short summer, a lush crop of grasses sustained many large herbivores. Falls of loess collected in drifts, like snow, often burying dead animals which had been carried by water into gullies or cornices on slopes. Bones are sometimes gnawed by predators indicating that they had been exposed for some time. The skin and muscles at the ‘cemetery’ gave 50,000 BP by C – 14 dating. Mammoths became extinct by 12 – 10,000 BP, i.e. at the end of the last glacial epoch when the melting of the ice altered

the climate and washed away the soil. The grasses of the tundra were then replaced by sedge-and-moss on which large herbivores could not live.

Occasionally early man contacted mammoths. In 1965 a picture of an angry mammoth was found on a piece of mammoth tusk.

This study relates to mammoth remains in the USSR, but in W. Europe mammoths *may* have survived later. In *Radiocarbon* (1973, 15, 114) three C-14 dates for the bones of a mammoth found in Bavaria are given as 1620, 2080 and 2120 BC (with the usual uncertainty margins), or a few centuries earlier if corrected by tree ring datings.

#### **'IN THE NEWS' UPDATED**

*Dating.* (See 99, 12). Ferguson's work which corrects C-14 dating by the tree rings in Californian Bristlecone-pine has now been repeated using entirely different wood samples (V. C. La Marche Jr. and T. P. Harlan, *Jour. Geophysical Res.*, 1973, 78, 8849). 37 Living trees brought the date back to 600 AD and 70 dead ones to 3535 BC. The result differs by only two years from Ferguson's earlier chart. Several lines of evidence confirm the earlier conclusion that one ring added per year is correct: Bristlecone-pine does not show the 'false' rings of some species. Perhaps twice at most in 5400 years did a year pass without formation of a ring.

There is now good agreement between known Egyptian and corrected C-14 dating (*Nature*, 243, 266). For the older datings attention has been drawn to two possible sources of error. Firstly, the Bristlecone-pine inhabits a region 8,000 ft. high where the neutron flux is ten times that at sea level. Results obtained may therefore not be exactly comparable with C-14 dating in other parts of the world. Secondly, though cellulose is not transferred between tree rings other organic matter is or may be. C-14 dating on trees should therefore be carried out only after the cellulose has been isolated and this has not always been done. Dating

errors of up to 2% are considered possible. (M. S. Baxter, *Nature*, **249**, 93).

*Belief in God* (**100**, 7). According to Michael Argyle, Reader in Social Psychology at Oxford, a recent survey shows that 40% of people in Britain believe in some kind of a personal God, another 40% in a God of a vaguer kind (Life Force, Universal Purpose, etc.) and only 20% appear to have no belief at all (*New Scientist*, 27 Dec., 1973, p. 904). "I found that there was no evidence that religion was a reaction to frustration except in a number of small sects of underprivileged people" he writes. Frequency of belief in the after-life increases with age and those who believe in it tend to enjoy better health than others.

*Suppression of Fact* (**100**, 219). When Sommerfeld's famous paper on specific heats came out in 1927, Professor K. Mendelssohn was a research student working under Sir Francis Simon the Oxford low temperature physicist. On reading it he proceeded at once to measure the specific heat of the purest metal sample on which he could lay his hands — an ingot of electrolytic iron. The experiment went without a hitch: at the lowest temperatures the curve became a straight line pointing to the absolute zero just as Sommerfeld had predicted. Simon looked at the curve, used his slide rule and said sadly, "The data are ten times higher than predicted by the Sommerfeld theory." He refused to let Mendelssohn publish the result. "He was in line for a professorship and it would have been utter folly to prejudice his cause by a sensational discovery which was not in agreement with theory and had been obtained with an untried apparatus by an untried research student." A few years later the theory was fully confirmed using copper. Ten years later someone looked into the theory again and found that for certain metals including iron the specific heat should be much higher than that given by the simple theory. A Belgian worker then repeated the measurements for iron and completely vindicated Mendelssohn's earlier work of 1928. (K. Mendelssohn, *The World of Walter Nernst*, Macmillan, 1973, p. 140-1.) (Results which do not fit into an established pattern of theory tend not to be published.)

### SHORT NOTES

*Noah's Ark.* In Aug. 1973, Dr. Clifford Burdick obtained permission from the Turkish Government to survey Mt. Ararat. He and his party remained on the mountain for ten days in good weather and all canyons in the area where Noah's ark had been reported were visited. The most convincing report, featured by *Life* magazine in 1964, was identified but the object proved to be a rock formation in the shape of an ark. Much of the area is still under ice and the team concluded that this has not yet receded far enough to expose the ark. (*Bible-Science News Letter*, Nov. 1973, p. 5 with bibliography. A fuller account of the expedition is given in the BSNL, Feb. 1974, p. 4.)

*Race.* Recent work by Dr. B. Tizard (*Nature*, 247, 316) of the London School of Education tells strongly against the widely held Jensen-Eysenck theory that intelligence is largely determined by heredity rather than environment. Black, white and mixed children reared in identical environments of residential nurseries showed no significant differences in IQ. The IQs of those children who had received more attention from adults was higher than for others, especially when the adults were intellectually inclined.

*The Flood.* J. R. Moore in the *Evangelical Quarterly*, 1973, 45, (3), pp. 141-160 writes on "Charles Lyell and the Noachian Deluge". He draws attention to the long series of patient and kindly Christian writers who made scholarly proposals for the reconciliations of Genesis and orthodox geology and laments the fact that since 1900 in the US there have been many diluvialist publications which, if taken seriously, would make it all but impossible for a would-be geologist to study geology.

*Tyrian Purple.* J. T. Baker in an article in *Endeavour* (1974, 33, 11) outlines our present knowledge, historical, biological and chemical, of Tyrian Purple. It was made from 1600 BC by breaking open *Murex* shells when the colour slowly develops. There are many biblical references to the dye (curtains of the

tabernacle, Aaron's robe, Mordecai's "garment of fine linen and purple", Lydia a "seller of purple", etc.).

*Brain size.* It is usually taken for granted that man's brain increased in size and complexity as he made greater use of it in the evolutionary process. P. D. Walls (*Nature*, 248, 304) compares a little dog with a small brain with a big dog with a big brain and remarks that there is no evidence that the big dog is faced with more data to analyse by his brain-computer than his little brother. Similarly with small and large men. In short it is difficult to correlate brain size with mental power. Nor does it help to stress *relative* size, for the complexity that can be packed into a given volume depends on atomic dimensions which are *not* relative. A useful, popular and very full discussion of brain size and intelligence will be found in K. - E. Fichtelius and S. Sjolander, *Man's Place: Intelligence in Whales, Dolphins and Humans* (Gollanz, 1973). Several species have larger and more convoluted brains than man. Relative to body weight the marmoset's brain is larger than man's.

*Parapsychology in Russia.* An article by Anita Gregory in the *London Times* (2nd July 1974) asks "Is Russia adopting a party line on parapsychology?". In October 1973 four leading Russian psychologists (including A. R. Luria whose writings are well known in the West) committed themselves to the statement, "Some so-called parapsychological phenomena do happen". A recent official pronouncement by the Soviet Academy of Pedagogical Sciences pronounces psychical phenomena as a fit subject for academic and scientific study.

Nevertheless the subject causes acute embarrassment in Russia because, (1) no tenable theory compatible with materialistic philosophy has been proposed; (2) there is still much disagreement, for example at Eduard Naumov's trial on 26 March, 1974, for misappropriation of funds, a leading psychiatrist testified that parapsychology is a pseudo-science based on mysticism and idealism; (3) professional psychologists cannot bring themselves to stomach the acclaim accorded to unlettered psychics and resent the publicity given them "before investigation and publication

in the technical literature". Not unnaturally the publication of Ostrander and Schroeder's sensational book (see this issue, p. 170) is much resented: at a recent Congress of psychotronics (i.e. psychical research) in Prague in June 1973 several speakers spoke against it.

The *Times* article makes the point that in the West the emphasis has been on discovering whether the claimed phenomena are genuine: in Russia the emphasis is on finding a scientific explanation.

*Babylon.* Many Christians have long expected Babylon to be rebuilt (Rev. 18). In 1971 the Government of Iraq requested funds from the Gulbenkian Foundation for its restoration but these were not made available (*Times*, 20 April, 1971). Recently it was announced that the city would be reconstructed with a 36 million dollar grant from UNESCO (*Times*, 1 July, 1974).



MARTYN BAKER

## The Psychology of Conversion

**The psychologist, like the rest of us, can regard conversion from two points of view — as a fact to be studied at its face value or as an event over-shadowed in importance by some prior consideration (as exemplified by the physiological theory of William Sargant).**

**In this fascinating and unusual paper, based on that read to the VICTORIA INSTITUTE on 2nd February, 1974, Mr. Baker discusses both approaches. After showing that Sargant's views can be explained away by the very theory he uses against others, the author argues strongly that the conversion experience is personal, is not to be dismissed as nothing but a physiological phenomenon and has definite defining accompaniments which should be regarded as a norm for the Christian.**

Attention has recently been drawn<sup>1</sup> to changes in the words Christians commonly use to describe God's work in bringing men 'from death to life'. In the 1890s the expression 'being saved' was most frequently used; in the 1930s this had changed to 'being converted'; and today's phrase is 'being committed'.

These changes of wording reflect a shifting emphasis with respect to who exactly is the passive, who the active, agent in dealings between God and man. Salvation involves a passive man rescued by God who is all-active. Commitment, by contrast, is a man-made decision about God: a man either does, or does not,

commit himself to God, who by implication is passive in the process. Conversion falls somewhere in between on the continuum defined by these two extremes, in that while it does not conjure up in the mind the same degree of helplessness as does salvation, it is generally used in the passive voice and so does not claim, as does commitment, to be the work of the converted person.

Further, deeper, differences come to the surface in this terminology when each term is prefaced by the words 'the psychology of'. 'The psychology of commitment' raises no one's eyebrows, for even in secular psychology it is a fairly mundane topic of study, whether of commitment to the Communist Party, to vegetarianism, or to any cause or movement. At the other end of the scale, 'the psychology of salvation' strikes one perhaps as a little in bad taste. It grates on the Christian ear, arousing as it does the feeling that an experimental examination of God Himself is entailed. Between the psychology of commitment which is commonplace, and the psychology of salvation which is out of place, 'the psychology of conversion' provokes neither boredom nor distaste, but acceptably arouses interest among most Christians. For them, it is often experienced as a racy, somewhat daring subject to consider, laced as it is with a tinge of heresy which whets the intellectual appetite. It gives an anticipated feeling of power at being let in behind the scenes, almost as if being initiated into the secrets of some mysterious and hidden rite — but without the onus of one's being held responsible for participation in the experimental analysis of God. It seems to me to have the same ambivalent attraction for Christians as spectator-participation in a dangerous sport like motor-racing holds for adolescent-minded adults.

The ambiguity of interpretation observed both in the term 'conversion' and in the phrase 'the psychology of conversion' exemplifies an ambiguity of a more general nature: any statement or event which is interpersonal and therefore complex may be subjected to a dual evaluation. It may be taken at face-value, by investigating *what* was stated or *what* took place; or, the evaluator may read more into it by investigating the *perpetrator* of the speech or happening. Let us, for example, announce,

“The Prime Minister is neurotic”. Some listeners will turn to their neighbours and comment, “I always knew he was — and now this psychologist agrees with me !” (Conversely, the comment might have run, “Rubbish ! There’s nothing whatsoever wrong with him. What nonsense these psychologists talk”.) These listeners have made a *content* evaluation of what was announced. Other listeners may think to themselves, “Now why should he have wanted to say *that* about the Prime Minister — I wonder what his motive was for that aspersion ?” Rather than take the announcement at face-value, these hearers have reacted to the *source*, as distinct from the content, of what was said. A stereotype of their reaction is that of the psychiatrist, faced with a patient infuriated by the lack of progress in his treatment: the psychiatrist listens calmly and then asks in a detached manner, “It’s interesting you feel you have to get so aggressive towards me — I wonder what’s *really* troubling you ?” Naive or annoying as each method of evaluation respectively, may seem, both are valid and both useful on appropriate occasions.

If we now turn from the Premier and the psychiatrist, and attempt to assess a newly-converted Christian, we find as expected that a duality of interpretation is possible. We may take the event at face-value (“Hasn’t Jim changed since he ‘went forward’ at the Billy Graham meetings” — plus a catalogue of observed differences in behaviour); or we may join a currently rather larger group who act the plotty psychiatrist and try to ‘look beneath the surface’ (“What on earth did they do to him at Billy Graham’s Crusade to make him into *that* ?”). It is interesting to note that this duality of interpretation so often seems to go unnoticed by Christians and non-Christians alike, when they hear talk of the psychology of conversion. Their immediate assumption as soon as the phrase is mentioned is that they must sniff along the trail of ‘psychology’ which will lead them to uncover the ‘truth’ about ‘conversion’. In recent years the feeling has been generated that the only way of looking at the topic is to go behind the scenes with the psychiatrist. Yet it is obvious, even if overlooked, that another perfectly sound method of evaluating conversion would be simply to take the psychological aspects of

the phenomenon at their face-value. Both foci of attention, on the surface or under it, are equally valid.

We shall attempt to deal with 'the psychology of conversion' from both points of view — the psychology of converted men and women (its content), and the psychology of the process that seems so to speak, to have got them converted (its observable source). (The way in which these two approaches are presented is reminiscent of the contrast between vitalism and materialism. While vitalists were no less guilty, some materialists developed into ideologists whose aim was to destroy vitalism. For instance, the four top physiologists of the nineteenth century — Du Bois-Raymond, E. W. von Brücke, von Helmholtz and Karl Ludwig — pledged themselves into a private club, the *raison d'être* of which was to demonstrate physiology as 'nothing but' physics and chemistry. From this, the next step was to show that psychology is 'nothing but' physiology (which itself is 'nothing but' physics and chemistry). Between them, these four physiologists trained or taught the three psychologists whom history has shown to have had the controlling hand in ushering their discipline through to the twentieth century: Wilhelm Wundt, Ivan Pavlov and Sigmund Freud. Thus the seeds of materialism were sown into modern psychology.)

#### *The Processes of Conversion: its Observable Source*

To many people the expression 'processes of conversion' still brings the name of William Sargant to mind. As an exponent of the materialist view of conversion, Dr. Sargant remains the best known popular author on the subject. His latest book appeared only recently in 1973<sup>2</sup> and is again pumping out the same theses, basically, that startled the public in 1957 when *Battle for the Mind*<sup>3</sup> was published. Because I believe most Christians still feel a little worried at what Sargant says about 'the physiology of conversion', I shall spend some time in assessing his work as expressed not only in the time-honoured best seller, but also in his autobiography.<sup>4</sup>

According to Sargant, what happens to the individual who is converted is 'nothing but' what the Russian materialist Pavlov observed happening to his experimental dogs. Pavlov found that by bringing dogs to a state of collapse, via various methods, a state of hypersuggestibility could be engineered during which new behaviour patterns could be implanted — permanently in some cases. Sargant claims that the same pattern of events takes place in the manufacture of human converts. This is his hypothesis insofar as Christians are concerned, although he attempts to link this up with many other sorts of behaviour-changes, such as brain-washing and certain psychiatric treatments. (It will be apparent that this *scheme* fails to account for the many Christians who have not experienced a sudden conversion.) The aim of the thesis seems to be, that if what has until now appeared to be a spiritual phenomenon can be shown to have such humble origins as the manipulation of dogs, then its value is undone: it is discredited once and for all.

This aim is similar in nature to trying to show, for example, that the paints Picasso used were of such and such a hue, and such and such an intensity — and therefore his works of art are contrived and valueless. However, when such a blatant example of this sort of 'logic' is used, the sheer blatancy shows up its illogicality. The trouble with *Battle for the Mind* and books like it is that they never spell out their logic with clarity. They work, like many advertisements, by innuendo, simply suggesting what might or might not be the case — and allowing you to draw the conclusions they want you to arrive at. Sargant's book is riddled with statements such as the following: "[such and such a piece of information] is further evidence [if any were needed] for the point we have been making, namely, that among the readiest victims of brainwashing or religious conversion may be the simple healthy extrovert".<sup>3a</sup> The word to focus on is that little insertion, 'may' — the readiest victim *may* be . . . Now to the average reader going through the many, many statements of this nature, the recollection of what the book says will be that Sargant says such and such *is* the case — this will be what he remembers of the book. In fact what Sargant actually did was to suggest that such and such *might be* the case. But that is hardly what sticks

in people's minds. Were you or I, though, indignantly to accuse him of propagating a doctrine that had upset hundreds of Christians, all he has to do is to turn round and plead innocency: "look at my words — I only said such and such *might be* the case". The nature of the case is, then, one that is backed by innuendo, the technique of advertising rather than of science.

But innuendo and suggestion alone do not fully account for the tremendous popularity and impact of Sargant's book: other factors must be noted for a more complete appreciation of its effects.

The book reached an audience with itching ears. Its public *wanted* to hear the sort of things Sargant had to say. Only three years before, quite remarkable success had attended the preaching of the evangelist Billy Graham at Harringay — and the 'scientific man' of the fifties had received quite a slight. *Battle for the Mind* helped to restore the image which Harringay had tarnished. Taking this line of reasoning a little further, Sargant's readership, already wanting to hear what he told them, comprised a rather suggestible audience, much too ready to believe what the Doctor had to say. Moreover, the book itself does not just give a bare outline of its thesis, but goes into turgid detail on page after page through chapter after chapter presenting time and again what might concisely have been said in about a dozen pages.

So . . . not only does Sargant have a suggestible audience, but again and again he assails them with his one message. This message is not one that is presented as true or false, but like good advertising it only *suggests* that what it says might be true. On top of this, there is a further ambiguity: the writer is a medical man, a Dr., the sort of person you can trust. But, while appearing as a medical man, he writes as an advertiser — a nasty combination at the best of times, especially for people who are ready to put their faith in 'what the doctors say'.

However, let us not be so cynical as to say Sargant did all this deliberately, when we insinuate that his book was in fact nothing but a massive exercise in brainwashing. Let us at least

assume he did not callously engineer the whole thing. (It is this callousness attributed to those who brought people to conversion — the sort of callousness attributed to Peter on the day of Pentecost, or to Wesley as he crusaded in Britain — which is one of the more hurtful aspects of Sargant's book. For instance, Sargant not only suggests that Wesley engineered his part in the eighteenth century awakening, but that he did so knowing full well that all he was doing was using certain techniques to force people to do what they did not really want to do.) We shall assume that in implanting his ideas into the British public, Sargant did not fully realise that he was laying an almost impenetrable barrier of cynicism in the mind of the lay public towards Christian evangelism in the next few years.

Lest it should be thought too harsh simply to rebound by insinuation his own subject-matter onto himself, evidence is now presented which points to the fact that Sargant himself became a convert to his ideas by being 'brainwashed' himself. Briefly, he worked non-stop as a civilian during the years of World War II, doing a tremendous amount of good work and introducing valuable innovations in psychiatric practice. It was in June 1944 that for the first time he read Pavlov's experimental work on dogs. Then about August of the same year he came across a copy of Wesley's journal, and reading Wesley's accounts of his preaching and the conversions that followed it struck him that there might be a link between the experiments of Pavlov and the conversions under John Wesley. All this time he had been working hard, and, as he says, "as civilians throughout the war, we had been badly undernourished and easily tired".<sup>4a</sup> Stresses were enormous: "during the long Blitz, several very normal members of the hospital staff showed signs of breaking down".<sup>4b</sup> Then just after reading Wesley and Pavlov, the Sargants took their first holiday for years; he contracted a cold while out walking and it turned to severe pneumonia. Sargant insisted on being taken back to London, and "my wife somehow brought me back to Graylingwell — with a high temperature and gasping for breath; I was nearly delirious on arrival . . . it was a severe virus pneumonia, complicated by poisoning from the sulphonamide drugs with which I was first treated . . . my temperature again rose sharply and I

had now developed infective hepatitis. Two subsequent relapses of this unpleasant liver disease . . . left me deeply jaundiced for some weeks. Five years of incessant and fatiguing work on civilian wartime diet had weakened my resistance".<sup>4c</sup>

Now, what has all this to do with brainwashing? Well, let me quote one of the ways Sargant tells us that Pavlov induced collapse states and subsequent hypersuggestibility in his dogs. This was to "tamper with the dog's physical condition by subjecting it to long periods of work, gastrointestinal disorders, fevers, or by disturbing its glandular balance. The advantage taken of debilitation and other changes of bodily function in human beings for their political and religious conversion will be discussed later . . . Pavlov found the new behaviour pattern occurring afterwards might become a fixed element in the dog's way of life, though it had long recovered from the debilitating experience".<sup>3b</sup>

The point is that one could interpret Sargant's falling ill just after subjecting himself to the joint stimuli of Pavlov and Wesley as similar to the experience of the dog just cited. But, if the similarity were to be more than just a figment of the imagination, reinforcement of the ideas from Pavlov and Wesley would have to succeed, not just precede, the debilitating illness. In fact we find that what Sargant did with his unexpected spare time in convalescence is just what is required to fit our hypothesis. He says, "Although my wife nursed me . . . she had to go back to work long before I recovered. So I fended for myself all day . . . However, my slow convalescence allowed me to read a great number of books from various sources".<sup>4d</sup> With what did he fill his mind during this possibly hypersuggestible stage? He tells us, "During my convalescence, I read all the books I could find on the subject of sudden religious conversion".<sup>4e</sup> In a run-down state, therefore, Sargant receives the stimulus of Pavlov and Wesley together; and in a suggestible state, he reads all he can to reinforce the ideas gathered just before the breakdown in health (and I can hardly imagine him not rereading the Wesley/Pavlov material at the same time).

Having looked at the man and his method, a brief look at his message is in order. Dr. Lloyd-Jones in his *Critique of the*



*book, Battle for the Mind*<sup>5</sup> has made almost all the relevant points — although I think he mistakes the book for a piece of scientific research, and evaluates it as such. In addition to the points he makes, I think it can hardly be overstressed that the book provides the antagonistic non-Christian with a provocative weapon against domineering evangelism by Christians. For, just as the publication of Darwin's theories have led to the seemingly ineradicable popular conception of the truth of the theory of evolution, so Sargant's book seems to have served a similar purpose with respect to the popular conception of evangelism. Sargant is possibly the more difficult to deal with because there is much that is a correct statement of the facts woven in to the insinuation that his analysis of treatment for shellshock, 'brainwashing', abreaction therapy, and the like, *also* covers true Christian conversion. He makes the same mistake as did Sennacherib, two thousand five hundred years ago. Because the gods of Hamath, Arpad, Sepharvaim, Hena, etc. had not delivered their inhabitants from his power, Sennacherib foolishly assumed that the God of Jerusalem could not resist his armies, either (2 Kings 19: 10–13). It was a false generalisation, as is Sargant's.

If it is true that evangelism in Great Britain is all the more discouraging now, its audience being more cynical because accepting Sargant's false generalisation as true, then the very thing to avoid at all costs is a desperate evangelism that in its desperation begins to utilise some of the selfsame Pavlovian techniques that *Battle for the Mind* highlights, so as to get visible 'results'. It is no good our thinking that if God used Balaam's ass or any other unlikely instrument to do his work, then He will use evangelism based on psychology pure and simple — that is as false a generalisation as Sargant's. Our textbook on evangelism is the Bible and its principles — it is these we should seek to follow.

To close this section on the processes behind conversion, I would like to suggest a tentative psychological alternative to the account of conversion based on the model of Pavlovian conditioning. There *are* striking similarities in the psychological aspects of reports of concentration camps, thought reform colleges,

mass hysteria episodes, and so-called 'revivals'. A common feature is discernible in the various studies published, which is the removal from the subjects concerned, of their *normal frame of reference*. For example, the internees of concentration camps had no court of appeal whatsoever; they had no property rights, no personal privacy, and so on. All the things they normally measured their lives by, all their personal yardsticks and criteria, were stripped from them. Again, in the famous Orson Welles broadcast, "The Invasion from Mars",<sup>6</sup> the listeners who went berserk, who got hysterically worked up, turned out to be those who lacked sufficient presence of mind to make an independent check as to whether the broadcast represented fact or fiction, say by 'phoning the radio station involved; also, the play was about outer space which few then (1938) had knowledge of, so that an organised frame of reference just was not available.

In spiritual matters, the 'natural man' has a very poor frame of reference. If at any time they begin to become real to him, he has no prior frame of reference to deal with them, and feels compelled either to dismiss them as unreal or hallucinatory, or to receive some external frame of reference and allow it to become his own.

To put a person into a situation where his habitual frame of reference is deliberately and progressively made inadequate is to unnerve him and to distort his judgment; experiments<sup>7</sup> also provide evidence to show that under these conditions susceptibility to attitude change is enhanced. However, to reverse the operation and supply the person with a frame of reference where previously he had none gives relief and improved performance (see, for example, experiments by Hudson<sup>8</sup>). So to the person disoriented under deep conviction of sin, sudden conversion would give purpose and meaning, relief at having categories with which to make sense of one's life. (Let me stress that I am talking here about *psychological* issues in sudden conversions, which parallel the spiritual realities taking place at the same time. If the psychological effects *only* take place, resulting in a testimony to changed feelings, meaning to life, etc. with no reference to sins forgiven, one would doubt the so-called 'conversion'.)

*The Characteristics of Conversion: its Content*

The second way of evaluating 'the psychology of conversion' calls for an examination of the psychology of the convert. There being a dearth of psychological studies on the topic of converted Christian men and women, and no bogey like Dr. Sargant to attack, one lacks a clear frame of established reference, and the following section is the more open to justified criticism.

William James<sup>9</sup> contrasted the psychology of the converted man with that of the religious but unconverted man. In doing so, he enunciated the great principle which divides these two sorts of people: converted persons belong to the grouping of mankind that we may call 'twice-born', whereas sincerely religious persons who are unconverted are members of the 'once-born' group. Quite apart from the second birth as a spiritual fact as far as God is concerned, this experience of being 'born again' is the over-riding psychological characteristic of the converted person, and as such it has far-reaching implications for the psychology of that individual.

The religion of the once-born person directs him, in the words of James, "to settle his scores with the more evil aspects of the universe by systematically declining to lay them to heart or make much of them, by ignoring them in his relative calculations, or even, on occasion, by denying outright that they exist. Evil is a disease; and worry over disease is itself an additional form of disease, which only adds to the original complaint. Even repentance and remorse . . . may be but sickly and relaxing impulses. The best repentance is to up and act for righteousness, and forget you ever had relations with sin".<sup>9a</sup> F. W. Newman<sup>10</sup> describes the God that such people worship: "They see God, not as a strict Judge, not as a Glorious Potentate, but as an animating Spirit of a beautiful and harmonious world, Beneficent and Kind, Merciful as well as Pure. The same characters generally have no metaphysical tendencies; they do not look back into themselves. Hence they are not distressed by their own imperfections: yet it would be absurd to call them self-righteous; for they hardly think of themselves *at all* . . . They no more shrink from God than

a child from an emperor, before whom the parent trembles: in fact, they have no vivid conception of *any* of the qualities in which the severer Majesty of God consists. He to them is the impersonation of Kindness and Beauty . . . They have a certain complacency and perhaps romantic sense of excitement in their simple worship".<sup>9b</sup> The once-born person, then, is the man who "looks on all things and sees they are good".<sup>9c</sup> Examples from history would perhaps be St. Francis or J. J. Rousseau. Their type of religion has been called 'the religion of healthy-mindedness'.

The quotations cited are intended as a backcloth against which to view the person who is our real object of study: the second-born man. If the once-born man has a way of deliberately minimizing evil, the habit of the second-born is to maximize it. He is persuaded that the evil aspects of life are of its very essence, and that a consideration of them is what really brings the meaning of the world home to us. Listen to two examples: Luther looks back on his life with the following words — "I am utterly weary of life. I pray the Lord will come forthwith and carry me hence"; and in reply to the Electress Dowager who had just wished that he might live another forty years, he says, "Madam, rather than live forty years more, I would give up my chance of Paradise". Robert Louis Stevenson states — "There is indeed one element in human destiny, that not blindness itself can controvert. Whatever else we are intended to do, we are not intended to succeed; failure is the fate allotted". Such extremes always perceive the "worm at the core of all our usual delights", and to them the only relief healthy-mindedness can give is something like, "Stuff and nonsense, get out into the open air; cheer up old fellow, you'll be all right before long, if only you will drop your morbidness!" However, the troubles of this person lie too deep for *that* cure. As James points out, the very fact that we *can* die, that we *can* be ill at all, is what perplexes him; the mere fact that we now are alive and well for a moment is irrelevant to *that* perplexity. What he needs is a life not correlated with death, a health not liable to illness, a kind of good that will not perish. Needless to say, such people feel burdened with life; these sick souls need to be twice-born, psychologically speaking, *in order to*

be happy (quite apart from their need, spiritually speaking, to be reconciled with God).

The cure for 'sick souls' is no mere reversion to natural health — it is a process of redemption. The sufferer when converted is saved by what feels and seems to him to be another birth, the arrival of a deeper kind of conscious being than he could enjoy before (see <sup>9d</sup>). Prior to conversion, he perceived the dual nature of his personality (*Romans 7: 24*); after the second birth not only is there not a return to a 'healthy-minded' psychology, but he retains too a dual conception of the external world — the universe is still two stories deep, the natural and the spiritual. Not until the resurrection of the body will life — both internal and external — take on a unified rather than a dual nature.

Another feature which does not change is the experience both before and after conversion of a 'living death'. This disenchantment with a world perceived as death-like in quality was previously due to self-interested feelings of hopelessness and sadness; upon conversion the same death to self may now result from a God-concern rather than self-interest alone. Henry Scougal describes it as a kind of voluntary death, where love for God takes the form of a self-dereliction, a wandering out of ourselves. Paradoxically, at the same time the individual becomes dear to himself because he is so to the Other (and anything He holds dear must necessarily be dear to the individual).<sup>11</sup>

However the psychologically-felt ills for which he sought remedy are gone: the short transitory nature of life changes for the twice-born. Security is his, since conversion has linked him with a permanent Other, whose love is permanent, who always reciprocates his love, who is supremely worthy of love, who because He has an infinity of love can enable the twice-born to suffer any number of rivals without suffering a diminution of reciprocation. The born again man has at last found an Object of love and regard which is untouched by the imperfection seen both in himself and his world.

To close, I have sought — unsuccessfully I fear — to present something in the last part of this paper which seems difficult to put into words. At best it has been palely descriptive. But with the description as it stands, one finds in the words of William James [who though he belonged to the twice-born type<sup>12</sup> had deep insight into the minds of his once-born friends — Editor's addition] a verbal picture of the once-born person which seems to come uncomfortably close to the psychologies of many today who profess second birth and consider themselves 'converted'. Small wonder Christ said, "Ye *must* be born again" (*John* 3: 7), knowing that no true fruit — as measured by the psychology of the twice-born — would grow otherwise.

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## DISCUSSION

*R. L. F. Boyd* (President). You referred to the spiritual realities behind the phenomena of conversion. In what sense are these realities in any way distinct from the observable effects on subjective experience of the conversion?

*Reply*: One way of distinguishing between spiritual realities and subjective experience in conversion is to be trite and state that the former

are non-observable and the latter may be observed. However this is not strictly true; the distinction must be refined — the former are not yet observable, whereas the latter are so already. The reality of any compact is seen when that compact comes under test. In the spiritual compact which comes into being at conversion (although cf. *Romans* 8: 29) through faith in Christ's mediating work, there is only one acid and public test of its reality — acceptance by God at the end of time (*Matthew* 25: 34). Until that time, faith is the only evidence and assurance that we have (*Hebrews* 11: 1).

*R. E. D. Clark.* Sargant claims that the effectiveness of Wesley's evangelism was connected with his incessant preaching of hell fire which served to arouse tension and make his hearers suggestible. It is worth drawing attention to Ian Ramage's book, *Battle for the Free Mind*, 1967, esp. Chap. 6 where the author points out that Sargant cannot have read Wesley's published sermons. Ramage tells us that of 40,000 sermons of which Wesley left notes only one can be traced which was about hell and it converted no one! To the poor who responded to his preaching, Wesley stressed the love and tenderness of God. It was only to the well-to-do that he preached sternly but such sermons largely failed to influence those who heard them. The revival excesses which worried Wesley a good deal were almost confined to the early period 1739-43 at Bristol.

*Reply:* Thank you for the data on Wesley. As to the point about Sargant it is only fair to point out that he does not in fact claim to have read Wesley's published sermons. His claim is to have read Wesley's journal, from which he quotes, together with several biographies. My knowledge of Wesley's sermons is poor, but my suspicion is that while only one sermon may have been unearthed dealing solely with hell, virtually all his preaching will have contained some reference to the judgment of an offended God. If this were not the case, would Wesley's evangelism measure up to the Biblical pattern of true preaching? I think not.

T. C. MITCHELL

## Old Testament Archaeology: Some Recent Work

**A paper, read to the VICTORIA  
INSTITUTE on 2nd February, 1974  
by Mr. Terence Mitchell, Assistant  
Keeper, Department of Western Asiatic  
Antiquities, British Museum.**

My aim in this paper is not to make an original contribution, nor to give a comprehensive survey, but simply to draw attention to some recent discoveries and areas of study, and not to seek to answer all the questions that may arise, but to indicate where research and discussion may continue. I interpret 'archæology' broadly to include anything, document or artifact, that may bear on the world of the OT, and by 'recent' I mean, in general, anything since the second World War (WW2), which marks a convenient pause in the development of the subject.

I have selected four main areas of the field, those concerned with Genesis, with prophecy, with excavations, and with Hebrew Inscriptions.

### *Atrahasis*

In considering the early chapters of Genesis, it is usual to cite cuneiform documents which deal with comparable topics. The Creation Epic (*enuma elish*) describes the creation of the universe and man in crude terms of conflict between the Babylonian gods,<sup>1</sup> and the XIth tablet of the Gilgamesh epic (*Sha naqba imuru*) discovered by George Smith in 1872, gives an account of how the hero Utanapishtim built a boat and escaped the Flood.<sup>2</sup> The major MSS of both of these epics are in the neo-Assyrian dialect of Akkadian and date from about the 7th century BC, but an earlier Sumerian tablet of about the 17 – 16th century BC containing



some creation material, as well as a Flood story in which the hero is named Ziusudra, was published by A. Poebel in 1914.<sup>3</sup> Among the known fragments of related texts were a number which were known, or have since been recognised, to have been parts of a Babylonian composition in three Tablets (or Chapters) known as the Atrahasis Epic and in the early 1960s two further substantial Old Babylonian fragments were recognised in the British Museum by A. R. Millard, and as a result, in 1969 he and W. G. Lambert produced a new edition of the known MSS.<sup>4</sup> The known fragments mostly date from the Old Babylonian and Neo-Assyrian periods, the most complete version being the Old Babylonian one, copied by a scribe in about the 17th century BC, and of which over 1,200 lines are preserved. The epic begins by outlining the structure of the universe in which the heavens are ruled by the god Anu, the earth by Enlil, and the subterranean sweet water ocean by Enki. Enlil puts the minor gods to work on earth, digging canals, farming the land and so forth, but after 40 years they rebel at this, and refuse to work. In response Enki, who appears as a wise conciliator suggests that man be created to take over the world, and this proposal is accepted by the gods. Man is made by the goddess Mami, with the help of Enki, by modelling him from clay mixed with spittle, and with the blood of a god We or Weila, otherwise unknown, who is killed for the purpose. The human race is put to work and it multiplies, until the noise disturbs Enlil's sleep. He therefore decides to destroy man, and sends first a plague, then a famine, then a drought, and finally a flood, but each time Enki instructs the hero Atrahasis, who now appears in the story, on how to mitigate the effects of these disasters. He gives him seven days warning of the flood, and tells him to build a boat. Atrahasis builds the boat, loads it with his possessions and animals and birds, and after a banquet embarks and is preserved while all the rest of mankind is wiped out. When the gods see the result of the flood they see that there are no more men to produce food for offerings to them, and come to regret it. Here there is a gap in the MS, so no details of the landing of the boat survive, but the epic ends with Atrahasis making an offering to the gods, and Enlil finally accepting the existence of man.

There is clearly much in this epic which has interesting

similarities to Genesis, and Lambert<sup>5</sup> and Millard<sup>6</sup> have recently discussed these and related matters. The Atrahasis flood account may very likely, as both Lambert and Millard suggest, have been largely the source used for the XIth tablet of the Gilgamesh epic. Until recently few literary texts have turned up in Mesopotamia in copies earlier than the 2nd millennium BC, and though it was a fair assumption that many of them went back to compositions of earlier date, there was little evidence to substantiate this. Among the early tablets found at Fara, ancient Shuruppak, and published in the 1920s by A. Deimel, a number of literary texts have been recognised, but this material is now significantly augmented by the discovery of more texts of about the same date, c. 2500 BC, at Abu Salabikh in southern Iraq.<sup>7</sup> Some of these can be seen to be precursors of later compositions and show the possibility that much of Sumerian literature originated at this time, known archaeologically as the Early Dynastic III period, most familiar, perhaps, from the 'royal' tombs at Ur. At present, nevertheless, Sumerian literature is mainly known from later MSS of the early 2nd millennium BC but this material, is sufficiently extensive, for M. Civil, in his recently published edition of the Sumerian Flood Legend, to put forward the opinion that the theme of a flood to destroy mankind was not part of the main Sumerian tradition. He also cites the fact that while some MSS of the Sumerian King List name the kings who ruled before the Flood, the earliest MSS do not include this pre-Flood section, which is presumably a later addition,<sup>8</sup> and he thinks that the Flood theme began to become popular in the early 2nd millennium. It is possible, of course, that the Flood theme was native to Mesopotamia and was not adopted by the Sumerians when they arrived as new-comers, but on the other hand it is also possible, assuming Civil's impression to be correct, that it was only introduced by the new population groups who arrived at about the end of the 3rd millennium.<sup>9</sup>

From the 3rd until well into the 2nd millennium, BC, the Hurrians (biblical Horites) were infiltrating into Mesopotamia. These people spread throughout the Near East, forming for instance a large element in the population of Nuzi, where documents have revealed customs closely comparable to those reflected in the Patriarchal narratives of Genesis. Their main area of concentration,

and probable centre of emigration, was the region around Armenia, known in the first millennium BC from a people whose language had many parallels with Hurrian, as Urartu, biblical Ararat. It is tempting to bring into the discussion a literary fragment found at Boghaz-koy which seems to be part of a Hurrian version of the Gilgamesh Epic, and which contains the name Nahmazule. This was long ago compared with the name Noah, which in Genesis 5: 29 is associated with the verb *nhm*: "This one will provide us relief (*yenahamenu*) from our work . . ." <sup>10</sup> It seems more likely however that this fragment, which is paralleled by a Hittite fragment from Boghaz-koy where the name Nahmizulin has the feminine determinative, belongs to tablet X of the Gilgamesh Epic which has nothing to do with the Flood. All we can do at present therefore is to draw attention to this link of the Hurrians with the traditional area of the resting place of the ark, <sup>11</sup> and perhaps speculate whether the forebears of Abraham came from the Hurrian area. The first indication that the Patriarchs were living in Mesopotamia comes in Genesis 11: 28, where it is stated that Abraham's brother Haran died "in the land of his birth, in Ur of the Chaldees". Here "land of his birth" uses the word *moledet*, which though it came to mean "land of his kindred" or "native land", could quite well simply mean birth place. In other words the family need not have been in Mesopotamia for more than a generation or two before the time of Abraham. <sup>12</sup>

### *Prophecy*

The existence of seers in the ancient near East has been long known. In the *Zakir Stela*, for instance, an Old Aramaic inscription found in 1903 near Aleppo, the author, Zakir, king of Hamath in the 8th century BC, says, among other things, "Baalshamayn spoke to me through seers and diviners . . . (saying) 'Do not fear, I made you king' . . ." <sup>13</sup> The word used here for "seers" is *hzyn*, singular *hz*, which is clearly cognate with biblical Hebrew *hozeh*, 'seer', a word which is applied, for instance, to Amos (7: 12).

Since the War a new group of documents of much earlier

date, which have a bearing on prophecy, have come to light. These belong to the archives from Mari, of about the 18th century BC, which are already well known for their bearing on the Patriarchal narratives of Genesis. In 1948 G. Dossin published the first of this group,<sup>14</sup> a letter, which A. L. Oppenheim describes as follows, it "was sent to the king of Mari by a high court official on account of a dream reported to him. A minor provincial functionary dreamed that he was on his way to the capital and visited the temple of the god Dagan, first thing upon arriving in Tirqa, an important city of the realm. In his dream he performed the customary prostrations before the image and heard in the same moment a voice addressing him (without introduction) with a question. He identified the voice immediately as that of the god Dagan, and answered. When he was about to leave the sanctuary — so the account of his dream continues — the same voice gave him a message for the king of the country. The message is quoted verbatim, addressing the king in the second person singular".<sup>15</sup>

Several other similar texts have since come to light, and in 1967, cuneiform copies of 14 more were published by Dossin<sup>16</sup> and these with those already published, amounting in all to 28, have given rise to a considerable body of discussion.<sup>17</sup>

From these texts it appears that various people, some of them connected with the religious establishment, others not, claimed to communicate predictive messages from the gods. When those involved are private persons the messages seem to have been received by them in visionary dreams, and the administrative officials who report the dreams do not always seem quite to know what to do about them. This suggests that in some cases at least there was something more involved than simple mechanical oracles from which answers might be solicited.

It is not particularly surprising that such people should have existed among Israel's neighbours. In the period of the monarchy, Jeremiah, for instance, is told by God to send word to Edom, Moab, Ammon, Tyre and Sidon (27: 3) instructing them to serve Nebuchadnezzar, and he is told to say to them "... do not listen to your prophets, your diviners, your dreamers, your soothsayers,

or your sorcerers who are saying to you, 'You shall not serve the king of Babylon'" (27: 9). Here the term "prophet (*nabi*)" is the normal word applied elsewhere to the Israelite prophets, the implication being that such individuals existed outside Israel. This is also clear from the episode of Elisha and the prophets of Baal (*nebi'im ba'al*) in 1 Kings 18: 19–20.

The revelations to the Israelite prophets came from God but in that case how can the phenomena from Mari and related examples be understood? One possible explanation is to be found in demon activity, the existence of which is even today well attested.<sup>18</sup> There is clearly much scope for further study in this field.

### *Excavations*

There has been a great deal of excavation in Palestine since the end of WW2; some of it at sites previously unexcavated, notably Tell el-Jib el-Far'ah (Tirzah), Tell Qasile, el-Jib (Gibeon), Ramat-Rahel (Beth-hacherem), Tell el-Qedah (Hazor), Tell Deir 'Alla, Tell Mor (Ashdod), Arad and Khirbet Qumran; but also much of it at re-opened sites, previously excavated, notably Jerusalem, Jericho, Gezer, Ta'anach, Megiddo, Samaria, Shechem, Beth-shan, Shiloh, Tell Jemmeh, Bethel, Ai, and Lachish.<sup>19</sup> Here there is only space to mention a few of these excavations.

An interesting example of an archaeological discovery leading the excavator to examine the Bible from which he received the clue to further excavation, is provided by the work of Y. Yadin at Hazor, and subsequently at Megiddo and Gezer. During his operations at Hazor in 1955–58 he found a six-chambered gate with two external towers associated with a casemate (or compartmented) wall which he was able to date to the time of Solomon. He noted that in 1 Kings 9: 15 the author writes of the "... forced labour which king Solomon levied to build the house of the Lord and his own house, and the Millo and the wall of Jerusalem and Hazor and Megiddo and Gezer", and therefore turned to the reports of the excavations at Megiddo and Gezer

to see if anything similar had been found at these sites. In the Megiddo report he found a description of a six chambered gate with square towers almost identical with that at Hazor, but associated with it was a quite different kind of wall divided into twenty foot lengths set alternately forward and back by about two feet. He went to Megiddo to examine this installation and during excavations in 1960 and 1965 – 67 he found that this wall which he called the “ insets-offsets wall ” was in fact not attached to the gate but that the latter joined a casemate wall just like the one at Hazor, which lay immediately below the insets-offsets wall. This was a satisfactory discovery but it had other repercussions since the insets-offsets wall was associated (correctly as he verified) with two complexes of pillared buildings which the excavators had identified as stables, and which have been quoted in practically every book on biblical archæology in the last 30 years as Solomon’s stables. This new discovery therefore meant that the stables were later than the time of Solomon and Yadin has plausibly suggested that they belong to the time of Ahab, the next dominant king who might have been expected to undertake major building projects.<sup>20</sup>

P. L. O. Guy, one of the prewar excavators of Megiddo had supported the identification of the pillared buildings as stables by citing Solomon’s building activity at Megiddo (1 Kings 9: 15) and the reference later in the same passage (9: 19) to the “. . . store cities that Solomon had, and the cities for his chariots, and the cities for his horsemen . . .” and pointing out that the pillars in the buildings had holes pierced possibly for hitching, objects which might be stone mangers, and paved floors for the horses to stand on. Since the Solomonic attribution has had to be abandoned, J. B. Pritchard has now argued that perhaps these buildings were not stables at all.<sup>21</sup> He points out that not all the pillars have pierced holes and argues that the ‘ mangers ’ were not particularly suitable for this purpose since the trough part was only about 6 inches deep, and that the paving stones which have a rough surface are not the most appropriate floor for horses to stand on. He concludes that the horses might well have been kept in open enclosures and that these buildings might have been “ storehouses or barracks ”. This is a slightly lame conclusion,

for storehouses or barracks do not seem any better as an identification, and there is no reason why Ahab should not have had stables since he certainly had horses (1 Kings 20: 20–25; 22: 4). This question remains a matter for debate.

The third site mentioned in 1 Kings 9: 15 is Gezer and after his discoveries at Hazor, Yadin examined the report published in 1912 by R. A. S. Macalister of his excavations at Gezer. There, on page 104 of volume 1, he found a plan of a 'Maccabean Castle' which incorporated a casemate wall and one side of a six chambered gate of almost the same dimensions as those at the other two sites. That this was in fact of Solomonic date was subsequently confirmed by excavation.

The fourth city mentioned in 1 Kings 9: 15 is Jerusalem. Excavation at this site presents exceptional difficulties since it is extensively built over, and religious susceptibilities attach to much of the area which the archæologist would perhaps be most interested to examine.

The site consists in general terms of two spurs, extending southwards from an area of high ground, separated from each other by a central valley known later as the Tyropoean Valley, which joins a valley, the Valley of Hinnom (Gehenna) running across the southern end. The eastern spur, the Hill of Ophel, was the site of earliest occupation. On its east side lies the Kidron Valley on the west side of which, that is the lower eastern slope of Ophel, is situated a natural water source, the Gihon Spring, the water from which was in the time of Hezekiah carried by a long tunnel to a pool at the south west end of Ophel, the predecessor of the Pool of Siloam. The Canaanite (Jebusite) city of Jerusalem was situated on Ophel Hill, and in the time of Solomon it was extended northwards by the construction of his Temple and Palace. The site of these structures lies below the present Haram ash-Sharif area, sacred to Muslims, but excavations on the part of the hill to the south of this, particularly those conducted from 1961–67 by Dr. (now Dame) Kathleen Kenyon, have thrown some interesting light on the history of the city. It had usually been assumed that the fortification walls of the

Israelite city stood near the top of the Ophel hill. It is now clear that from the Bronze Age and through the early Israelite period, the main eastern wall stood quite a long way down the slope. This helps to explain the operation of the Gihon Spring in the period before Hezekiah's tunnel, for this is now seen to have lain inside the newly identified fortification walls.

A feature of the area of the eastern hill now seen to have been included inside this wall was a number of retaining walls filled in with rubble in such a way as to form platforms on which houses could be built in a series of terraces on the steep slope between the summit and the outer wall. Dr. Kenyon found that these dated back to the Canaanite period, but were still in use in Israelite times, and she has plausibly suggested that they may have been the feature referred to as *Millo* in 1 Kings 9: 15. The name *millo* is probably derived from the root *ml'* which in its verbal form *mala'* means 'to fill' or 'to be full', and could therefore have reference to the filled-in retaining walls.

No trace of a casemate wall or a six-sided chambered gate has been found at Jerusalem, but another new discovery has led Dr. Kenyon to postulate a possible line for the Israelite walls in the area covered by the Haram ash-Sharif. The existing Haram area consists of a large paved terrace bounded on the west, south and east sides by walls of large well-dressed blocks which probably date back to Herodian times. These create a large enough flat area on top of the ridge to make building feasible. Dr. Kenyon has now discovered, by clearing some of the rubble which lay up against the eastern wall, that at a point about 100 feet from the SE corner, the Herodian masonry abuts upon a different kind of masonry which continues northwards in the same line. This masonry is markedly similar to that found in buildings of the Achæmenian period at Sidon and Byblos and also to that in the structure known as the Tal-i Takht at the early Achæmenian site of Pasargadæ. On this basis the Jerusalem masonry can reasonably be dated in the Achæmenian period, and therefore quite possibly be attributed to the rebuilding which took place under Zerubbabel.<sup>22</sup>



There is no sign of this kind of masonry in the western Haram wall which is clear considerably further north than the point corresponding to the junction with the new masonry on the east wall, so it may be presumed that the Achæmenian period platform did not extend so far to the west as the later Herodian construction. Dr. Kenyon has suggested that the western wall in Achæmenian times may have lined up with a wall running south from the southern Haram wall and enclosing a salient of the present city. On this basis she has drawn a very tentative line to indicate the walls of the temple area in Achæmenian times. She has pointed out the likelihood that Zerubbabel would have tried to follow the line of Solomon's walls and has therefore put this reconstruction forward as a possible indication of the approximate position of the walls on the northern part of the site in the time of Solomon.<sup>23</sup>

This section may be concluded with a brief reference to recent discoveries by B. Mazar on the west of the Haram area. It has long been known that the remains of the first springers of two arches are to be seen in the masonry of the west wall of the Haram. These are named, after those who first described them, as *Wilson's Arch* to the north, and *Robinson's arch* to the south near the SW corner. It has long been assumed that both of the arches marked the location of viaducts across the central valley to the SW hill which had been occupied now since at least the time of the Maccabees. Mazar's excavations have found no trace of the next stone pier which would have been necessary had a viaduct gone westwards from Robinson's Arch, so it is now quite clear that there was no viaduct in this position. In fact the arch appears simply to have led to a stairway giving access to the central valley.<sup>24</sup> At the southern end of the central valley lies the Pool of Siloam, so this staircase presumably provided one of the routes from the Temple enclosure to the Pool. This new discovery therefore provides a new side light on Jerusalem in NT times.

#### *Hebrew Inscriptions*

In 1903 G. A. Cooke published his *Textbook of North-Semitic Inscriptions* in which he included all the major ancient Hebrew

inscriptions then known. These were the Siloam Inscription, discovered in 1880, which described the process of cutting the tunnel leading from the Gihon Spring to the Pool of Siloam at Jerusalem, a few inscribed seals, and the Mesha Stone, found in 1865 at Dhiban, and written in the language known as Moabite which is very closely related to Hebrew. These inscriptions provided 40 lines of text, and no subsequent discovery has equalled them in length, but in the period since 1903 a considerable number of Hebrew inscriptions have been found.

Two important groups of ostraca, of the 8th century BC from Samaria, and of the 6th century from Lachish, were found in the years before WW2, and these with a number of others provided a substantial body of material for D. Diringer's compendious work *Le iscrizione antico-ebraiche Palestinesi* published in Florence in 1934. Since WW2 there have been several new discoveries in this field, and it is now easy to obtain a quick survey of what this new material amounts to by reference to a recent work by J. C. L. Gibson.<sup>25</sup> Some of the new discoveries will be mentioned in chronological order.

The 9th century Mesha or Moabite Inscription was unfortunately smashed into fragments by Bedouin soon after its discovery, and though an impression ('squeeze') had been taken of it while it was still intact some parts are still uncertain. The discovery of a fragment of another stele at el-Kerak in Jordan in 1958 has made possible the restoration of one of the uncertain passages. This occurs at the beginning of the inscription which starts, "I am Mesha son of Chemosh . . . king of Moab the Dibonite". The two last characters of Mesha's father's name have been uncertain and many restorations have been proposed over the years. The el-Kerak fragment which includes part of the first line of the original inscription begins, after a small lacuna ". . . moshyat, king of Moab the Di . . ." which makes clear that the original name was Chemoshyat.

An interesting discovery of the 8th century BC was made in 1948-50 at Tell Qasile on the coast near Tel Aviv. It consisted of two ostraca, one of which read "Gold of Ophir for Beth-horon,

30 shekels". This refers to the famous place, familiar to many from John Masefield's lines —

Quinquireme of Nineveh from distant Ophir  
Rowing home to haven in sunny Palestine,  
With a cargo of ivory,  
And apes and peacocks  
Sandalwood, cedarwood and sweet white wine.

This of course shows some poetic licence but according to the Bible, most of these commodities were imported to Palestine in Solomon's time. The products of Ophir included gold, precious stones, and algum/almug wood, traditionally, though uncertainly, identified with sandal wood (1 Kings 10: 11; 1 Chron. 29: 4; 2 Chron. 8: 18; 9: 10), the ivory, apes and peacocks not being attributed to that area (1 Kings 10: 22). It is worth noting, incidentally, that the "apes and peacocks" of the AV and RSV versions, given as "apes and baboons" in the margin of the latter, now appears in NEB as "apes and monkeys". This follows a plausible suggestion made over 50 years ago by Albright<sup>26</sup> whose own explanation of them as two kinds of monkey is probably preferable to the ape and monkey. 2 Chronicles 8: 17-18 indicates that Ophir was reached by way of the Red Sea, but its location is unknown though various theories have been put forward.<sup>27</sup> The puzzling thing about this ostrakon is its discovery on the Mediterranean rather than the Red Sea coast.

Also from the 8th century is an interesting inscription from a tomb at Siloam, opposite Jerusalem. This was discovered in 1870 and has in fact been in the British Museum since then but was only satisfactorily deciphered in 1953 by N. Avigad. It reads, "This is . . . iah the royal steward. There is no silver or gold here, only . . . and the bones of his maidservant with him. Cursed be the man who opens this." The two destroyed sections can be reasonably restored as "this is the tomb of . . ." and "only his bones . . .", but the owner's name can only be guessed. The phrase "royal steward" represents the Hebrew *'sr 'l hbyr*, literally "who is over the house", and exactly reproduces

a title which occurs several times in the OT.<sup>28</sup> The passage to which Avigad draws attention is Isaiah 22: 15–25 where the prophet denounces “Shebna the royal steward (Shebna who is over the house)” for hewing himself “a tomb on the height”. The wording on the tomb and in Isaiah 22: 15 may be compared for clarity.

*Tomb . . . yhw 'sr 'l hbyt*  
*Isaiah . . . sbn' . . . 'sr 'l hbyt*

The part of the name preserved in the tomb, *-yhw*, is the common ending, an abbreviation of the name Jehovah or Yahweh, which appears in the English versions in the form *-iah*. Shebna's name here spelled *sbn'* is elsewhere spelled *sbnh* (Isaiah 36: 3), and it is possible that it represents a shortened form of *sbnhyhw*, Shebaniah, which is attested elsewhere in the Bible (Nehemiah 9: 4, etc.). There is thus a possibility that this inscription comes from the tomb of the Shebna mentioned by Isaiah.

Almost all of the early Hebrew inscriptions which have survived are on hard materials, stone or pottery, but in 1952 a fragment of papyrus was discovered in a cave in the Wadi Murabba 'at on the west side of the Dead Sea. This dates from about the 7th century, and confirms, what might have been suspected, that this material was used for writing in ancient Israel. It does not unfortunately normally survive in the physical conditions of Palestine, and many ancient documents must have perished.<sup>29</sup> This document is a palimpsest, having a list of personal names, and quantities, superimposed on a letter.

The common use of writing is illustrated by a letter on an ostrakon of the 7th century found in 1960 at Yabneh-Yam on the coast. It records the appeal of a farm labourer to his district governor, against the confiscation of his garment as a punishment. Unfortunately the offence for which the man was being punished cannot be ascertained, but it is of great interest that at this period so unimportant a person as a labourer could find it possible to have a letter written, no doubt by a scribe, to state his grievance.

A considerable number of ostraca have been found since 1962 by Y. Aharoni at Tell Arad in the Negev. Many of these are in a bad state of preservation, and only a few have so far been published. One group belongs to the time just before the conquest of Judah by Nebuchadnezzar in the early 6th century BC. It contains messages addressed to an official named Eliashib instructing him to issue provisions of bread, wine, and oil to certain individuals. An interesting example runs, "To Eliashib. And now give the kittiyim four baths of wine, and write the name of the day. And from what is left of the flour draw one ephah of flour to make bread for them. Give some of the wine in the bowls." Here, the bath is, of course, a measure, the liquid equivalent of the ephah. The actual value of the bath is uncertain but there is some reason to think that it may have been between four and five gallons. The interesting feature of this inscription is however the reference to kittiyim. This literally means the "people of Kt", Kt being the Phoenician name of Kition = Citium = Larnaca, an important port on the east coast of Cyprus. The "people of Kt" were therefore first of all the Cypriots, but with Greek expansion in the east Mediterranean the name came to refer to the Greek speaking inhabitants of Cyprus, and by extension the Greeks in general and this is probably the meaning here. There was a further development in the meaning of this term, which clearly refers to the Romans, in the sectarian literature from Qumran, and this is the most likely interpretation of the term in Daniel 11: 30, a fact reflected in some MSS of the LXX which read *Rhomaioi* instead of *Kitioi*.

These new texts make increasingly clear the widespread use of writing in ancient Israel.<sup>30</sup>

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2. Translations by Speiser in *ANET*, pp. 93-97; and Heidel, *The Gilgamesh Epic*, 2nd ed.; Chicago, 1949.

3. Recently retranslated by M. Civil in W. G. Lambert and A. R. Millard, *Atrahasis. The Babylonian Story of the Flood*, Oxford, 1969, pp. 138–145.
4. See n. 3.
5. *Jour. Theol. Stud.*, 1965, 16, 287–300.
6. *Tyndale Bulletin*, 1967, 18, 3–18.
7. Biggs, R. D., *Jour. Cuneiform Stud.*, 1966, 20, 73–78.
8. See T. Jacobsen, *The Sumerian King List*, Chicago, 1939, pp. 55–68.
9. Here it is worth noting that in Egyptian literature, though there exists the element of the destruction of mankind by the gods as a punishment, followed by deliverance (J. A. Wilson in *ANET*, pp. 10–11), there is no clear Flood story. I am indebted to Mr. E. P. Uphill for information and discussion on this point.
10. See Burrows, E., *Jour. Roy. Asiatic Soc.*, 1925, pp. 281–284; and E. A. Speiser, *Mesopotamian Origins*, Philadelphia, 1930, pp. 160–161, and *Genesis*, New York, 1964, p. 42. Here and subsequently, for typographical reasons, foreign words are quoted without diacritical marks.
11. “On the mountains of Urartu”, Gen. 8: 4, where “mountains (*hare*)” is plural, and has no particular reference to modern Mount Ararat.
12. See however Speiser, *Oriental and Biblical Studies*, Philadelphia, 1967, pp. 244–69, who suggests that the Flood Story was transmitted from Mesopotamia to the Israelites by the Hurrians.
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14. *Revue d'Assyriologie*, 1948, 42, 125; Translations in A. L. Oppenheim, *The Interpretation of Dreams in the Ancient Near East*, Philadelphia, 1956, p. 195; W. L. Moran in *ANET*, p. 623; H. B. Huffmon, *Bibl. Archaeologist* (= *BA*), 1968, 31, 117.
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24. B. Mazar, *The Excavations in the Old City of Jerusalem Near the Temple Mount*, Jerusalem, 1971, pp. 13–22.
25. J. C. L. Gibson, *Textbook of Syrian Semitic Inscriptions*, I, *Hebrew and Moabite Inscriptions*, Oxford, 1971.

26. See W. F. Albright, *Archæology and the Religion of Israel*, 3rd ed., Baltimore, 1953, p. 212, n. 16.
27. Bibliography in L. Koehler and W. Baumgartner, *Hebräisches und Aramäisches Lexikon zum Alten Testament*, 3rd ed., Leiden, 1967, pp. 22–23.
28. See T. N. D. Mettinger, *Solomonic State Officials*, Lund, 1971, pp. 70–110, who translates it as “house-minister”.
29. On the ancient use of papyrus in the near east see D. J. Wiseman in P. R. Ackroyd and C. F. Evans (eds.), *The Cambridge History of the Bible*, I, Cambridge, 1970, pp. 30–32.
30. See A. R. Millard, *BA*, 1972, **35**, 98–111.

## DISCUSSION

*R. S. Luhman.* In the light of recent comments concerning the Sumerian Flood stories can the Biblical account still be regarded as antedated by the Sumerian and Babylonian accounts?

*Reply:* The biblical account of the Flood is only preserved in late MSS, but one can speculate that it was available to Moses in written form, and could indeed have been part of a small library of cuneiform documents brought out of Babylonia by Abraham. If this was the case, and there is of course no evidence to support it, it would not be affected by the theory that the Flood theme did not become current in Babylonia until the early 2nd millenium, because the time of the Patriarchs was not earlier than this.

F. F. BRUCE

## New Light on the Origins of the New Testament

**This is a brief summary of Prof. Bruce's lecture given to the Victoria Institute on 2nd February, 1974. The full text with over 60 bibliographical footnotes will be published in due course in the Proceedings of the 25th anniversary meeting of the Evangelical Theological Society (of USA). It is to be edited by R. N. Longenecker and published by Zondervan of Grand Rapids.**

Our subject matter is the origin of the NT as a collection of books acknowledged as Holy Scripture, a development which belongs to the second century AD, an era about which unfortunately much less is known than about the first or subsequent centuries.

It is evident that the early Christians had a canon from the start, the canon of the OT, and that the apostles derived from our Lord the key as to how that canon was to be interpreted. Pagans were often exposed to this tradition and, finding it convincing, a surprising number of them became Christian as a direct result of reading the OT in the Greek.<sup>1</sup>

Some have argued that the later reduction of the early Christian oral tradition to writing was a symptom of loss of nerve.<sup>2</sup> But the Græco-Roman world of the day relied heavily on written sources: oral tradition did not generally enjoy a prestige above that of the written word. Papias, it is true, took a different view and from his youth collected as many verbal traditions as he could about Christ and the earlier generation of disciples. But by his time the stream of early tradition had run almost dry and the 'books' available to him contained much more valuable and reliable material than he was able to learn from what he called the "living and abiding voice".<sup>3</sup>



There seems little doubt that the four-fold gospel of our canon was compiled in the early part of the second century not long after the publication of the gospels separately, but whether this was done in Ephesus, Alexandria, Rome or elsewhere we simply do not know. There are different emphases to be found here and it would seem that different local preferences were transcended by inclusion of all the four records. Matthew's gospel contains various strands (e.g. in the attitude to the Gentiles, 8: 11 ; 10: 5 ; 28: 19) and the catholicity of its outlook may have given it pride of place.

Though in the earlier part of the century there are a number of hints that the gospels were known as a combined whole, *direct* evidence of this is not forthcoming till the time of Tatian, 170 AD. Like so many today, Tatian had undertaken to combine the four gospels into a single harmonious narrative. Not long afterwards we find Irenæus comparing the four-fold gospel with the four winds of heaven and the four quarters of the earth, showing that by then the four gospels were regarded as canonical.

With regard to the Pauline letters, Günther Zuntz has produced good reasons for supposing that they were collected in Alexandria about 100 AD,<sup>4</sup> though smaller collections may have circulated locally even earlier. It is known that Paul's letters often circulated to churches other than those to which they were first addressed (cf. 2 Peter 3: 15f). In Alexandria, though not at Rome until the fourth century, the Epistle to the Hebrews was accepted as Pauline.

If by *canon* we mean a closed set of books, so that it is known precisely which books are included and which not, then Marcion (c. 140 AD) must be credited as the compiler of the first NT canon. This included the Gospel of Luke (with slight modifications) and ten letters of Paul, the Pastoral epistles being excluded. But if Marcion produced the first actual canon, the idea of a canon was certainly in the air at the time and Marcion's action forced the Christian church to consider the matter seriously. The canon, as we have noted, was more or less fixed by the last quarter of the second century, though it is true that its outer

limits did remain fluid for another two centuries or more. By the end of the second century or earlier it was agreed that further additions were not admissible. Though giving full credit to Marcion, it is an exaggeration to claim, as does one scholar,<sup>5</sup> that "the idea and the reality of a Christian Bible were the work of Marcion".

Gnostic texts discovered near Nag Hammadi in Upper Egypt around 1945 make it probable that Marcion made his choices from a group of documents which had already attained something like canonical recognition. The most important of the texts is the Coptic *Gospel of Truth* which appears to be a meditation on the authentic gospel, written in Rome about 140–145 AD by Valentinus and before the development of typically Gnostic dogmas.<sup>6</sup> Tertullian says of Valentinus that he "seems to use the whole Testament" while Marcion uses "a knife instead of a pen".<sup>7</sup>

Scholars are convinced that at the very least the writer of the *Gospel of Truth* was acquainted with Luke or Matthew, John, Hebrews, the Apocalypse and some of the letters of Paul; others have seen less certain allusions to the remaining Gospels, Acts, 1 John and 1 Peter. It would certainly seem as if the author knew the books of the NT though he need not necessarily have regarded them as canonical.

Following after the *Gospel of Truth* in the Jung Codex there is the *Epistle to Reginus on Resurrection*<sup>8</sup> which appears to be by a different author. It offers an interpretation of Paul's doctrine of resurrection and immortality (1 Corinthians 15). Paul is spoken of as an apostle and his words are taken as authoritative. In addition to 1 Corinthians there are echoes of Romans, 2 Corinthians, Ephesians, Philippians and Colossians, while from the gospels the transfiguration narrative is referred to and Johannine language is used in telling how "the Lord . . . existed in flesh and revealed himself as Son of God".

Finally we may raise the question of the reasons for including particular books in the canon and ask, whether, today, we ought to defend our position with arguments different from those on which decisions were originally based, and if so what arguments we should use.

In ancient times apostolic authorship was the principal argument. There were some exceptions. The gospels of Mark and Luke were accepted because of their authors' close association with the apostles, something of the authority of Peter and Paul rubbing off on to these two gospels. But it is worth remembering that the four gospels and Acts, constituting well over half the NT, are actually anonymous.

What of the canon today? Its place in the church is hardly affected by individual opinions, opinions of Christian groups, critical findings as to dates and authorship of documents or even a man's personal awareness of the self-authenticating character of Scripture. The canon is a heritage from the past, to be passed on unimpaired to our successors. If it is to be theologically validated we should appeal, perhaps, to the inward witness of the Spirit in the Christian *community* from the first generation onwards.

## REFERENCES

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3. Papias, quoted by Eusebius, *Hist. Eccl.* iii, 39, 3.
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6. F. L. Cross (Ed.), *The Jung Codex*, 1955.
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8. See esp. M. L. Peel, *The Epistle to Rheginos*, 1969.

## DISCUSSION

*Mr. O. Angood.* Can Professor Bruce say anything about the authenticity or otherwise of the engraved plate discovered 1280 AD in Aquila in the Kingdom of Naples? It is described in a book called *Great Thoughts* (1888, p. 464) and purports to give the details written in Hebrew of the charges made against Jesus and of Pilate's judicial sentence.

*Reply*: I think we may be quite certain that this inscription belongs to the category of mediæval apocrypha.

*R. E. D. Clark*. R. Govett and later D. M. Panton, both of Norwich (Panton, *Our Seat of Authority*, c. 1920) connected the canon with the miraculous gifts of the spirit spoken of by Paul in 1 Corinthians. Imagine, so the argument went, a group of early Christians, some of them still in possession of these gifts, before the close of the first century. In addition to the exercise of the gifts there was, as the NT makes clear, straight forward Christian teaching in the assembly. Often a speaker would appeal to some Scripture in the OT canon and sometimes, especially later, to something written by Paul, Peter, James, etc. But suppose one with the gifts of prophecy (i.e. direct speaking on behalf of God under the Spirit's inspiration) were present and found himself listening to an exhortation based on a text which purported falsely to be by, say, Paul. If we take the gifts seriously, must we not suppose that the assembly would have been warned by the prophet that the words quoted were *not* derived from an inspired source and were *not* authoritative?

In this way, over the years, assemblages of documents, tacitly accepted by prophets and congregations as authentic and authoritative, would have come into existence. No formal canon is implied but by a process of exclusion the contents of the canon would have been assembled so that after the gifts had been withdrawn, the later church, by comparing notes between what was accepted by the various churches, would have found itself able to define the canon.

This view, which seems fully compatible with what Professor Bruce has said, has always appealed to me. Would the lecturer care to comment?

*Reply*: The situation envisaged by the writers whom Dr. Clark mentions is certainly quite conceivable. In fact, prophetic activity in the churches may have played a more prominent part in the pre-canonical stage of the New Testament tradition than is commonly realized. One of the papers in the volume in which the full report of my paper will appear is devoted to one aspect of this subject ("Christian prophecy, gospel criticism and us", by G. F. Hawthorne). But I am not aware of any evidence that the spiritual gifts played a part in the delimitation of the canon, either in the first century or in the second. In the New Testament more importance is attached to the authority of apostolic witness than to prophetic inspiration. Prophetic utterances themselves required to be checked, and they were checked not so much by the activity of those gifted with the discernment of spirits as by their agreement or disagreement with the apostolic witness to Christ, "that which was from the beginning" (1 John 1: 1-4; 2: 24; 4: 1-6; cf. 1 Corinthians 12: 3). The prophetic ministry continued into the second century, into the age of canon-making, but there is no indication that it controlled decisions about canonical recognition. On the contrary, the process of canon-making received a considerable impetus from the necessity of controlling prophetic utterances, especially after the rise of the Montanist movement.

E. K. VICTOR PEARCE

## Essay Review — Prehistoric Culture

**The study of man just before and just after the commencement of civilization is a subject full of interest for the Christian. In this review of Colin Renfrew's notable book, *Before Civilization*, (Cape, 1973, £2·95) attention is drawn to the agreement now emerging between modern discovery and the biblical story.**

The specialist who writes for the public is in a dilemma. Shall he guard his every statement to ensure the utmost accuracy? Or shall he at times at least take the liberty of over-sensationalising what he has to say?

Professor Renfrew in his latest book does not hesitate to take the second course. His book which is well written and makes for some fascinating reading commences by proclaiming that tree-ring calibration (dendrochronology) has dramatically revolutionised radio-carbon dating, and that consequently the theories of diffusion of culture from one centre had collapsed; e.g. "there has been a collapse of the traditional framework" (p. 84); and again "the whole diffusionist framework collapses" (p. 85).

Such expressions would appear to be journalistic and immoderate for a scientific work, especially as eventually Renfrew sides with all the main emperics of diffusion. He admits that Neolithic farming did start in the Near East (an important factor for those familiar with Genesis 2). He says "Anatolia, the Levant and the Western Zagros (i.e. Turkey and Iran, etc.) were the regions where wheat and barley were first intensely exploited" (p. 63).

Furthermore, he concedes that the next main culture advance (metallurgy) was also initiated in the Near East: "The first

known indications of metallurgy are certainly in the Near East. Native copper was already used there for beads and small objects before 6,000 BC, and there is some evidence that the metal was being extracted from its ores not long after that time" (p. 167).

Neither is his abhorrence of diffusionism justified by his revised radio-carbon dates. The main pattern of the larger dates for diffusion of farming still tells the same story, i.e. initiation in the Near East 10,000 to 7,000 BC, spreading to Europe 6,000 to 4,000 BC, to reach Britain 3,400 BC. Graham Clark's radio-carbon dating map is still valid,<sup>1</sup> the re-assessment has merely lengthened the dates by between two hundred and eight hundred years.

Once one gets the measure of Renfrew's work it becomes apparent that he is not attacking the general principle of diffusion, but an extreme form of it which insists that every cultural syndrome had its initiation at the one diffusion centre. In particular, his main contention concerns quite a late phase in European prehistory. He demonstrates that Megalithic tomb building now dated at c. 3,200 BC, did not originate in the Near East or Minoan Crete but in Western Europe.

The megalithic tombs and circles are found all along the Atlantic and North Sea coasts of Western Europe. In Britain the classic examples are the great stone circle at Avebury, 3,400 BC, and the long gallery grave at West Kennet, Wiltshire. In Britain they mark the advent of the first farmers who arrived two millennia later than in continental Europe.

The barrow of West Kennet is 350 feet long. It is a transepted gallery tomb built of huge unshaped stones sometimes fifty tons in weight. The whole length was then covered over by soil and served for 500 years as a burial chamber, into which some 500 skeletons were crammed with their neolithic artifacts.

It is strange that Renfrew should regard the concept that megalithic tombs might have originated in Western Europe as revolutionary, for in 1958 Glyn Daniel had already noted in his book *Megalith Builders of Western Europe*<sup>2</sup> that "Montelius thought

these people originated in Scandinavia” and that other archaeologists argued for Western Europe (p. 56). “Did the megalithic chamber tombs originate in Iberia (Spain) or in the British Isles or in Denmark,” Daniel asks, and although he thinks they may have originated in Minoan Crete, he adds to the 1962 edition that radio-carbon reveals that megalithic tombs of the West date from 3,500 BC which is long before Malta and Crete.

If Renfrew's contention be proved concerning the Western origin of megalithic tombs, it has no relevance to the main facts of diffusion. Danubian farmers had already reached continental Europe by 5,000 BC, and it was always recognised that neolithic farmers adapted their agriculture and husbandry to the environment; the Danubians to the heavy European rainfall and wooded loess, the Balkan farmers 6,000 BC to dryer isolated valleys, and the Mediterranean farmers 5,000 BC to the maritime borderland ecology. Thus, to put it into its proper context, the megalithic farmers two millenia later can be regarded as another individualistic response to Atlantic environment.

The source of Renfrew's confidence in a Western megalithic origin is that tree-ring dating has further corrected radio-carbon dating by a few hundred years. He pins his faith to bristlecone-pine dating. The bristlecone-pine is found on the White mountains of California. Some are as old as 4,000 years, and by calibration can go back to 5,300 BC. Prof. Suess published his calendar of dates gleaned from them in 1970.<sup>3</sup> This demonstrates that the ratio between carbon - 12 and carbon - 14 in freshly formed wood was different before 1,000 BC (a point which some of us have maintained for over ten years).

Calibration of radio-carbon dates is matched in the tree rings themselves, thus the rings can be counted for a date and the C - 14 contained in the same rings measured. This reveals that a radio-carbon date of 3,000 BC needs 800 years added to it. Such a comparatively small discrepancy has no affect upon the general diffusion picture which is calculated in thousands of years, but it does bear upon the smaller dates of more local and recent megalithic erections.

A pertinent question, however, is whether bristlecone dating will become subject to revision in its turn. Renfrew's admission of possible snags belies his brash overconfidence, e.g. "a common pitfall . . . is the existence of several tree-rings for a single year", also "a dry season ring is scarcely detectable (p. 74), and again "the question of diffusion of recent material across the older rings of the trees as a possible source of contamination is disquieting" (p. 83).

Renfrew seems to have such a doctrinal dislike of "diffusionism" that he avoids certain archaeological interpretations lest "we fall into a simple diffusionist trap" (p. 126), and he goes to the extreme of postulating several unrelated centres where megaliths were initiated on the Atlantic seaboard rather than at one primary area there (p. 126). Now this conception of unilateral initiation of a culture feature increases in improbability according to the square of the number of features developing in parallel.

Prehistory, like theology, has its fashions. There has long been a tussle between those who favour an evolution of culture anywhere, and those who favour diffusion of culture from a centre or centres of initiation. Earlier this century Elliot Smith made diffusion the popular theory. He believed that all culture techniques originated in Egypt. At that time Egypt and its glories were in the public eye, and foundation dates were thought to be 10,000 to 12,000 years ago. When it was discovered that Egyptian dates were a third of that age, there was a reaction against Elliot Smith's theory of diffusion.

Actually, although Elliot Smith overdid it, the theory was sound to a point but needed readjusting to the evidence that the centre of diffusion was in the fertile crescent or earlier in Western Asia. In the 1950's and 60's it was thought that the major culture complex of the invention of farming may have had separate origins in India, China and America, but more data are indicating that these were also derived from the Near East.<sup>4</sup>

Contrary then, to Renfrew, this trend favouring diffusionism has been the subject of a number of reviews in *Man*, the Journal



of the Royal Anthropological Institute, e.g. Gerhard Kraus, March, 1973 writes: "For forty years the historic school of culture (including the controversial contributions of the British Diffusionists, Elliot Smith and Perry) has slumbered in relative oblivion. Now there are signs from all over the world of a revival. Wolfgang Marschall's book is part of this".

With all that has been said about absolute dating, it should be remembered that there are other lines of evidence. They are archæological succession, and biological origins.

Archæologically, we have at the centres of origin two periods of neolithic farming before pottery appears — Aceramic one and two at Catal Huyuk, and Prepottery A and B at Jericho, with mesolithic or Natufian farming before them. As the circle widens to Greece, pre-Sesklo has only one prepottery epoch and farther away in Europe there is no prepottery epoch. Biologically, the evidence is that the plants and animals with which the first farmers experimented had their natural habitat and origin in the Near East.

Renfrew's dating clarifies a degree of confusion in Milojcic's chronology. Confusion can come through not taking into account the cultural check caused by the Flood.<sup>5</sup> The Flood caused a stalemate in cultural development between the early diffusion of farming in its neolithic and copper stages, and the secondary neolithic and Bronze age. "Tree ring calibration gives a time range for the Vinca and Gumelnitsa cultures of approximately 5,300 to 4,000 BC . . . going out of use fully a millenium before the Aegean early bronze age began. A gap of a 'yawning millenium' separates the two chronological systems" (p. 97), and again: "Well before 6,000 BC smelting was already practised at Catal Huyuk . . . One might well have expected a fairly rapid development in metallurgy in the succeeding centuries with the casting of larger and more useful tools . . . but instead there is no apparent development for nearly two millenia. The precise reasons for this are not yet clear" (p. 187). The Flood catastrophe would explain this for Renfrew, and would solve his problems on p. 203 about the gap in culture and stratigraphical record. This is throughout the Mediterranean Islands and on the mainland.

There is also a sterile stratum as at Malta showing that this is not merely a gap in our knowledge but an actual hiatus when life was absent until the island was repopulated after the Flood.

Renfrew makes some interesting references to instances of writing before the proto-literate era in Mesopotamia 3,400 BC. One has waited expectantly for such discoveries, as there are biblical hints of writing before the Flood. Archaeologically the Flood would be placed at the end of the chalcolithic (copper stone) before 4,000 BC and before the bronze age.

Renfrew refers (p. 177) to the Tartaria tablets of Vinca chalcolithic period following the Starcevo neolithic and presents them as a case of independent invention. These three baked tablets were found in Romania and James Makkay of Hungary lists comparable signs incised on pottery from 37 sites: some scholars think they show Near Eastern influence. There is also an early form of writing on the Karanovo circular plaque (N. Bulgaria) and the Gradeshnitsa clay plaque, all of religious origin.

Under the heading of "Symbolism and writing in neolithic societies" (p. 182), Renfrew refers to the mesolithic village of Lepenski Vir in the Balkans 5,500 BC. These religious symbols indicate an economy based upon the fishing on the Danube. They may serve as mnemonic aids to a chant which had to be learnt which functioned in conjunction with an oral tradition as with the rongo rongo tablets. One cannot but remember the earlier Solutrian mesolithic pebbles which had signs painted on them. Were they also some simple system to prompt the memory?

In his final chapter on "Towards a new prehistory" Renfrew speaks of the awakened interest in 'ethnographic parallels'. That is the use of a living primitive society to interpret the meaning of prehistoric finds. This should be used to widen the horizon of the interpreter rather than commit him to a slavish identification of artifact details. This may be so but we need not accept the philosophy with which he justifies it. He thinks it can be useful not because there may be an inherited contact between prehistoric and existent societies, but because a similar environment would

bring a similar response. This is the outlook of the cultural evolutionist. The diffusionist believes it to be disproved on the whole for the following reasons:-

For half a million years man has had the brain capacity and intelligence of our present species, and over and over again there has been an environment in which farming *could* have been initiated, yet this did not happen until 10,000 years ago in the Near East. Again when neolithic farming reached Melanesia it stayed in its neolithic and chalcolithic stage down to this century because the Bronze Age, and the Iron Age had not migrated to them from the nuclear area where these developments were initiated.

Other examples are the wheel: the Inca Empire policed its well-built roads for thousands of miles yet wheeled vehicles were never invented. Writing, invented in the Near East was never invented in the new world, yet ingenuity was not lacking, for the Incas recorded the payment of taxes by knots in hundreds of lengths of string. China and Japan still use non-alphabetic writing with thousands of symbols because they received the art of writing from the Near East before the alphabet was invented there. These and other examples falsify the evolutionary theory of culture according to which the same response of inventions automatically arises from similar environmental needs.

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## ESSAY REVIEW

# Ghosts in the Graveyard — Parapsychology behind the Iron Curtain

**Most of us in the West think of the lands behind the Iron Curtain as a realm where, to get on at all, you must toe the party line in matters religious, psychical, mystical or superstitious by declaring that such things are all rubbish. According to a recent book the situation is very different: you can believe in, and even get the State to support, almost any idea, however cranky, or however closely allied to religion, provided only that you will agree to call it 'scientific' and to pretend that you are dealing only with material forces and things.**

The magazine *Punch* once figured a scene in a graveyard. It was night and in the blackness luminous spectres were flitting over the gravestones, the dead hobnobbing with their erstwhile friends in adjacent graves. Two hard headed men watched the scene, surprised, no doubt, but by no means daunted. Said the one to the other: "Of course there must be a scientific explanation".

It is difficult to read a recent book by Sheila Ostrander and Lynn Schroeder on psychic developments in Russia and Communist lands<sup>1</sup> without thinking of *Punch's* graveyard. But for *Punch* it was all a big joke; for Sheila and Lynn it is deadly serious.

Until around 1960 parapsychology was taboo in Russia. The 1956 Soviet Encyclopedia authoritatively stated: "Telepathy is an anti-social, idealistic fiction about man's supernatural power to perceive phenomena which considering the time and the place,

cannot be perceived." The ruling atheistic government feared nothing more than a so-called science which would fan the flames of superstition and religion. A few bold experimenters, notably Karl Vasiliev, worked in the field but kept their opinions and results to themselves.

Then the change came. According to an article published in the West which came to be read in Russia, the USA submarine *Nautilus* when submerged beneath the Arctic Ice Cap, maintained communication by telepathy with the naval authorities on land. ESP (Extra-Sensory Perception) groups promptly sprung up like mushrooms in the USSR. A few years later rumours circulated in Russia that Chairman Mao had ordered his scientists full-steam ahead in telepathic research. By 1970 or earlier the USSR was spending 20 million roubles a year on this field of endeavour.

Ostrander and Schroeder's book tells the story of these new developments. It professes to be but a fraction of what the authors learned when they visited a parapsychology conference in Moscow in 1968 but it covers 446 pages and there are 425 references.

Communists believe that the war potential of parapsychology is very great. Indeed, for them, history proves it: in 1942 a psychic dream by a Russian soldier revealed a Nazi battle plan at Kharkov and as a result the Russians were saved from defeat. Apart from dreams and ability to pick up ideas in the minds of enemy commanders, the Russians see many other possibilities. Some parapsychologists know how to implant false ideas in the minds of quite ordinary people. Wolf Messing can fool people easily — under official scrutiny he demonstrated his power by handing a blank sheet of paper to a bank clerk telepathically causing him to suppose it was a cheque for 100,000 roubles — which sum the clerk at once handed over. On many occasions Messing used to visit Stalin, passing security guards by impressing on them the idea that he was Beria whom he in no way resembled (p. 58). Over 1,000 people have been tested in knockout and knock-down experiments. Watched on closed-circuit tv they are put in empty rooms and are made to fall down by telepathy: in one test series the score was ten out of ten and even the direction of fall was correct eight times out of ten (p. 124). Wonderful weapons indeed against the VIPs of an opposing army! Russians

have also confirmed that ESP is effective from submarines in deep water. Work using human beings in this field of research is classified, of course, but an unfortunate female mouse in a submarine reacted strongly each time one of her babies was killed far away on land. But alas (p. 142) ESP messages might get 'bugged' and a "very powerful psychic . . . can skew the transmission". Extensive research will be necessary before ESP can be reliably used in war: meanwhile the need for endless experiments in hundreds of laboratories to discover how to stop bugging, coupled with Parkinson's Law, will keep the roubles flowing.

Let us now recount some of the results achieved and consider some of the parapsychological work in progress in Russian lands.

In 1967 the Soviets flashed a coded message by telepathy from Moscow to Leningrad (p. 101) by Morse Code (45 seconds for *dash* : 15 seconds for *dot*). In imagination Yuri Kamensky, the sender, violently punched and kicked Karl Nikolaiev the recipient whose nervous system was plugged into the EEG and other monitoring devices. The psychic assaults were timed and the word MIG (= "instant") accurately received.

Much work is being conducted on "artificial reincarnation" (Ch. 12) especially by V. L. Raikov. He brings back the long since dead placing them temporally in young girls. Work on prophecy and telekinesis (PK) is conducted by Dr. Kozyrev's school in Leningrad. He makes use of "cause-effect" equipment. With the help of burning sugar he shows that the chemical effects of time-density (time is "thin around the cause and dense around the effect") will move a gyroscopic pendulum at a distance. He has discovered that optical activity is related to PK.

Several Chapters (Chs. 16-18) describe the wonderful discovery of Kirlian (after S. D. Kirlian) photography.<sup>2</sup> Living matter placed in an alternating field (75 - 200 KHz) emits coloured and ever-changing flares which twinkle and sparkle like a firework display: at death the twinkles are dislodged and flit away. So now the psychic double, the odic force, the aura has been made visible by science! The aura, whose appearance offers a diagnostic test

for disease, holds its body form independently of physical matter. Cut away a third of a living leaf and the aura of the *whole* leaf remains: in man even a lost limb registers (p. 221) — for the astral or “bioplasmic” body is unaffected by physical mutilation.

Obviously a new energy is at work. *Bioplasmic body energy* (as the Russians now call it) transferred to a sick person effects cures (p. 231), so faith healing comes into its own. The psychic healer laying hands on meat preserves it from decomposition in the larder (p. 232). Careful observation of Kirlian photographs makes possible the accurate determination to within .01 cm. of Chinese acupuncture points. Thus the old and new are mated: man is linked to the cosmos and astrology comes into its own.

Gadgets called *psychotronic* or *Pavlit*a (after Robert Pavlita, a Czech) *generators* have been invented and patents are (or were) pending. They extract bioplasmic energy out of people and store it safely for later use (Ch. 28). The energy in the generators can “be scientifically observed and studied as it swirls in sparkling flares of colour”. The generators can now do many things a psychic person can do: sometimes they do it better. One generator performs with ESP card tests, never making a mistake about the telepathy signal aimed at it: another makes snails withdraw into their shells. The physical appearance of the generators varies — one, 6–7 inches high, “looked like a small abstract figure of an ancient fertility goddess” (p. 384).

In Bulgaria the blind prophetess Vanga Dimitrova is studied by the famous Dr. Georgi Lozanov, Director of the *Institute of Suggestibility* in Sofia, and of *Parapsychology* in Petrich (Ch. 21). Vanga reads your thoughts in a most disconcerting way. She predicted correctly of a pregnant woman that her unborn child would be killed by a man living in such and such a street. Her prophecies make common people wonder about the purpose of life, about Karma, about reincarnation and even about God. Accounts of memory in a previous life circulate. “Reincarnation . . . it’s a very intriguing idea [A case of an apparent memory of a previous incarnation follows] . . . It makes you wonder, doesn’t it?” (p. 287).

Dr. Lozanov's State-supported prestigious Institute in Sofia, where clairvoyants come and go, is staffed with 30 scientists and overflows with expensive Italian made electronic equipment. One subject of study is a 53-year-old farmer who sits down in a field and, after intense concentration, rises in the air (p. 292). It's all in the day's work: nothing really psychic about it of course. Good Communists study mind and living matter as a unity and whatever happens is a *physiological* not a psychological, still less a psychic, phenomenon (p. 291).

Lozanov never uses hypnosis: he has devised a new method of suggestion. Even serious operations are now performed without pain (no acupuncture needles are needed) and recovery is very rapid indeed (p. 296). Suggestion also eases the task of students — Lozanov's teaching technique (listen to the quiet musical background but *don't* on any account listen to what the teacher is trying to teach you) speeds learning by up to 50 times. In his Parapsychology Institute he gets astonishing results by his muscular technique "transmitting to someone the impulse to move in a specific direction". "We found we could transmit long segments of information by this method" (p. 304).

Among the high-lights of discovery in pre-invasion Czechoslovakia were the astrological-safe-period method of birth control and the generation of biophysical energy by objects shaped like the Cheops pyramid. A dead cat placed under a pyramid will mummify but will not decompose. No doubt the Egyptians made this discovery in ancient times.

\*            \*            \*

It is difficult to know what to make of most of this. The authors seem astonishingly naïve: even where sensible and helpful comment might have been possible it is always missing. In no case are scientific details of just how experiments were performed forthcoming and nearly all the references are to the equally unhelpful *popular* Western press.

The outstanding impression created is that, in Communist lands, it is necessary at all costs to maintain the fiction that everything, yes *everything*, is 'scientific'. Quotations to this effect are plentiful throughout the book.



Wolf Messing is emphatic that "there's not a particle of the unknowable or supernatural about precognition" (p. 72). Our ideas of time and space "are primitive which makes it inexplicable at present." "In precognition logical cause-effect is by-passed and only the concluding link in the chain flashes itself before the psychic." "The time is coming when man will understand all these phenomena. There is nothing strange. Only what is not yet commonplace" (p. 73).

We do not yet know how ESP, dowsing, telepathy, telekinesis, eyeless sight, prophecy . . . work, but "there is nothing mystical, spiritual, or above all 'psychic' about them" (p. 71).

Mrs. Nelya Mikhailova can see with her fingers in the dark, even identifying colours, and she moves objects at a distance. But, says a Communist Professor, this "has nothing to do with mysticism. When a person thinks, he radiates energy and the energy is stronger in some people. PK is a physical-physiological fact" (p. 76). According to Dr. Lozanov the Bulgarian who is convinced that Vanga Dimitrova can see into the future, "whatever prophecy is, I am sure it can be and will be explained scientifically" (p. 278). "In general" say the authors of the book, "communist scientists feel that paranormal happenings probably occur according to specific laws which can be discovered and worked out. The Communist definition of 'materialism' includes the laws of scientific occurrences, and hence, if psychic events follow laws of behaviour, they can be considered as 'material'" (p. 283). A fine definition, this, which will bring God into the materialistic category if, for example, He follows a law of behaviour by punishing sin and rewarding goodness. We are back in *Punch's* graveyard. The spectres are there right enough but of course there *must* be a scientific explanation.

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2. Tiller, W., "Are Psychoenergetic Pictures Possible?" *New Scientist*, 1974, 62, 160 (25 Ap.). The effects, in so far as they are genuine, are presumably due to corona discharges.

**REVIEWS**

M. Ullman, S. Krippner with A. Vaughan, *Dream Telepathy*, Turnstone Books, 1973, pp. 300, £2·95.

Does telepathy occur more readily when the recipient is asleep than when he is awake? There is a considerable body of evidence suggesting that this is so. The authors of this book describe experiments conducted at the Dream Laboratory of the Maimonides Medical Center, Brooklyn, NY, designed to test the point. Attempts are made from another room to transmit a 'message' (a picture) to a sleeping person who is woken up when the electrodes attached to his head show that he is dreaming: his dream is then recorded. Comparisons are made objectively between dreams so obtained and control blanks in which no telepathy is attempted. It is claimed, and the claim seems highly plausible, that results are convincing in favour of telepathy.

The book, based on published papers, makes interesting reading: the authors have wisely refrained from providing copious tables of statistical results which would have made their book most indigestible!

According to the Bible God often communicates by dreams: it may well be that this is one of the more effective of the methods He uses.

Gene Usdin, (Ed.), *Perspectives on Violence*, Brunner/Mazel and Butterworths, 1972, pp. 161, \$7·50.

Though not directly concerned with Christianity this book is of great Christian interest. It arose from the Symposium on *Alternatives to Violence* conducted by the American College of Psychiatrists on 1st May, 1971 at Washington D.C. at a time when the city was disturbed by anti-war demonstrations. The volume contains seven papers by eminent authorities in history, social psychology, anthropology and psychiatry.

The violence of today has many parallels in history says H. S. Hughes (historian): always there is the same windy verbiage, confusion, lack of clear goals and disillusionment as revolutionary alignments fall apart and forces of law and order take the upper hand. In the end history records a great stirring but little trace remains. Despite the French Revolution "an imaginary observer would find it hard to detect which Western European nations derive their institutions from a revolutionary tradition and which do not." Similarly the Russian peasant, despite the periodically deferred hopes for a better life in the USSR dangling before him might have fared no worse without the Revolution.

Many young dynamic students reach the opposite conclusion. Revolutions are effective, therefore violence in revolution is ethically right, they claim: it is legalised international war that is immoral. The two views as to how ethics should be applied separate the young from the old.

Of alternatives to force, Hughes can think of only two: the *Satyagraha* of Ghandi (quite ineffective unless established powers have a conscience which forbids complete ruthlessness, compare Czechoslovakia in 1968) and individual secession, again ineffective as to the course of events.

Wilton S. Dillon (anthropologist: author of *Gifts and Nations*, 1968) deals with obligations. Gifts which cannot be repaid engender hatred. (H. Schoek's fascinating book, *Envy; a Theory of Social Behaviour*, Secker and Warburg, 1969 should also be consulted on this: surprisingly Dillon does not refer to it.) Among the Siuai people (Solomon Is.) men of high rank give away pigs and money to humiliate others (the Marshall Plan followed the Siuai paradigm!). More worthy of political imitation by the West is the Kula Ring technique. (Twelve Melanesian Islands in a circle 150 miles in diameter with enormously different cultures avoid war by sending gifts, typical of manufactures on each island, in clockwise and anticlockwise directions biannually.) Suggestions for a revised Marshall Plan are made. (*Domestically*, impoverished blacks and whites must realise that they have something valuable to give to the community in return: *internationally*, why not

“beg the Chinese to let the UN hold its next session in the Forbidden Palace in Peking. Chiang Kai Shek could be invited to lend his favourite chefs and Sung porcelain for the banquet . . .” Man must be taught “a religious obligation to demand that all of God’s creatures, rich and poor, exploit each others’ minds, talents and skills . . . otherwise we face a new wave of ‘Gaullist effect’ . . . crashing against our newest efforts to launch a domestic Marshall Plan.”

L. J. West (psychiatrist) argues that, sickened with violence, much of the youth of today is experimenting with alternative life-styles. The “hippie” counter-culture is one approach and even the use of drugs often serves the need for conflict resolution.

Christians seem slow to take up these issues. It is fundamental to Christianity that God *gives* to undeserving man — He gave His Son, he forgives man’s sins, He gives eternal life — and that man can never repay the debt. Does this create a “Gaullist effect”? There would seem to be little doubt that it does and that this is one reason at least why men reject the Christian message. But the theme needs expanding.

John Ivimy, *The Sphinx and the Megaliths*, Turnstone, 1974, illus., pp. 206, £2·95.

Books on ancient civilisations now appear with bewildering frequency. In this well written, enjoyable and plausible book John Ivimy, who does not claim to be an expert, develops the thesis that ancient Egyptian priests, by virtue of their knowledge of when Ra the sun god was about to be angry (as evidenced by an eclipse) held the people in subjection. But when their calculations began to go wrong they decided on the establishment of far-away observatories (Stonehenge, etc.) to improve predictions. Egyptians visited England setting up megaliths and establishing colonies under a leader (comparison is made with Brigham Young the Mormon) finally, perhaps, buried under Silbury Hill.

If some such view as this is finally established it may throw light on ancient pagan religions but the evidence is still very inconclusive.

James F. Coppedge, *Evolution: Possible or Impossible? Molecular Biology and the Laws of Chance*, Zondervan, Grand Rapids, Michigan, 1973, pp. 276, PB., 2.25 dollars.

The purpose of this book is to disprove evolution defined as "the belief that all living things, including man, resulted by natural changes from lifeless matter, with no supernatural intervention involved" — a definition which would certainly have excluded Charles Darwin as an evolutionist if not some of his modern followers. The author's method is to prove that the probability of the formation of life is zero. This has been attempted before but the present volume is obviously the result of wide up-to-date reading and much hard work. Moreover the author has often taken the trouble to discuss points with those whom he criticises.

The argument largely centres round the DNA code and the difficulty in understanding how it could have come into existence other than by a creative act or acts. The book closes on an evangelistic note.

The probability of a meaningful sequence of amino-acid residues will depend in part upon the number of unrealised sequences which *could* be meaningful. Dr. Coppedge exploits the analogy with language: taking 30,000 letters at random and arranging them, again at random, into 7, 6, 5, 4, 3 and 2-letter 'words', he listed all the 'words' which were meaningful: the numbers obtained were 1, 3, 17, 139, 1113 and 4890. Using this result as a starting point he calculates that for a protein of 400 units the probability of formation would be  $10^{-240}$ . He makes concessions generously but still the probability of formation is remote.

Much emphasis is laid on the optical activity of natural amino-acids since an inorganic chemical synthesis would have produced left and right handed forms in equal amounts. This difficulty confronting the 'evolutionist' is certainly very great but Dr. Coppedge overstates his case. He seems, for instance, to be unaware of the fact that inactive substances, if they give chiral

crystals, can react with inactive liquids to give optically active products (Penzien and Schmid, 1969 ; see *Chemistry in Britain*, 9, 496). This is however a difficult subject in which recent work is easily overlooked.

Despite the wealth of citations the book is intended for ordinary readers and in places the style is very popular. It is no easy task to be scientifically accurate and intelligible to the non-scientist into the bargain. In many ways this is a praiseworthy attempt.

However, many will feel that Dr. Coppedge's failing is that he is much too uncritical. Whitcombe and Morris's book on the Flood is described as "the epitome of scholarly and scientific thoroughness", a verdict which very few scientifically informed Christians on this side of the Atlantic would endorse. Even Velikovsky, scientific maverick if ever there was one, comes in for some guarded praise. The author complains that scientists are too slow to accept proven facts and cites — could his choice be more unfortunate? — the case of anomalous water which "might very well have been discovered much earlier if there had not been a tendency to ignore it because it did not fit into the generally accepted pattern". But Derjaguin, its 'discoverer' now admits his mistake: the 'water' does not exist.

Young Christians reading this book will be taken aback to learn that the author takes quite seriously the view that the world is only a few thousand years old instead of 4 or 5 aeons, scientists being "slow to accept dating results that run contrary to that standard dogma". He is highly critical of radioactive dating but completely ignores isochrons, the most reliable of the dating methods, and claims that radio dating must be utterly unreliable because, so he says, the method assigns great ages to modern lavas.

In proof of this surprising statement he refers to a paper by J. G. Funkhouser and J. J. Naughton (*Jour. of Geophysical Research*, 1968, 73 (part 14), 4601) and comments (p. 185) "Scientists carefully dated samples of volcanic materials with the

known formation date of 1800 and 1801 for a flow at the Kaupulehu, Hualalai Volcano, Hawaii. The dating therefore should have matched that time span, around 168 years" but in fact potassium-argon dates ranged from 160 million to nearly 3,000 million years.

A reading of the paper in question does not support Dr. Coppedge's case. Radioactive dating starts from the time when a rock was molten. It is a feature of many Hawaiian lavas that they contain large numbers of very small particles (small *xenoliths*) of high-melting rocks which did *not* melt when the lava flowed. Bubbles of gases (including helium and argon) and even pockets of liquid carbon dioxide, all at a high pressure (equivalent to depths of formation of 8 – 16 km.) are often contained in these particles. It is these xenoliths which give the great and variable ages, *not* the part of the lava which was recently molten. In a lava in which xenoliths are absent the potassium-argon date was found to be around that expected — a fact plainly stated on the very page of the journal (p. 4603) to which Dr. Coppedge refers, while the title of the paper ("Radiogenic Helium and Argon in Ultramafic Inclusions from Hawaii") which he quotes in full shows at a glance that the use he makes of the paper is unfair. Alas, irresponsible statements of this kind are becoming all too common in some American Christian literature. Surely there are more plausible ways of reconciling the Bible with geology than by flying in the face of the vast amount of evidence which confirms the very considerable age of the earth.

Raymond B. Cattell, *A New Morality from Science: Beyondism*, Pergamon, 1972, 483 pp., £7.50.

An earlier attempt (*Psychology and Social Progress*, 1933) by Professor Cattell of Illinois to base morals on evolution has sometimes been cited as one of the bravest and best to date. In this new and impressive volume he expands the theme which has always, he tells us, been before his mind's eye. The heavy documentation and extensive notes on every aspect of the relations of sociology and evolution to morals make the book an important

reference work, a position it is likely to hold for years to come. Though presented in text-book guise, the style is not too arid and the author's candour often stands out conspicuously. In addition there are many provocative asides (e.g., Was Marx over-interested in social parasitism because he lived parasitically on Engels? Education cannot cure inequality "for an effective education . . . magnifies the effects of innate differences", etc.).

But what of the thesis? It would be impossible to summarise Cattell's arguments in a few paragraphs. Every statement he makes is guardedly hedged around with provisos and long discussion of real or seeming objections or exceptions. The following bland statement is perhaps as fair a one as can be given.

*Beyondism*, the name Cattell gives to his brand of philosophy "begins with the acceptance . . . of the scientific view that mankind is in process of evolution in a physically and biologically evolving universe. It admits the possibility that the further evolution of his species may fail, but also that there is no apparent reason why the present stage may not be a mere first step in tremendous evolutionary advances yet to come" (p. 73). Beyondist ethics defines right as behaviour effective in giving creative scope to high individual intelligences and it relies not on outright competition but on co-operative competition to improve man's stock of genes. For this reason a uniform moral code must not be extracted from science: evolution must not keep all her eggs in one basket. Each ethical code must be established as suitable for its own culture but of course the codes will have much in common. However, it will be many years, Cattell says, before evolution and morals are properly synchronised: till then we must look to the religions to provide our morality.

Often religious and scientific ethics tell us to do the same things. But not always. For example "outright transfer of gains from one group to another frustrates and confuses the feedback of proper reward to good cultural habits and genetic inventions" and is therefore "a pernicious and evil interruption of group evolution" (p. 216). The differences are discussed in Chapter 7



where the author takes exception not only to religious ethics but also to the ethics of so-called intellectual liberalism.

The general theme is that in Beyondism you develop a new emotional life appropriate to evolution's destiny for man: you do not, as with Humanism and Existentialism, make use of your present emotional values to develop a social morality (p. 118). However, it is not at all clear, says Cattell, why evolution has to happen at all "for, if a power in the universe is able to predestine the eventual outcome the reason for the latter having to be found by trial and error is not clear". We must accept this as part of our limited understanding (p. 105).

The book is unlikely to please Christians, agnostics, sociologists, educationalists or politicians: one can only wonder at and admire Professor Cattell's single-minded purpose in pursuing his thesis over so many years. For many readers his presuppositions will seem doubtful, false or unrealistic. Is evolutionary science a reliable foundation on which to build? If it is, what about van Valen's Law (implying that primates, like dinosaurs, are destined to die out, see *Nature*, 245, 352)? Even suppose ethics *could* be founded on evolution, would this type of ethics make an impression on mankind — a few high-brow academics, perhaps, but who else? Men are concerned with immediate problems: food, warmth, war, death, perhaps a world catastrophe quite soon, not with a dim and problematic future long aeons after they are dead. Think again Professor Cattell: meanwhile thank you for an interesting book!

## Also Received

W. Frair and P. W. Davis, *The Case for Creation*, Moody Press, Chicago, PB.

W. Starcke, *The Gospel of Relativity*, Turnstone Books, £1.95.

## Correspondence

*Sir* — My article “On the Resurrection and Ascension of Christ” (this **JOURNAL**, 100 (3), 259) has been criticized by some of my friends, more particularly my very tentative suggestion “that, by a direct miracle, His Body was frozen or the entropy prevented from rising in some other way.”

Perhaps I may be allowed to amplify somewhat my views about miracles; not that my ideas are of importance in themselves, but because I believe that they are probably shared by many scientists who are orthodox Christians.

As I said in the original article, a “once only event” cannot be regarded as a scientific datum; nevertheless, I believe that whatever happens must have a physical correlate, although we may have no idea what this may be.

If I may take as an example something simpler than that quoted above; suppose that someone is bleeding very badly. A “spiritual healer” lays his hands on the patient and the blood very quickly clots. There is quite strong evidence that such things have happened though we do not know how. This is a “miracle”, a single event and not a scientific datum.

Nevertheless, certain biochemical reactions must have taken place, e.g. production of clotting-factor VIII, formation of thrombin, following some “extrinsic” process, etc. Fibrin must have been formed and polymerized. We don’t know *how* and perhaps we never shall know.

As I said in the original article, the significance of the miracle really lies in the time and circumstances of the unique event.

I would infer, therefore, that if a dead body does not show signs of decomposition after 36 hours, some mechanism must have prevented the rise of entropy. Cold was an obvious, but possibly a completely wild guess on my part.

It would be interesting to know how far my “physical correlate” idea is shared by other scientific believers.

G. W. Scott Blair, Grist Cottage, Iffley, Oxford.

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