

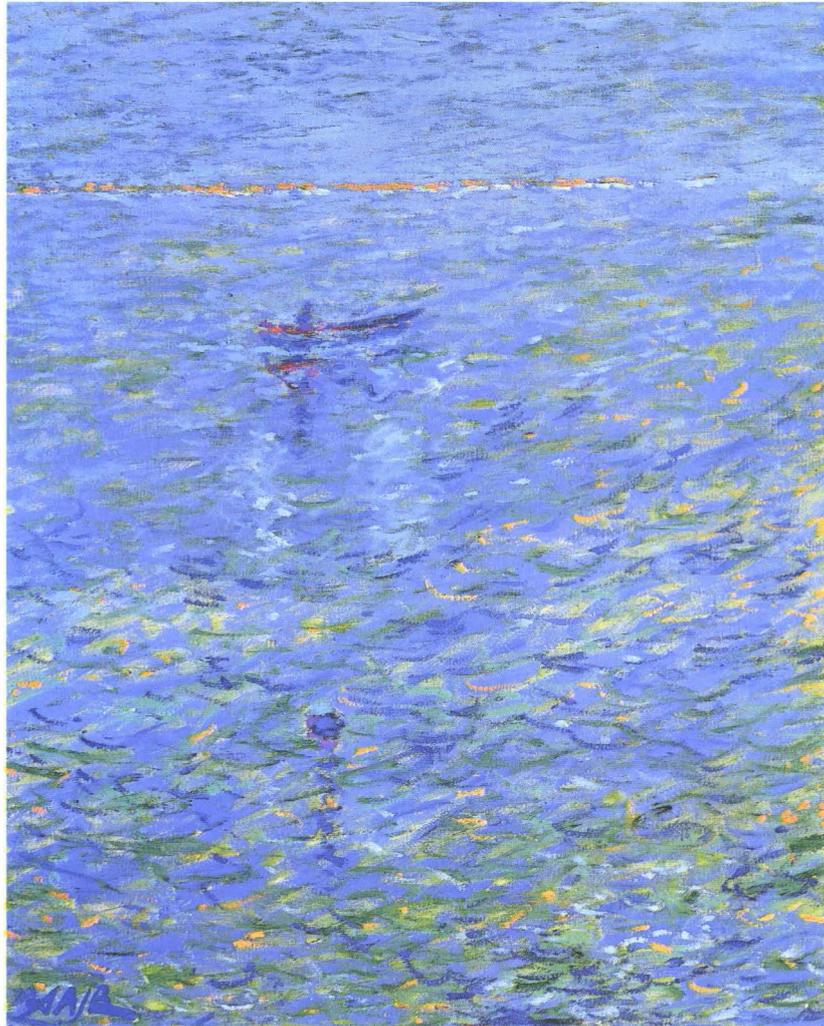
Issue 8

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BESHARA

M A G A Z I N E



BESHARA
A MAGAZINE
CONCERNED WITH UNITY

Mae-Wan Ho
'Reanimating Nature'

The Integration of Science with Human Experience

Martin Notcutt
The Club of Rome

Simon Blackwood
Painting as a Means of Expression

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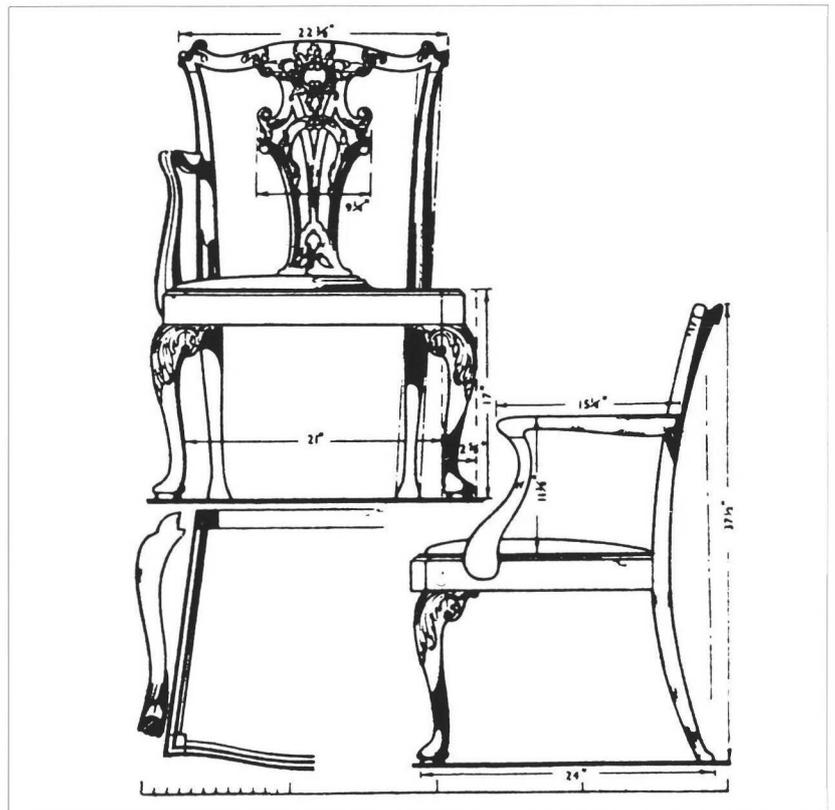
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B E S H A R A

BESHARA Magazine was started in 1987 as a forum where the ideas of unity which are now emerging in many different fields – in science, economics, ecology, the arts and in the spiritual traditions – can be expressed. The word 'Beshara' is Aramaic (the root language of Arabic and Hebrew) and means 'Good News' or 'Omen of Joy'.



Cover Picture:
Bosphorus Boat II
by Simon Blackwood

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NEW

SCIENCE, ORDER AND CREATIVITY

David Bohm and F. David Peat

In this thought-provoking new book, David Bohm, one of today's most foremost scientific thinkers, and David Peat, well-known science writer, contend that science has lost its bearings over the last century and become a narrow, abstracted and fragmented way of approaching nature and reality. December 1988: 300pp Pb: 0-415-03079-X: £5.95

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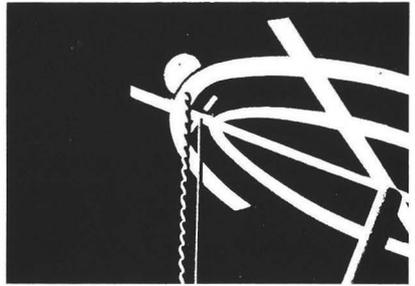
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Editorial

REGULAR READERS will no doubt have noticed that the appearance of BESHARA has changed with this issue. The change has been dictated by the fact that the magazine has expanded both in size and in scope since it was launched two years ago, and has come to demand a different, stronger format to match its content. It also now reaches a much wider audience, and with new readers joining us all the time, this is perhaps an appropriate moment to reiterate the aims of the magazine.

BESHARA is concerned with unity, and it is intended as a forum where the ideas of unity which are now emerging in many areas of human activity can be brought together and expressed. For many people at the moment, the need for a unified perspective is most vividly demonstrated by the state of the environment. It is becoming clear, even to politicians, that in order to take proper care of our world, we need to treat it as a single entity and take a wider view than that dictated by merely national or cultural interests.

In the past, BESHARA has reported on the ecology movement, and on seminal events such as the Global Forum of Spiritual and Parliamentary Leaders in Oxford last year. In this issue, Martin Notcutt investigates the work of the Club of Rome, which for the past twenty years has been urging governments to undertake long-term global planning and a radical approach to environmental problems. And in our news section, we include reports on conferences and ideas which are beginning to create a context within which a global perspective can develop.

Another area where the idea of unity is strongly emerging is the physical sciences. In previous issues, BESHARA has considered new ideas in cosmology and quantum physics. In this issue, Dr Mae-Wan Ho reports on the life sciences, where recent discoveries concerning inheritance and evolution are

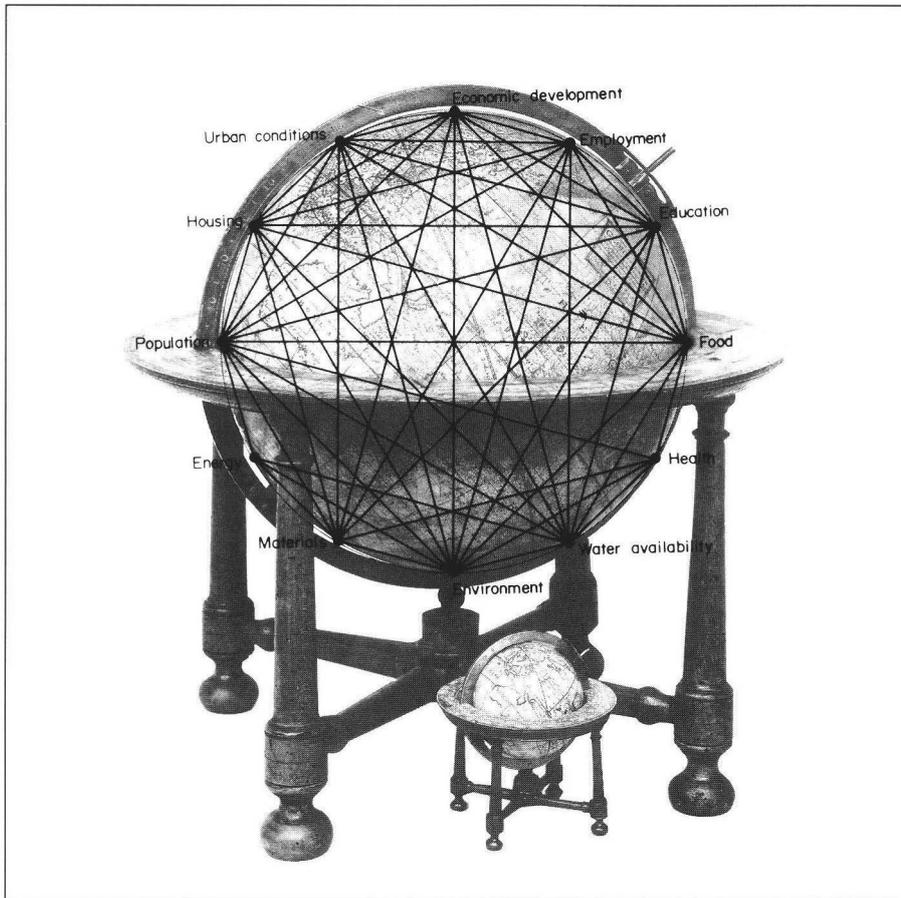
leading to a biology based on co-operation and interconnectedness, rather than fragmentation and struggle.

Mae-Wan Ho points out (p17) that one of the features of this new biology is that it crosses traditional boundaries, and involves psychology and sociology as well as physics, chemistry and mathematics. She goes on to consider the parallels between the scientific mode of perception and the way the artist sees the world. On this same theme, we also have articles on two of the giants of Western civilisation – Goethe and Leonardo da Vinci – who, *par excellence*, transcend the separation between art and science that modern man has made, and a review of the works of David Bohm, who of all living scientists has perhaps done most to bridge the gaps between disciplines.

The integration which these great men exemplify comes not from piecemeal synthesis of facts or ideas, but from an understanding of the essential principles from which all knowledge springs. It is with this deeper understanding that BESHARA is really concerned. The intention in bringing together the unifying ideas which are emerging in different spheres – economics, science, art, religion or whatever – is that they will be seen not as separate happenings, but as a single movement which encompasses not only the way we think, but the way we live our lives and conduct our affairs.

As Peter Young says, speaking of the purpose of the courses at Chisholme House, the challenge which we now face is to come to “an awareness which means not regarding (ourselves) as an existing entity, or even regarding ‘mankind’ as an existing entity, but knowing that the totality of mankind and the world of nature – the macro-environment – is reflective of one reality, and man’s honour is to be of service to that reality in looking after the creation in a proper way; a responsible way.” (p28).

Jane Clark



The Tangle of the World Problématique

From Policies to People

The Club of Rome Evolves

A report by Martin Notcutt

IN A WORLD trying to come to terms with global problems arising from human economic activity, such as the Greenhouse Effect, it may be that the most influential body over the past twenty years has been the Club of Rome. Last autumn it held a major conference in Paris to focus on the needs of the world beyond the year 2000. At the same time, its members assessed the progress to date, and laid out plans for the future of the Club, including major changes in its activities and structure.

The Club of Rome is a private (not secret) association of about a hundred people worldwide. They are all 'top level' people, including engineers in the energy industries, life-scientists, economists, philosophers, civil servants, and a few heads of state. But they are

invited to join the Club as individuals, and not on account of the office they hold.

The organisation was founded in 1968, to analyse and stimulate solutions for three main kinds of problem:

- a) Those which require longer-term thinking than can be entertained by politicians constrained by elections
- b) Those which are too widespread to be solved by countries acting in isolation
- c) Those which are an untidy tangle of many different interrelated factors.

The autumn conference, entitled 'The Great Transition: Reasons to Live and Hope in a New Global Society', was opened by the French Prime Minister, Michel Rocard, and included addresses

by Frederico Mayor (Director of Unesco), Crown Prince Hassan of Jordan and the Nobel Prize-winning scientist Ilya Prigogine.

Personal contacts

Because of its concern for the predicament of mankind, the Club of Rome has succeeded in drawing members from across important political divides and from about fifty countries. Despite its elevated membership, it has thrived on informality; for twenty years it had no budget, and facilities such as an office and secretariat were those provided by friends.

Above all, the Club has worked through personal contacts to make decision makers aware of key facts. Thus it has been all but invisible to the public media in its action, although its

name has become known. But there is little doubt that, directly and indirectly, its members have played a big part in the development of many national and international policies of great importance. They have often been able to slip through the rigid barriers of bureaucracy to communicate information where it was really needed.

One example of this has been its meetings of national leaders. The most successful of these was hosted in 1974 by an Austrian Chancellor. It was attended by about ten prime ministers, out of fifteen invited. They came by themselves for a weekend, without any teams of advisors, on the grounds that nothing said in the meeting would be reported outside. This meeting did have significant effect on the national environmental policy of at least one of the countries attending. But capacity to influence leaders is not everything. It was also at this meeting that one prime minister said, "I agree with everything you have said, but if I were to try and implement it, I would be out of office – not in two years, but in two weeks. Then you would have to spend a long time educating my successor."

Think Globally, Act Locally

The Club has also had more public dimensions. These include the sixteen or more reports which it has supported, the projects undertaken, and the national associations, which are an important element in the decentralisation of the Club.

The first report it produced was commissioned in 1970, and made quite an impact when it first appeared. Entitled 'Limits to Growth', it was a speculative study, an extrapolation of trends of population growth, growing levels of consumption and environmental contamination, set against the depletion of reserves of energy, minerals, etc. It described a situation which would be disastrous if it were allowed to continue.

The report had its shortcomings, and to some extent the Club has been labelled by it ever since. But it gave substance to a debate which was long overdue, and stimulated many major studies. It has now appeared in 34 languages, and has sold over 10 million copies. It is a textbook in more than 1,000 colleges in the USA.

There are some twenty national associations modelled on the international Club of Rome. They apply the same methods at the national level, and also work in support of the international

Club. Some work away quietly, but in some cases they have adopted a higher profile. Under the new structure, these national associations will play a bigger role in future, illustrating the concern of the Club to think globally, act locally.

Some of these national associations are already extremely influential, and they are active in the USA, in most major countries in Western Europe, and in Eastern Europe. In Poland the national association includes members from the Communist Party, from the Church, and from Solidarity, and has thirty seats set aside for young people. It has been described by General Jaruzelski as a "forum of national reconciliation". In the Soviet Union the Club's name is widely known as the result of an open exchange of letters in the press between Alexander King, the President of the Club, and Mr Gorbachev.

Origins

The idea of the Club of Rome took shape in Paris in 1968, the year when student revolt brought the city to a standstill. Although there was ample evidence of concern among the young for the quality of life, the attitude of many governments was illustrated by a British prime minister, who said in that year, "Two weeks is a long time in politics..." It seemed that much official thinking was done on a day to day basis, and that the tendency was to support growth for growth's sake.

The two founder members were Aurelio Peccei, who was president of the Club until his death in 1984, and Alexander King. Aurelio Peccei was a businessman, a charismatic figure of enormous energy. He was in his time an executive of Italy's two leading industrial companies – a Vice President of the Fiat motor company, founding its division in Latin America, and President of Olivetti. Alexander King was in 1968 Director General for Scientific Affairs of the OECD (Organisation for Economic Cooperation and Development), based in Paris. During World War II he had risen to head the United Kingdom Scientific Mission in Washington. In this capacity he was responsible for the exchange of information and experience between the United Kingdom and the USA on a wide range of scientific applications ranging from penicillin to the atomic bomb. He has been president of the Club since 1984.

It seemed to these two men that

there were matters of critical importance which it would be desirable to plan for, not two weeks ahead, but twenty-five years and more. Yet there did not seem to be any entity considering global matters on this scale, except perhaps for an American think-tank which had strong connections with the CIA. They wanted something essentially non-political.

It wasn't just a question of longer-term planning which was necessary – the size and complexity of the issues demanded new modes of thought. To envisage them, the Club has employed the concept of the 'world problématique'. This is a way to approach a cluster of interacting problems which are so tangled that it is difficult to break them down into distinct problems and apply particular solutions.

Creative Instability

The Club was originally established 'for our self-education', and this aspect of its activity was fully evident in the recent conference in Paris (October 25th-28th, 1988). The event was in two sections, the first entitled, 'New Keys to Understand a Changing World Beyond Year 2000'; the second was 'Building up the new Global Society'. Although the problématique (the analysis of interacting environmental and social problems) is still important, the conference focussed on two matters which have a bearing on effective action.

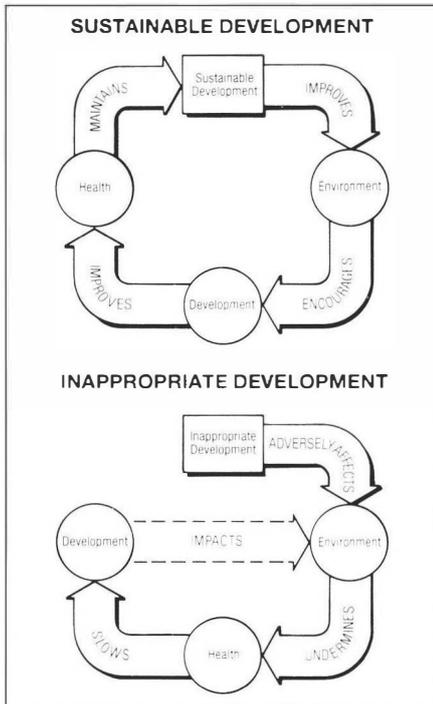
One was instability, whether it appears as world financial and economic disorder, or whether it is seen as creative instability. The first session of the conference was actually called the Philosophy of Instability. Among the people on the Panel for this session was the chemist Ilya Prigogine, whose work on 'non-equilibrium' systems in chemistry has pioneered a whole new kind of science. In this, instability and 'chaos' are seen as inherent in nature, and indeed, essential to progress. The ideas have wide applicability, and this aspect will be expressed in the Club's ongoing project on Governance in complexity and uncertainty.

Unique Responsibility

The second was the acknowledgement that without the individual response, no programme can be implemented. From this response comes the acceptance of responsibility, of servanthood. This acceptance liberates creative energy, and if it does not in itself liberate the servant from conditions of poverty

or affluence, it frees him from subjugation by them.

As a result the Club has committed itself to two projects. The first is a Declaration of Human Responsibilities (the natural companion to Human Rights) – outlining the responsibilities of humanity (and human beings)



Positive and negative cycles of development. From the UN's 'UNEP Profile'.

towards itself, to the environment, and to future generations.

The second is a project on Ethical and Spiritual Values. This involves, among others, Karan Singh, whose contribution to the World Wildlife Fund's events in Assisi in 1986, was reported in the first issue of BESHARA.

This facing towards the individual is a new development for the Club, and from it stems the need, not only for direct communication with 'institutional' decision-makers, but with the widest range of people. They therefore intend to approach the media far more than in the past. After the Paris meeting there was a press conference, and a dialogue with 2,000 young people, held in the Grand Amphitheatre of the Sorbonne.

Sahel Project

As to how the Club can best make use of its resources, there was recognition of the fact that there are many excellent research institutes worldwide, many reports, many programmes. The Club can serve these, not by commissioning additional reports, but by facilitating contacts between them. Its function

Technology and the Future

A Speech given by Alexander King when receiving the Erasmus Prize in 1987

OUR PRESENT society... is dominated by technology. The consequences of the Industrial Revolution two hundred years ago are not even now fully assimilated, and yet we are in the midst of a second revolution... towards an information society which is likely to cause still greater changes in the nature of society and in the way in which each one of us lives in the future.

Science and technology, then, shape greatly, very often subconsciously, our experience and thought. They exist side by side with the deep traditions of the European past, but the two aspects are by no means harmonised. The dichotomy is great and at some times even painful. Even the economic system which relies so heavily on technology has not yet fully come to terms with it. It is implicit and still in the thinking of many economists that new technology arises essentially in response to the interaction of economic forces and is, as it were, one of the muscles of Adam Smith's invisible hand. There is of course much truth in this, however the new technology in many cases arises from discoveries in the science laboratories which could not be foreseen and which lead to changes of course of direction of society.

Now the triumphs of technology have greatly magnified the materialist preoccupations of our society. As Dennis Gabor, the Nobel Prize-winner for holography and member of the Club of Rome mentioned: "Our present soci-

ety is based materially on an enormously successful technology and spiritually on practically nothing". Every step in technological progress from the use of the first flint implements, tools, to the nuclear armed, intercontinental ballistic missiles has added to the physical capacity of the human being, both in his struggle to better his physical conditions and, most obviously, in conquest over his enemies.

The tragedy of science is that it has done so little to enrich the other aspects of human existence and the imperative needs now are to master technological development in such a way as to contribute to the general well-being of all people and to seek to balance the material advances by cultivating social, moral, artistic and spiritual attributes. For example, the new technologies, through automation and the like, will erode the work-ethic and greatly increase the lifetime quota of leisure for everyone. But will this merely generate a vacuum in the lives of the majority with a boredom which will be filled by mechanical entertainment and all sorts of trivia, or can it be used constructively to provide fulfilment and development of the individual? In the next decades we shall reach many cross-roads requiring decisions such as the one that I have mentioned.

THE RELATIONS BETWEEN science and government were slow to develop. Although many governments had, from the beginning of the century, supported

would then be to sift, and highlight, and above all, to press for their conclusions to be implemented.

For many purposes we have ample information, and the urgent need is not for new research but for the enacting of what is evident. Consequently, the Club has also become involved in a number of practical projects. One is the Sahel Operation, which has been undertaken at government level in Africa to arrest the desertification of the land along the southern and western borders of the Sahara. It was initiated at the request of some African leaders after a conference of the Club in Yaoundé in 1986, and is now in preparation. It is being carried out with the agreement of the OAU (Organisation

for African Unity) and the help of the United Nations, but in implementation it will be carried out through close co-operation with the local people.

Decentralisation

The Club has always been run on informal lines. It has not required unanimity for its decisions, indeed, it has never been a democracy. It was, under Aurelio Peccei, a kind of benign dictatorship. Under Alexander King it has been more of an oligarchy, in which half a dozen people were most active in decisions.

Now in addition to the President, two Vice Presidents have been appointed: Ricardo Diez-Hochleitner and Kurt Furgler. The Club will have a small



Alexander King (left) receiving the Erasmus Prize from Prince Bernhard of the Netherlands.

laboratories for particular sectors, it was only in the early sixties that science and technology began to be considered in strategy and policy terms. The concept of science policy, to a large extent derived from our work in OECD (1), was initially greeted with some suspicion. I remember that when we first announced the intention of the OECD to convene the meeting of science ministers, the Minister of Education in the Netherlands visited Paris to persuade the then Secretary-General to cancel this meeting. He argued that science, if

it had any policy implications at all, was a minimal element of cultural policy and that to discuss it in an economic context was a sort of prostitution.

Things have changed very greatly since that period. Nevertheless, much requires to be done and science requires to be regarded on a strategic level in a much broader sense than through technology. Today, however, we are interested in the wider problems, the impact of technology on the world system. The most serious of contemporary problems are global in nature and cannot be

solved by individual countries in isolation.

This small planet is shared by more than 170 individual nation states, each proclaiming the sanctity of national sovereignty and pretending to be master of its own destiny. Arnold Toynbee (2) put it: "The cult of sovereignty has become mankind's major religion. Its Gods demand human sacrifices". Yet the reality of sovereignty is increasingly illusory, the more so the smaller and poorer the country. The permeation of technology, the increasing global ▶

executive board consisting of the President and the Vice-Presidents, together with Secretary General Bertrand Schneider and Maurice Strong, and three others. It will have a larger council with about 30 members. To assist in the integration of the national associations, a common charter for them was worked out at a meeting of the Club in Warsaw in 1988.

The Club has also started to raise funds, and has for this purpose established a foundation in Geneva. Fundraising is being done through an appeal going to 2,000 bankers worldwide, organised by a banker in Austria. The Club has now accepted the grant of \$100,000 previously offered to it by the Government of Finland, against the

time when it should wish to take it up.

Global Response

Over the past twenty years a direction has been achieved, and a research apparatus developed, which has the capacity to measure the burden on the global environment of the way we live today.

The Club is now concerned to communicate its findings beyond the circle of the 'decision makers' to a global audience. It wishes to attract "the participation of all individuals, the non-governmental organisations and the official institutions in the elaboration of interactive solutions." It wants to work on a broad front, so that the diagnosis of environmental problems, which are global, should be matched by

an equal response. The Sahel Project, despite its importance and direct benefit to the lives of many people, can only serve as an example, a demonstration. To communicate globally the Club must in fact go beyond the language of statistics and, as indicated by its project on Ethical and Spiritual values, enter the realm of universal meaning.

Several months before his death Aurelio Peccei said, "I am a pessimist when I see how things are. I am an optimist when I see that there are ways in which things can be changed." On another occasion, he said that since the founding of the Club of Rome, "Every indicator in the world has worsened except for one, human awareness. And that is fundamental."

nature of the economy, the international transactions of the transnational companies, these and many other factors represent a *de facto* eroding of sovereignty.

In this said situation, and in the face of rapid change, increasing complexity and uncertainty, existing institutions, both national and international, are proving woefully inadequate. The structures of governments, created for earlier, simpler times, simply do not respond to the present challenges. There is a need for a radical transformation, and this is true also for institutions of other kinds, including corporations and perhaps, more than anywhere, in the educational system. *Perestroika* must not remain the monopoly of the Soviet Union.

But structural changes, structural innovations are by no means the total solution; they must be accompanied by new attitudes in politics and public life. Viewed against the threats and promises of the present situation, many of the antics of politics seem tragically absurd; such as the election of leaders on the basis of the charismatic level of their television image, or the denunciation of politicians as vacillating and unreliable when they can be made to seem to change their views, where and at the same time in reality the capacity to do just this in the light of evolving situations should be a mark of statesmanship. Again, confrontation and mutual slanging between party representatives and parliaments appears to dominate parliamentary proceedings in many countries, when a striving towards consensus would seem to be called for in the national interest.

IT SEEMS TO ME that each individual exists in three different but linked environments simultaneously and that a projection of this concept describes the workings of society. There is the external environment of the planet, the internal world of the individual, isolated and hidden, and somewhere in between and linked to both is the social arena, where individuals react and evolve common action for security, prosperity and satisfaction. Little need be said here concerning the problems of the external environment; they are many and difficult and will become increasingly so as world population growth combined with more per-capita wealth increases the extent of human activity with its demands for materials and energy. I estimate that within my own lifetime the totality of human

activity has increased between twenty-fold and forty-fold, due partly to population, the increase in numbers, but partly to increased consumption of each as prosperity and economic growth have been achieved. This of course has a very growing impact on the fragile biosphere.

However, I am convinced that the fundamental problem, both of the individual and of the collectivity of individuals which is society, lies deep within human nature. Egoism, or the 'life-force' as the Victorians used to call it, provides the urge to survive, to prosper and to excel; it is the driving force of innovation and progress. But it is also manifested as selfish and anti-social behaviour, brutality, the lust for power, domination over others and exploitation.

The struggle between the positive and negative aspects of egoism is the central Faustian drama. For centuries individuals have been disciplined and their negative characteristics kept in check by hope of Paradise or fear of Hell, but with the loss of faith in religion and indeed of political structures and institutions, restraints have evaporated; minorities refuse to accept the decisions of the majority, there is disrespect for law and mounting terrorism.

These features, projected to the level of the collectivity, operate in the social environment. National egoism can appear as a desirable love of country or can be whipped up as chauvinism, xenophobia, hatred of other countries and finally war. These matters are seldom admitted, and, when they are, are generally shrouded in taboo. The low efficiency of Marxist economies, for example, seems to stem to a large extent from a naïve faith in human nature, a presumption that people will give their best in agriculture, industry and elsewhere, without personal incentive; unrealistic.

If this diagnosis is at all valid, it would seem that in addition to the traditional approaches, we need to take positive steps, individually, nationally and internationally, towards identifying and extending zones of common self-interest recognising the reality of egoism, its limitations and its possibilities. Living as we do on the edge of the nuclear abyss, in a world of exploding population and ecological threat and in the midst of a new technological revolution, it would seem vital to reassess the situation within all three of our simultaneous environments.

Preservation of the external environ-

ment in which our biological existence is rooted demands that our egoism be not limited to our own lifespan, but be extended to include that of our children and grandchildren with whom we can identify, so that we shall strive, selfishly if you like, to secure conditions which will allow a decent and humane life for the succeeding generations. This necessitates not only restraint, but also a much deeper understanding of the workings of the terrestrial and social systems with greater awareness of dangers and possibilities. This demands internal as well as external knowledge.

Man is often regarded as a microcosm of the totality of things. On the arena of human activity, I prefer to invert the concept to regard society as the aggregation of all its constituent human units, in a conviction that fundamental reforms of the life and societies and nations can only be derived from development, both moral and social, of the individual to make possible a constructive and balanced use of the egoistic force. Transposed to the religious idiom, this essential need has perhaps been best expressed by the mediaeval Christian mystic, Angelus Silesius, who wrote: "I must be Mary and myself give birth to God". It would seem to me that in the last analysis, real progress of the race must come from evolution within. Only through a deliberate cultivation within our separate, private environments is a society of integrity, harmony and social equity likely to arise.

The Erasmus Prize was founded in 1958 by Prince Bernhard of the Netherlands. Its aim is "to award one or more money prizes annually in order to honour persons or institutions which have made an exceptionally important contribution to European Culture, society or social science. Past awardees have included Charlie Chaplin, the composer Oliver Messiaen and Amnesty International. It was awarded to Alexander King in 1987 for his work on technology and science.

This portion of his acceptance speech is reprinted by kind permission of the Erasmus Prize.

(1) *Organisation for Economic Cooperation and Development, based in Paris, of which Alexander King was Director from 1958 until his retirement.*

(2) *The historian, author of 'A Study of History'.*

Martin Notcutt grew up in South Africa and came to England in 1972. He is a Trustee of the Beshara Trust and currently works as a company analyst.

Art in the Service of the Sacred

Christopher Ryan reports on the second Temenos Conference

HONEY, THE wisdom symbol of the ancients, is perhaps the best summary of the rich hoard of nectars collected in the four days of the Temenos Conference last October. 'Yuelamu Honey Ants Dreaming', a picture in the sand-painting style by the Australian artist Linny Nambajimba Frank, was presented to Dr Kathleen Raine by the Aboriginals of Australia through the hands of the writer James Cowan. In its directness and simplicity, this extraordinary arrival highlighted the extent of the cross-cultural reference and understanding at this memorable event. Here, in the beautiful and archetypally English setting of Dartington Hall in Devon, more than 100 people gathered for a programme which included Noh Theatre, the music of the Japanese *shakuhachi* and classical Indian *Dhrupad*, and papers on

the sacred arts of India, Islam, Australia and Europe.

The Sacred Precincts

Temenos means 'The sacred precincts which surround the temple', and this conference stemmed from the arts review of the same name. Kathleen Raine, editor since its inception in 1970 and the prime mover of this event, explained that the review was originally founded in reaction to current attitudes towards art; "The Arts are at all times the channel by which knowledge is disseminated throughout a society. Properly, they should be speaking in forms which reflect sacred knowledge, that is, knowledge of reality; but often in the modern situation they are not rooted in anything more substantial than the personal opinions of individuals. We wanted to start a

journal in which their true function could be expressed, which would draw together people who shared our views."

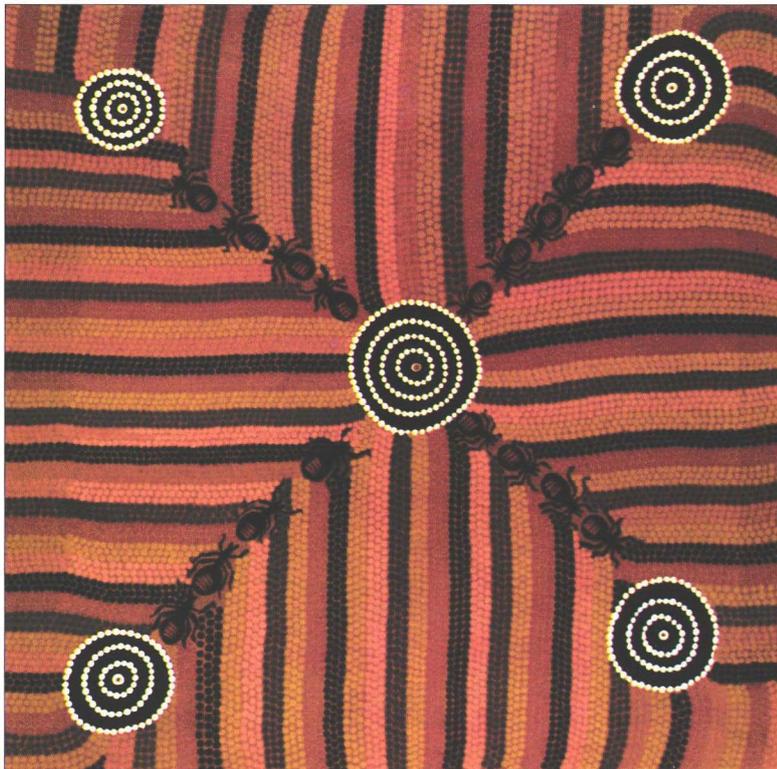
She went on to explain that the aim was not at all to simply revive past traditions. "Temenos is a recall to order of the arts. By publishing criticism and discussions of past and present work, we aim to bring knowledge to bear upon the present. We have tried hard to find contemporary writers and other artists – painters, musicians – who can show that it is no less possible now than at any other time to produce the thing itself. The aim is to create a climate, or a context, for new work."

She and her colleagues were surprised by the level of response to the first issues, and by the contacts that were gradually made all over the world. Temenos readers began to form a network, corresponding with each other independently of the journal. Out of this came the first Temenos conference in 1986.

A Theatre of the Soul

This second gathering began with Yoshikazu Iwamoto, artist-in-residence at Dartington, playing the *shakuhachi*, the melancholy flute of Japan. Then Hideo Kanze and his Noh troupe initiated us into the ancient and strange form of Japanese Noh theatre. A helpful introduction and clear interpretation into western modes of expression by Professor Takahashi of Tokyo University opened the door to appreciation, as, through a process of auditive and visual *via negativa* – sounds so elemental, movements so stylised, calculated and ponderous – we were brought to stillness and silence.

The papers began the next morning. Philip Sherrard in his 'Vision of the sacred – the choice before us,' deplored the split between imagination and rea-



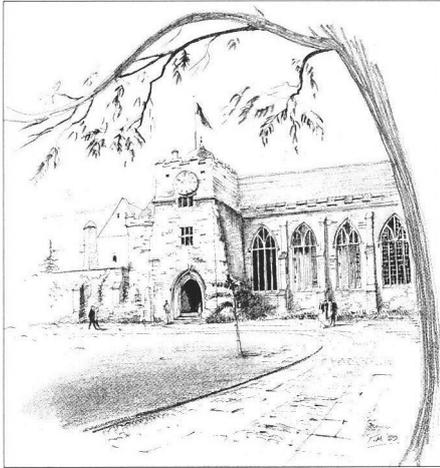
Yuelamu Honey Ants Dreaming

A Painting by Linny Nambajimba Frank

This is a traditional story of the honey ant dreaming people of Yuelamu who went underground. Many of them died and the honey ants now remain in these places of death. They return to the sacred site of Yuelamu on occasions before going to new nests to reproduce.

The honey ant lives mainly on mulga trees and comes out at night to collect honeydew and nectar, which is fed to other ants, who grow very fat and bulbous with the stored honey. This honey is regurgitated to feed the other workers in times of drought, or whenever food is in short supply.

son which has grown up in Western society. Drawing on his deep knowledge of the Hellenic tradition, he reminded us of the unity which underlay traditional metaphysics. This theme was reiterated by Brian Keeble, the proprietor of Golgonooza Press, well-known for his work in revitalising publishing as an art. In his paper 'Sacred



Dartington Hall. Drawing by Peter Mabey

Renewal and the Earth', he took from the European mystical traditions, particularly Meister Eckhart and the beautiful works of the English mystic, Thomas Traherne.

The dancer, writer and historian of art, Kapila Vatsyayan, gave us 'The Indian Perspective', taking us into the multi-faceted worlds of Hindu and Buddhist thought, whilst Kathleen Raine, in her paper 'Poetry as Prophecy', brought us the words of the poets. Steeped in her great loves, Blake and Shelley, she explained prophecy in terms of creative imagination: "It is not like second sight, a faculty possessed by a handful of exceptionally endowed people, but latent in all. Like poetry, it is a gift of seeing and understanding the world, people and events in terms of the Imagination".

A Reminder of Our Unity

Thetis Blacker gave us a glimpse of this world in action. With broad and brilliant strokes – and unselfconscious drama – she described how the inspiration for her work as a painter arose from her own interior journey in dreams. Even more vividly evoked, however, was the world of the Australian aborigine, in James Cowan's presentation 'The Open Air Cathedral: Landscape as Tradition and Metaphor'. Through the morphogenetic transference possible through the media of image representation, and James Cowan's easy and at times passionately

poetic monologue, the audience was brought to feel deeply the sentiment of this ancient people, for whom the terrain itself, with all its vastness and beauty, forms the very parameters of the spiritual world in which they live. Notwithstanding two hundred years of European colonisation, there was effected a profound communication of meaning, making a seemingly foreign interior view as accessible as the rolling downs and dreaming spires of England.

For Keith Critchlow, too, the forms of the natural world are full of meaning and significance; "One of nature's primary functions is to remind us of our unity...," he told us in his lecture 'Recurrent Principles of Sacred Art'. In an outstanding slide show, he progressed from the tomb of Bulent Rauf on a Scottish hillside at the autumnal equinox through images of nature to examples of sacred art from the Christian, Islamic and Vedantic traditions. "What we are looking at is wholeness, displayed through fractions of time, fractions of space. At any given moment, wholeness is always that which holds everything together, yet there is this magnificent variety passing in front of us... It is an amazing illusion, perhaps, but nevertheless intense reality as well."

The Reality of the Future

One of the highlights of the conference for me was the paper delivered by Peter Malekin, a lecturer in English Literature at the University of Durham. Unlike many who advocate a 'spiritual' approach to art, Malekin does not condemn our present times, nor hark back to some golden age in the past. After what he refers to as "a period of excess in potentially devastating material technology", he believes that "...what is happening in the world ... is a restoration of balance through a development of inner spiritual awareness." In his paper, 'Imagination: the Reality of the Future', Malekin drew from sources as varied as Jacob Böhme, Plotinus and Shri Shankara, formulating a clear expression of the 'mechanics' of a unitive vision.

"Applied to the artist, the Imagination is the power to create forms ... which can catch the wholeness within the particle in such a way that attuned minds will respond with analogous intuition. What is important here is the mode of perception, what Hsieh Ho called 'the rhythm of life', not the subject matter or the intellectual ideas. ...

This level of response is beyond intellect, and intellectual difficulty or simplicity is irrelevant to it. ... The essential thing is not cleverness or the activity of response, but a mind stilled by sheer loveliness".

In his final paragraphs, Malekin delineated a crucial distinction:

"The world is full of human beings who are searching for God in their own ideas or their inherited conceptual systems; yet, as Böhme pointed out, to work through sharp speculation is to work in an imaged ground, to arrive at an idea of something. As Plotinus remarked when discussing beauty: 'To see the divine as something external is to be outside of it; to become it is to be most truly in beauty; since sight deals with the external there can be no vision unless in the sense of identification with the object. And this identification amounts to self-knowing, self-consciousness'".

Affirming that "The only true knowledge is unitive, beyond the discursivity of a separated subject and object; all other knowledge is relative and provisional", Malekin thus established himself in a point of view that is shared by all the great mystical traditions.

Activation of the Theme

John Taverner's talk, 'Sacred Music in the 20th Century' was presaged by his own music, which rang in the clarion tones of Bel Canto on Saturday night. This excellent choir, conducted by Richard Egarr, chimed the evening's song in the soothing hallelujahs of Stravinsky, Messiaen, Arvo Paert and Taverner himself. Their celestial vespers, followed by Kathleen Raine and David Gascoyne reading their own poetry, and later, the wonderful taste of Morris Grave's work through a slide presentation of his paintings, the unique opportunity to see and hear the Dagar Brothers – renowned exponents of the Dhrupad style of Indian music – and the exhibition of works by Thetis Blacker, John Lane and others, all situated the conference beyond the level of simply 'talking about'. There was no doubt that it progressed to the fully expressed intention and activation of the theme, 'Art in the Service of the Sacred'.

Christopher Ryan is executive officer for the Beshara Trust.

News

A view on current affairs written

and edited by Alison Yiangou

A New Perspective in World Politics?

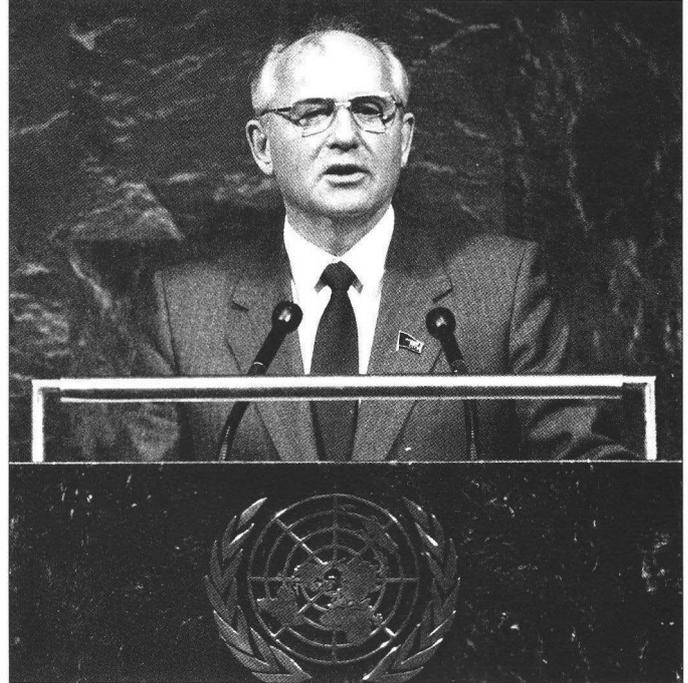
THE LAST few months have seen extraordinary changes in world affairs. The transformation of East-West relations; the 'greening' of Mrs Thatcher; public recognition by the PLO of Israel's right to exist; the fact that such global concerns as the Greenhouse Effect are now treated by the media as headline, 'objective' news rather than as minority group, 'fringe' topics – all these point towards a fundamental sea-change in the perspective through which our world is viewed.

But perhaps the most striking examples have appeared in the speeches of Mr Gorbachev who, in Delhi and at the United Nations, has been prepared to state a view not yet taken by any other world leader – that the world is a single entity, and that responsibility for it is universal.

The media have widely reported, and examined the consequences of, the practical measures outlined in his speeches – unilateral troop reductions and the implications for NATO being the prime examples. However, little attention has been paid to the real depth of his pro-

posals and to the important insights which can be discerned in them. One is that the human race is now faced with a qualitatively new opportunity for progress, at least in the socio-economic and political spheres. Take, for example, his statement on economics: "The world's economy is becoming a single organism, and no state, whatever its social system or economic status, can develop normally outside it. This places on the agenda the need to devise a fundamentally new machinery for the functioning of the world economy...". Modern technology and communications have made possible a situation where particular problems need not, indeed cannot, be solved in isolation; rather their solution can and must devolve from a prior understanding of the requirements of the whole.

Secondly, Mr Gorbachev touched upon a principle that has always been well-known in spiritual teaching, that if there has been progress from one condition to a new one, then it is essential not to make constant reference back to the modes and habits which characterised the former



Mr Gorbachev on December 7th 1988. UN photo 172530/S.Lwin

state. Rather the responses appropriate to the new condition must be appreciated and appropriated. "Life is making us abandon established stereotypes and outdated views. It is making us discard illusions. The very concept of the nature and criteria of progress is changing. It would be naive to think that the problems plaguing mankind today can be solved with methods which were applied or seemed to work in the past."

This recognition of the need for a new approach has led him to propose that the framework for international relations should be peaceful cooperation based on self-restraint, and that Ramboesque aggression be discarded. "It is obvious, for example, that the use or threat of

force can no longer and must no longer be an instrument of foreign policy. This applies above all to nuclear arms. But that is not the only thing that matters. All of us, and primarily the stronger of us, must exercise self-restraint and totally rule out any outward-oriented use of force".

Mr Gorbachev conceives of the United Nations as the main actor in this unfolding drama. In his view, its role in effecting and monitoring these developments is crucial. His proposals for the environment, the use of space, disarmament and international human rights all call for a *real* transfer of responsibility to the United Nations. This would mark a profound change in the way our world is governed.

He has also recognised that, for it to succeed, this world organisation, constituted as it is by numerous and diverse countries, must be guided by the understanding that unity and diversity are *complementary aspects*, not oppositions. He has called for the richness of the diversity to be fully recognised, but for each and all to be united in a common aim. In his United Nations speech he said:

"We have come here to show our respect for the dignity of this organisation, capable of accumulating the collective wisdom and will of mankind. We feel that states must to some extent review their attitude to the United Nations, this unique instrument without which

world politics would be inconceivable today. New prospects are opening up for the United Nations in all areas that fall naturally under its responsibility: politico-military, economic, scientific, technological, environmental and humanitarian. What is needed here is joining the efforts and taking into account the interests of all groups of countries, something only this organisation, the United Nations, can accomplish".

MR GORBACHEV'S far-reaching proposals for the United Nations have neither captivated the imagination of the media nor have they been ecstatically received in Western diplomatic circles. However they have already prompted a Round Table in

Moscow entitled 'The Future of the United Nations in an Inter-dependent World', which brought together 121 former ministers, parliamentarians, diplomats, high UN and UN agency officials, academics and researchers from every continent. Development Forum, the official publication of the United Nations, reported in December that this meeting "achieved a degree of frankness and realism rare in this field", and concluded that "changed attitudes by Member States towards international organisations in general were needed, and that the UN reform and strengthening proposals should be taken seriously".

There have been many who have challenged Mr

Gorbachev's motives in speaking out in this way. Some see it as a wily political gambit to lull the West into a false sense of security. Others see it as a calculated attempt to gain international help in solving the immense problems of his domestic economy without either losing face or appearing to compromise. Yet others believe him to be genuine. It is not the place of this magazine to try to divine or comment upon Mr Gorbachev's motives, or what he really means by his remarks. But rather, to emphasise that what was actually said was true and of great importance. For a world leader to even speak in this manner to an international audience indicates a new possibility in world affairs.

Changing Patterns of Belief

A RECENT IBA survey has revealed some interesting facts about Christian belief in Britain. Whilst the numbers who attend church regularly has greatly declined, 74% of the population still claim to believe that Jesus is the Son of God and 60% believe that the Bible is the Word of God. This discrepancy has been interpreted by some to mean that religious language has lost all agreed meaning and that people now believe without knowing what they are believing in. The Independent, reporting on the survey on 27th December 1988, concluded from it that "Britain is not only not a Christian country; it has become one in which Christianity is almost impossible for most people to imagine... Words like 'spirituality' and 'soul' seem meaningless".

There are, however, other

facts which would seem to contradict this view. One is that religious, particularly mystical, literature is one of the fastest growing sectors in the book market, with publishers such as Penguin seeking worthwhile new titles to expand their 'Mysticism' shelves. The other is that the same IBA survey reveals that 70% of people now believe that "no one church or faith can be the only true religion". This would seem to indicate a much more widely felt ecumenism than was previously thought.

Further, in this golden age of science when the hunt is on for the theory that will explain 'life, the universe and everything'; it seems that a recalcitrant 62% of the population persist in believing that God created the universe. Critics might cite those statistics which show that the British trail far behind their European and

American cousins in their level of general scientific knowledge – and propose that most people just do not know that the problem is about to be solved. But it may be that the deeply intuited sense that a universe of such beauty and order must have been beautified and ordered, is one that cannot be assailed by the forces of cosmological explanation.

What we may well be seeing is a move away from the

outward form of religions towards that which unites them – their interior meaning. In this case the word 'spirituality' is far from meaningless. It is, on the contrary, that which people are seeking to understand in a way which is both more universal, in that it encompasses other beliefs, and also more particular in that at its heart is their own relationship to the universe and to God.

Yeats the Seeker after Truth

Kathleen Raine reports on celebrations in India

WHILE IRELAND celebrates the half-centenary of the death of W.B. Yeats as a national poet, patriot and founder of the Irish National Theatre; while the academic world and the press are concerned with the stature of this world-poet from the standpoint of literary reputa-

tion; it has re-mained to the Yeats Society of India to pay homage to Yeats the great seeker for spiritual truth, who in his last years made his total commitment to the spiritual teachings of India, and who with his Master, Sri Purohit Swamy, translated the ten principal Upanishads.



William Butler Yeats in 1923

Throughout his life Yeats was concerned to discover, and to formulate in terms of his time and place, an alternative to the materialistic ideology then current. He was, with Edwin J. Ellis, the first editor of Blake's *Prophetic Books* – Blake who almost alone had challenged that ideology a century before. He was for a time a member of the Theosophical Society. In a thoroughly professional and objective manner he studied the evidence of psychical research which he compared with the folk-beliefs of Western Ireland, setting his friend Lady Gregory to gather the unwritten tradition of the people from cottage and work-house. He was a student for many years of magic, Kabbalah and allied traditions, again in a thorough and committed manner. He read systematically the works of Plato and Plotinus; studied Noh theatre – a 'theatre of the soul' established in temples both

Shinto and Buddhist; and also his work 'A Vision' shows evidence of considerable knowledge of Middle Eastern mystical sects. His final commitment was to Vedanta.

The Indian celebrations included a lecture by Professor Bushrui of Lebanon, authority on Yeats' indebtedness to Arabic sources, who in February gave the annual lecture for the Yeats Society of India. Anne Yeats was present, and performances of plays and other celebratory events were included in a three-day conference at the India International Centre in New Delhi.

Had that great world-poet been living, can we doubt that it would have been to India he would have looked as most truly representing those values which for him were paramount – mankind's spiritual quest and the reversal of three centuries of materialism as the world uneasily awakens to a re-discovery of spiritual realities?

Rethinking Man and Nature

LAST AUTUMN 'The Ecologist' devoted the whole of a special issue, entitled 'Rethinking Man and Nature: Towards an Ecological Worldview' to the question of Deep Ecology (1) – a term coined by the Norwegian philosopher Arne Naess for an ecology which emphasises a spiritual dimension.

Normally devoted to the scientific and technical aspects of ecology, 'The Ecologist' is an internationally respected publication which reaches as many as 25,000 readers world-wide. The editors, Nicholas Hildyard and Edward Goldsmith, thought the issue was going to be a publishing disaster when they began to put it together. But, Nicholas Hildyard explained: "This whole matter of Deep Ecology needs clarification, and 'The Ecologist' was in a position to do it. The special issue came out at a time when everyone was talking about becoming 'green'. We felt that it was necessary to point out that the big step is not just being a 'green consumer' but to change one's whole way of thinking".

Deep Ecology aims to bring about a change in the prevailing world-view, which they see as based on modernism – in which man abuses this earth to his own ends – to one based on biocentrism, whereby the whole earth is seen as an integrated, harmonious, ordered whole. The spirituality it represents is based on the biosphere, not on a monotheistic concept of God, and – perhaps as a reaction to centuries of misguided anthropocentrism – the position of man by virtue of his being the image of God is not acknowledged.

Instead man is seen as one among many creatures and is enjoined to recognise the value of, and cooperate with, other forms of life.

Just as the spirituality which takes an absolute God as its aim appears in infinitely varied forms, so the diverse contributions to this special issue reveal that Deep Ecology also is a widely varied platform. It includes articles by Henry Skolimowski, who argues that deep ecology needs to develop both a cosmology and an eschatology, and by Edward Goldsmith and Grover Foley calling for a formulation of its laws. Arne Naess, in contrast, in his contribution, sees deep ecology primarily as a forum for those who share a common point of view towards nature, whilst Richard Sylvan and David Bennett emphasise that a spiritual tradition, such as Taoism, has much to offer in those areas that deep ecology has not yet formulated.

Deep Ecology has been attacked and ridiculed as so much 'eco-la-la' by 'Social Ecologists' such as Murray Bochnin, who see environmental problems as being purely socio-economic and solvable in those terms. But 'The Ecologist' has not received the stream of cancelled subscriptions it feared; rather, the issue has elicited a large response – not all, the editors hasten to add, in agreement with what was said. They have, as they had hoped, made a major contribution to the debate, and perhaps found out that even 'hard-nosed' environmentalists are beginning to consider the need for a fundamental change in perspective.

(1) *The Ecologist*. Vol 18 No 4/5 1988.

The Greenhouse and the Boy-child

THE RECENT warming of the earth (the warmest since records began) has led to much speculation about whether the 'greenhouse effect' (whereby excessive carbon dioxide and other man-made chemicals stop the earth re-radiating heat into space) is beginning to happen. Many scientists now believe that the warming and unpredictable weather patterns have been shown to be linked to a

cyclic phenomenon in the Pacific, which alternately brings warm and then cold water to the surface of the ocean. The ocean is so vast (about a quarter of the earth's surface) that this is thought to be the 'largest known natural perturbation of climate short of ice-ages' (1) (climate being known to be so unpredictable that it is said to be influenced by even the 'flap of a butterfly's wing').

One event of the cyclic phenomenon is known as El Niño, or boy-child, ie. Christ, so named because the effect (which usually occurs on a 4 yearly cycle) happens around Christmas in the east Pacific. The arrival of El Niño begins a period of global warming. There is also an associated effect, known as La Niña, or girl-child, which reverses the effect and causes global cooling.

Scientists have noticed that there have been no La Niña (cooling) effects since 1975, which is unparalleled. It is this which is thought to have caused the progressive warm-up of the earth. Attention is now focussed

on a recent rush of cold waters heralding the arrival of La Niña after 14 years of absence. Will this reverse the warming effect? Does the greenhouse effect itself contribute to the process? Nobody can be certain, but what is certain is that the change in weather pattern has brought about a global awareness of both the fragility and unity of life on Earth, and a global resolve, not only by individuals but by governments, to ensure that every effort is made to protect life. For this, in part, we must be grateful to El Niño.

Richard Twinch

(1) *New Scientist* 11th Feb '89.

Conferences

The purpose of this section is to draw attention to conferences which have taken place recently. Our aim is not to give a detailed report, but to give a taste of the current 'state of the art' in our society's search for understanding.

IS THE UNIVERSE ALIVE?

Teilhard de Chardin Centre, London. November 1988.

This was one of an on-going series of major lectures that the Teilhard Centre has organised over the last few years. The Centre exists for the education and promotion of the thought of Pierre Teilhard de Chardin – visionary, Jesuit priest and paleontologist – concerning the evolution and future of Man, which Teilhard himself saw as being to do with the progressive spiritualisation of matter.

'Is the Universe Alive?' featured the biologist Rupert Sheldrake, the author and broadcaster Rita Crowley-Turner, and medical student Fiona Winters.

For Miss Winters the question is answered by the Gaia Hypothesis, which considers that organisms and their

environment together constitute a single living system. For Mrs Crowley-Turner, however, the question thus phrased cannot be answered because it is meaningless. If rephrased "is there life in the universe?", then it is answerable by a resounding "yes", as affirmed *par excellence* by the incarnation of Christ in matter.

Dr Sheldrake took a completely different approach and considered how extraordinary it is that our Western dualistic, mechanistic culture has come to regard the universe as dead; since most other cultures, both primitive and advanced, have taken it to be alive. In a fascinating summary he outlined how the Western view developed and how modern advances in physics and cosmology are 're-animating' the universe. He went on to trace parallels between the emerging 'new' scientific theories and older ontological concepts, for example the similarity of field theory and the Aristotelian theory of the *anima mundi*, or World Soul. His talk prompted the thought that the same eternal truths are constantly 'dis-



Rupert Sheldrake. Photograph by Elizabeth Sundawer.

covered' in each age of human evolution, and become expressed in ways contemporary to that age.

THE SCHUMACHER LECTURES

Bristol. November 1988.

This was the eleventh annual lecture organised by the Schumacher Society in honour of its founder, E.F. Schumacher, author of 'Small is Beautiful' and 'A Guide for the Perplexed'. In a venue which seemed to be universally disliked – the

new Clifton Cathedral in Bristol – more than 1200 people gathered to discuss the theme 'Inner Ecology, Outer Ecology'.

James Hillman, founder of the school of archetypal psychology, spoke of the way in which we tend to live out the great myths in our lives and in our society. In particular, he emphasised the danger of Titanism – the tendency to inflation and expansion for its own sake – and his feeling that Schumacher was right in his

emphasis on 'the small'; i.e. the need for things to be their right size. Schumacher was a brave man, he said, to talk of 'the beautiful' in an era when beauty was so unfashionable.

James Lovelock, one of the world's few independent scientists and originator of the now well-known Gaia Hypothesis, extolled the virtues of 'small science', and described how his own work had been amongst the first to demonstrate the damage to the ozone layer. Whilst many had latched on to ecological issues, he felt that in many cases it was a limited commitment based on self-interest, or at best, the interest of the human race. His passionately delivered plea on behalf of every organism on earth obviously struck a chord with the audience, as he received a standing ovation at the end of his talk.

The other speakers were the poet, Robert Bly, whose mixture of poetry, music and ideas included a memorable rendering of the poems of Basho; and Kathleen Raine, who opened with a quote by Blake: "Although it appears without, it is within, in your Imagination". Describing how modern science is increasingly coming to confirm Blake's vision of the unity of our outer and inner worlds, she told us: "It is also our souls we destroy when we poison and pollute, and hack and rack...and loot and desecrate the living earth whose children we are."

EDUCATION FOR A GLOBAL VISION

World Goodwill. London. November 1988.

World Goodwill, a non-political movement organised by the Lucis Trust, works for the establishment of right human relations through the practical application of the principle of goodwill. It sponsors an annual one-day Seminar, this one on education being attended by over 400 people.

In delivering the keynote address Steve Nation, Secretary of the Lucis Trust, took aim at the dichotomy in human consciousness between 'personality', the seat of selfish vision, and 'soul, which looks at the world in patterns of wholeness and relationship'. "Policies and attitudes towards pollution, poverty, nuclear weapons, race relations and so on are defined by the view we take of our self", he said. "We need to acknowledge that the goal of education is to help a person grow into their full creative potential as an individual who uses their intelligence, creativity and will in service."

Dr Ursula King, who this year takes up the post of Professor of Theology and Religious Studies at the University of Bristol, developed this theme in her paper 'The Spirit of the One World: Education for Global Spirituality'. She emphasised the enabling power of knowledge and the need for realistic, not utopian, visionaries. "The whole of society must face the idea of spiritual development in education".

A panel discussion with Robert Blackburn, Deputy Director-General of the International Baccalaureate Organisation; Margaret Quass O.B.E., Director of the Council for Education in World Citizenship; and John Baines, Director of the Council for Environmental Education, explored the practical applications of education with a global perspective, talking of their own work and answering audience questions.

The final paper of the day was given by James Lovelock, who used images of man's misuse of the physical environment and waste of the earth's resources to draw attention to the dangers of continuing with the self-centred and solely material view which is prevalent today.

Beshara Trust

A Change of Chairman

After sixteen years as Chairman, Hugh Tollemache has announced his retirement from the Board of the Beshara Trust. Explaining his reasons he said: "The Trust has to move forward and I felt that a change is now necessary so that this can happen. My retirement is from the position of Chairman, and has nothing to do with my intention to serve Beshara in whatever way I best can. In

fact, I hope that I can now involve myself in ways which were to some extent denied to me before".

"The direction of the Trust continues to be in the same hands as it ever was; and my position in respect to those hands will remain the same. All that has changed is the function."

The new Chairman is Grenville Collins, who was elected by the Trustees at a meeting on March 2nd 1989.

BESHARA FRILFORD



Introductory Study

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Ten Day Courses

28th April -7th May: 11th-20th August.

Seminars

29th April- **Spiritual Dimensions of Astrological Symbolism** by Abraham Abadi.

13th May - **The Two Hands of God** by Rev. George Pattison.

1st-2nd July- **The Nature of Nature** by Rupert Sheldrake.

Visitors are welcome at any time

For further information, please contact:
The Beshara Trust, Frilford Grange, Frilford, Nr. Abingdon,
Oxon OX13 5NX: Telephone: Oxford (0865) 391344.



'The Ploughed Field' by Miro (49). Photograph by David Heald & Myles Aronowitz. Courtesy of the Solomon R. Guggenheim Museum, New York.

Reanimating Nature

The Integration of Science with Human Experience

Dr Mae-Wan Ho

Based on a lecture delivered to the Scientific and Medical Network May Lectures, London, 1988.

IN A RECENT survey among American high school students, science comes bottom of the list in popularity as a career. Anti-science sentiment is on the increase among the general public, coinciding with a rising preoccupation with the paranormal, mysticism, and all forms of alternative

medical practices. So much so that eminent scientists have been moved to speak to the subject. For example, a well-known British developmental biologist who is a Fellow of the Royal Society recently placed the blame on the romantic poets for putting science down in the public mind, because science was too difficult for them. In his opinion, science excludes not only romantic intuition, magic, the paranormal, but also any form of holistic thinking, because that is just vitalism.

To some of us, however, it is quite obvious that the present antipathy to science is not to science as such, but to

establishment science. It is a reaction against the extent to which establishment science alienates us from nearly all of our experience as human beings. This is particularly evident in evolutionary biology, though its roots lie in the mechanical, positivistic framework of all science itself. Fortunately, science is currently undergoing possibly one of the most important and wide-ranging upheavals in recent history. A global phase transition is sweeping across many disciplines from mathematics and physics to biology and sociology. It may be characterized as an emphasis on integration over fragmentation, on

cooperation rather than competition, on dynamics and process in place of the static and mechanical, on nonlinear distributed interrelationships and emergent properties of collective wholes instead of linear, unidirectional or hierarchical control of incidental parts. Most significant of all is the acknowledgment of a reality in which we as scientists and human beings participate, for this may put an end to centuries of abstractions that has alienated science from humanity and humanity from nature.

The Western Holistic Tradition

The new orientation takes as its starting point the unity and intelligibility of a world that is partly of our own making. This orientation has major implications for human action and creativity, as I shall demonstrate.

Many great civilizations both past and present, have regarded the unity of nature simply as a fact of immediate experience that needs no special pleading. The history of Western science, however, is remarkable for its major preoccupation with separating and reducing this unity into ever smaller and smaller fragments. Alongside that is our own progressive alienation from nature, which really began the moment the human mind set itself apart as observer on a nature observed. From that vantage point, the drama of nature mysteriously unfolds, and we become unwitting sufferers of an unknown fate.

In the same way that the physical world was reduced to mechanisms and atoms, so within biology, Darwin's theory reduced organisms to objects acted on by blind selective forces in a hostile environment, and Mendelian genetics completed the disintegration of the organism into a collection of particles, or genes. The extension of Darwin-Mendelism, i.e. neo-Darwinism, into social behaviour gave birth to the discipline of sociobiology (1). Its chief exponents claim to account for social behaviour, culture, and even morals in terms of the natural selection of random mutations. Many have recoiled from this final capitulation to crude mechanism by severing our connections with biology altogether, thereby leaving humanity to the dilemma of a disembodied and hence impotent mind pitched against the mindless automaton of a body controlled by genes whose sole imperative is to replicate.

Actually, there is nothing wrong with our biology, nor indeed with biology in general; it is merely one's view of it

through the neo-Darwinian looking glass. Even in the West, there has always been an alternative tradition that resolutely resists fragmentation in favour of integration and process. It includes such distinguished figures as poet-scientist Goethe: the much maligned evolutionist, Lamarck: the embryologist Driesch: and closer to our time, d'Arcy Thompson, Alfred North Whitehead, Joseph Needham, Richard Goldschmidt, and C.H. Waddington, to name but a few. Once we begin to see biology again in the light of nature's unity, mind and body will become reunited through processes embracing every level from the sociocultural to the molecular, and even submolecular domain. The organism itself – its functions, volitions and actions – will then be rightly perceived, not as the sole consequence of natural selection, but as a focus of being immanent to process and emerging simultaneously with it. Thus relocated within nature, the organism becomes both actor and producer of the evolutionary drama.

The New Biology

An exciting new biological science is indeed emerging. It arose out of a concerted effort to re-evaluate evolutionary theory by workers in all disciplines (2). We differ in detail, of course, but there is a common vision. One major characteristic of the new biological science is its integration with physics, chemistry and mathematics on the one hand, and psychology and sociology on the other. In this paper, I shall try to articulate my view of the new science especially where biology interfaces with the other disciplines, and then to draw out its implications for human action and creativity.

The ideas for this paper have been with me most of my life. They only became coherent recently while I was researching into bioelectricity and pattern formation in the fruitfly embryo in collaboration with Charles Nicholson at New York University Medical Centre. By using a relatively non-invasive technique, we were able to obtain continuous recordings of the extraordinary electrical activities in the embryo as it is developing. It was as though the embryo was revealing to me its intimate life-history in the most exquisite language and music. I was put in touch with the organism as never before. It made me acutely aware of how little we understand living beings, and how much violence we routinely do to organisms, including ourselves, based

on our mechanistic conception of life processes. Most conventional techniques kill the organism and break it down to pieces until no trace remains of the living organization that is supposed to be the object of our investigation. The need for a new conceptual framework impressed itself upon me with renewed urgency. At the same time, I am convinced that the conceptual revolution in science must be accompanied by an appropriate methodology that enables us to study the organism sympathetically, as it is living and developing.

It has always puzzled me why eminent scientists should say science is not magic. In my experience, science is about reality, and reality is magical. It is precisely that magical quality that motivates the greatest scientists. Einstein discovered relativity by "taking a ride on a beam of light". Alan Turing's work on chemical morphogenesis, likewise, was inspired by "watching the daisies grow". Poetic intuition is necessary to scientific insight. Goethe described his appreciation of living form as:

"...the urge to cognise living forms as such, to grasp their outwardly visible and tangible parts contextually, to take them as intimations of that which is inward, and so master, to some degree, the whole in an intuition" (3).

The process of creative scientific thought, according to Goethe, begins as a perceptive act akin to the artistic impulse. Goethe spoke with the authority of a major romantic poet, whose unique scientific contributions in both physics and biology are just now beginning to be recognized (4). He was, *par excellence*, the romantic poet who understood science better than most scientists.

So, why do scientists who should know better insist on taking the magic out of science? I suggest it stems from a long tradition of mechanical, positivistic abstractions that has drained life from nature, and stripped mind from matter, reducing matter finally to a collection of indifferent particles engaged in meaningless random motion.

Organisms as developing and self-organized wholes, as perceived by Goethe, simply have no place within a scheme of explanations that rely solely on mechanical principles. With the demise of the organism, its qualities such as consciousness, feeling, intuition and mind, also vanished from the

scene, for they cannot be measured or quantified even though we as living beings experience them intimately and concretely. Our task is to bring life back into science as a first step towards restoring all the vital qualities which have been sadly misplaced.

The Reanimation of Matter

In a sense, we can do better than that, for we can demonstrate that matter itself is alive, or animated. I first became aware of this through the work of Sidney Fox. He and his colleagues discovered almost thirty years ago that a mixture of simple amino acids can be made to polymerise quite easily under conditions simulating pre-biotic earth. These 'thermal proteins' are self-ordered in that the amino acids themselves determine their own sequence in the resulting polymers. Furthermore, they exhibit an impressive array of vital characteristics. These include a wide variety of enzymic and hormonal activities, and the ability to form 'micro-spheres' in contact with water, which behave like living cells in many respects. One of the most striking properties is the ability to react to electrical stimulation by generating an action potential (Fig. 1). In other words, like nerve cells, they are irritable, or excitable. Excitability is considered one of the major characteristics of living things. One could argue that it is more universal than reproduction, as a lot of

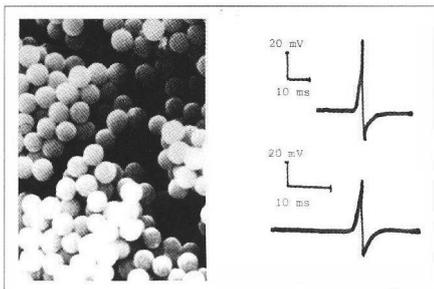


Figure 1. Protocells and excitability. (a) Scanning electron micrograph of protocells generated by mixing thermal proteins with water. (b) Action potential in squid axon (upper trace) compared with action potential of protocell (lower trace) (41).

people I know do not actually reproduce, but are nonetheless both irritable and excitable!

I see Fox's work (5) in the same light as Lawrence Henderson's (6) 'fitness of the environment'. The Darwinian notion of organisms adapting to the environment is at best incomplete, because it misses the reciprocal aspect of the relationship: that the physico-chemical properties of matter are fit for

the emergence and evolution of life. Indeed, it has been argued (7) that the 'laws' of nature are such as to make the evolution of life and human beings possible. This is the so-called anthropic principle. For example, if Newton's inverse square law of gravitational attraction were not exact, planetary systems would either annihilate themselves in the sun, or be lost forever in extrastellar space.

The extent to which matter is in some sense alive can also be appreciated from Bohm's reformulation of quantum theory (8) which starts from universal wholeness. Every particle is embedded in a field, or quantum potential, consisting of influences from all other matter in the universe. One consequence is that each electron takes on an identity by virtue of its distinctive position and life-history. Bohm remarks that he can see little difference between living and non-living matter.

Significant insights into living organization have come from recent studies of physical systems. For example, one of the greatest puzzles about living organisms is how they can maintain and reproduce organization on a macroscopic scale, while the physical world runs down relentlessly into disorder in accordance with the second law of thermodynamics. Over the past 20 or so years, some physicists and chemists who have retained a strong sense of magic for living organisms, are coming up with a plausible answer (9). The secret to life may indeed be resonance. Not quite the way Rupert Sheldrake (10) had conceived of it, though his basic intuition was in the right direction.

Resonance refers to the transfer of energy between systems vibrating at the same or similar frequencies. For example, a tuning fork can transfer its vibration to a string on a musical instrument which has been tuned to the same frequency. Resonance also occurs between molecules. Chemical bonds, when excited, will vibrate at particular frequencies, and transfer this vibrational energy to other molecules with similar bonds. Resonating molecules, like people, attract one another and act in concert. This applies also to macroscopic systems: when resonating, these systems act automatically as a coherent collective whole.

Organisms are made up predominantly of electrical dipolar molecules, ie. molecules with well-separated positive and negative charges. These are organized in such a way as to favour both

the storage of metabolic energy in the form of electromechanical vibrations and the transfer and transformation of this energy by resonance. The latter occurs instantaneously, without loss, and is highly specific; in effect, the living organism behaves like a high temperature superconductor. Resonant energy transfer in turn organizes living matter by maintaining and generating coherence at all levels (11). And this may be why organisms are sensitive to subliminal electromagnetic signals from the environment. There is evidence that they actually emit these signals themselves and use them for rapid communication over large distances (12). There has been a lot of controversy over the possible harmful effects of electromagnetic radiation from high tension power lines and other sources. The Central Electricity Generating Board in Britain is finally conducting its own investigation, after having resisted those claims for many years (13). All the evidence suggests that organisms are much more sensitive and much more intimately connected to one another and to the environment than we have previously suspected.

There is a deep kinship between living and non-living in the material processes that constitute the two realms. This kinship also expresses itself in another important respect: the generation of form.

The Generation of Form

In biology, the pervasive influence of neo-Darwinian theory gave rise to the view of the organism as a sum of past random genetic mutations accumulated by natural selection and preserved by heredity. Hence, the genes are regarded as the generators of biological forms. The genes, however, only specify base sequences of nucleic acids and amino acid sequences of proteins. There is nothing inherent in the protein-synthesizing machinery that tells us how to generate form. Biological forms are notable for their reproducibility. But reproducible forms also occur in the inorganic world. Snowflakes, for example, have a range of shapes that are regularly and repeatably produced, and nobody has ever suggested that genes are responsible. The real explanation is that specific forms emerge spontaneously and automatically when certain conditions are satisfied. There is no need to appeal to natural selection or to special genes. The role of genes may be to stabilize forms that can occur given the dynamical structure of the developing

system (14).

I will give just one illustration of what I mean. The fruitfly's body consists of about fourteen repeated parts or segments, each recognizably different from all others. Many genetic mutants have been isolated, some of which lead to errors in the number of segments formed, others are associated with alterations in the identity of the segments themselves. However, the altered forms, like the normal, cannot be said to be generated by the genes, because a simple environmental perturbation, such as exposure to ether vapour, can produce many of the same disturbances (Fig. 2) (15). Genetic and environmental perturbations produce similar forms because there is a dynamic process determining the possible forms. It is therefore, incorrect to suppose that the environmentally induced forms resemble the mutant phenotypes, as is implied by the term, phenocopy, used to describe the former. Here, I would like to borrow the concept of *similitude* from the philosopher, Michel Foucault (16). Both kinds of forms, genetic, as well as environmental, are related by similitude. In fact, the entire set of forms – variant and normal – are also

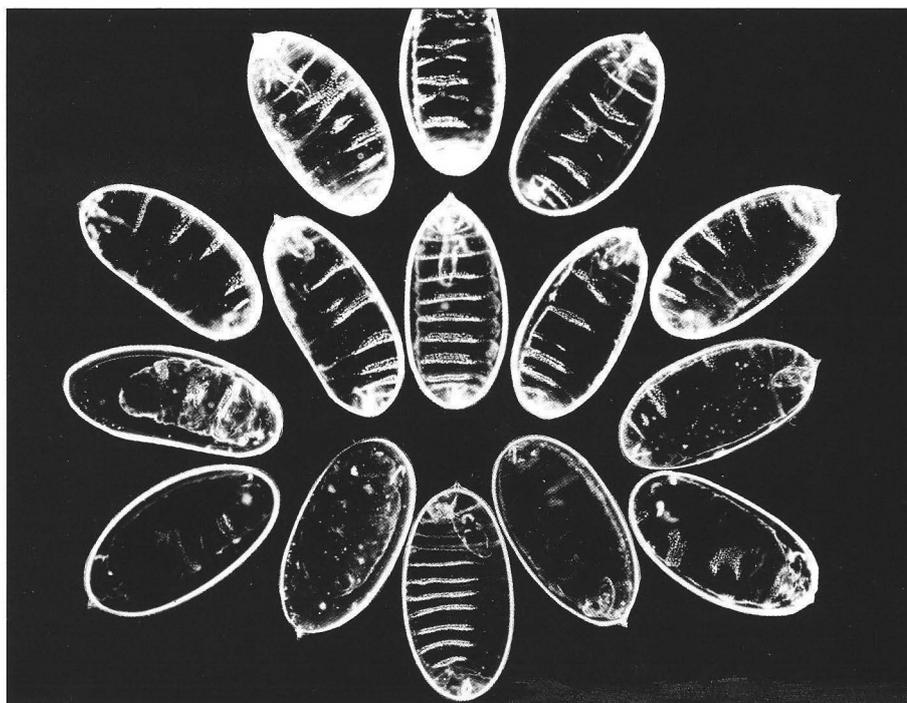
patterns are made by the aggregation process of the slime mould amoebae and the chemical reaction described by Belousov and Zhabotinskii (Fig. 3). These examples of similitude between biological and physico-chemical forms

the stem, which follow precisely the Fibonacci series in mathematics (Fig. 4). He and his students wrote several papers addressed to the problem of leaf arrangement (phyllotaxis) (18) which continues to exercise many biologists



Figure 3. *Similitude between biological and physico-chemical forms. (a) Aggregation of the slime mould amoebae, (b) The Belousov Zhabotinskii reaction (45).*

Figure 2. *Similitude in the range of larval forms generated by exposing early Drosophila embryos to ether vapour. The control larva is in the centre (42).*



related by similitude, being transformations from one underlying dynamic structure. We can follow this path of similitude to the next higher plane.

D'Arcy Thompson (17) was struck by the similarity between forms generated, for example, by a drop splashing onto the surface of milk, and the tentacles of a jelly fish. Likewise, almost identical

are of great interest, as the detailed mechanisms involved are completely different. What lies at the heart of this similitude is a rational core of nature such that both organic and inorganic forms may be described by the same mathematical principles. Alan Turing was fascinated by the regular spiral of florets in the daisy, and leaves around

today. In another germinal paper, he showed how repeated structures such as the tentacles of jelly fish can be described by chemical reaction and diffusion through an initially homogeneous medium. This paper has inspired a current generation of mathematical modelling of spatial patterns in living organisms (19). Physical counterparts of the mathematical models have also been made, as for example, standing wave patterns created on thin vibrating plates simulate various animal coat colour patterns quite closely (Fig. 5).

The notion of the similitude of form is central to our discussion. It is a property of form that both transcends the particular material substrates yet encompasses the diversity of real processes. I shall return to this theme towards the end of this paper.

It must be stressed that form is dynamic through and through. Goethe, who founded the science of form, or *morphology*, insisted on that (20):

"If we would introduce a morphology, we ought not to speak of the *Gestalt*, or if we do use the word, should think thereby only of an abstraction – a notion of something held fast in experience but for an instant.

"What has been formed is immediately transformed again, and if we would succeed to some degree, to a living view of Nature, we must attempt to remain as active and as plastic as the example she sets for us."

This dynamic view of nature as process is echoed centuries later by Alfred North Whitehead (21) who said, "There is no holding nature still and

looking at it." Centuries earlier, Heraclitus had observed, "Upon those who step into the same river, different and ever different waters flow." The Taoists in China, too, saw nature ever-transforming through the Tao, an immanent transforming principle (22). All nature is thus interconnected by process.

The Interconnectedness of Nature

It is remarkable how contemporary science more and more brings home to us what we already know concretely and intimately from our own experience and intuition: that interconnectedness is primary, as much as separation is abstraction. The analytical tradition presupposes a separateness that does not exist, and is responsible for creating false paradoxes. Even as great a philosopher as Immanuel Kant could not imag-

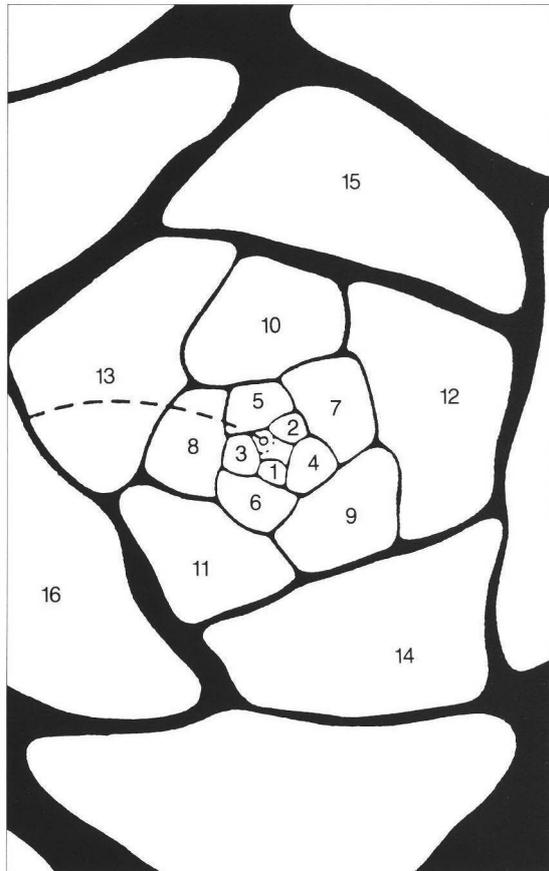


Figure 4. Apical bud of *Sedum acre* showing three sets of regular spirals when contacts between successive leaf-primordia are traced. The first involves primordia 1,3,5,7,9,11,13,15; the second involves 1,4,7,10, 13, 16; the third involves primordia 1,6,11,16; 4,9, 14; 2,7,12; 5,10,15. As can be seen, the first spiral consists of successive primordia differing by 2; the second by 3, and the third by 5. These are successive terms of the summation series 1,2,3,5,8,13...., known as the Fibonacci series (46).

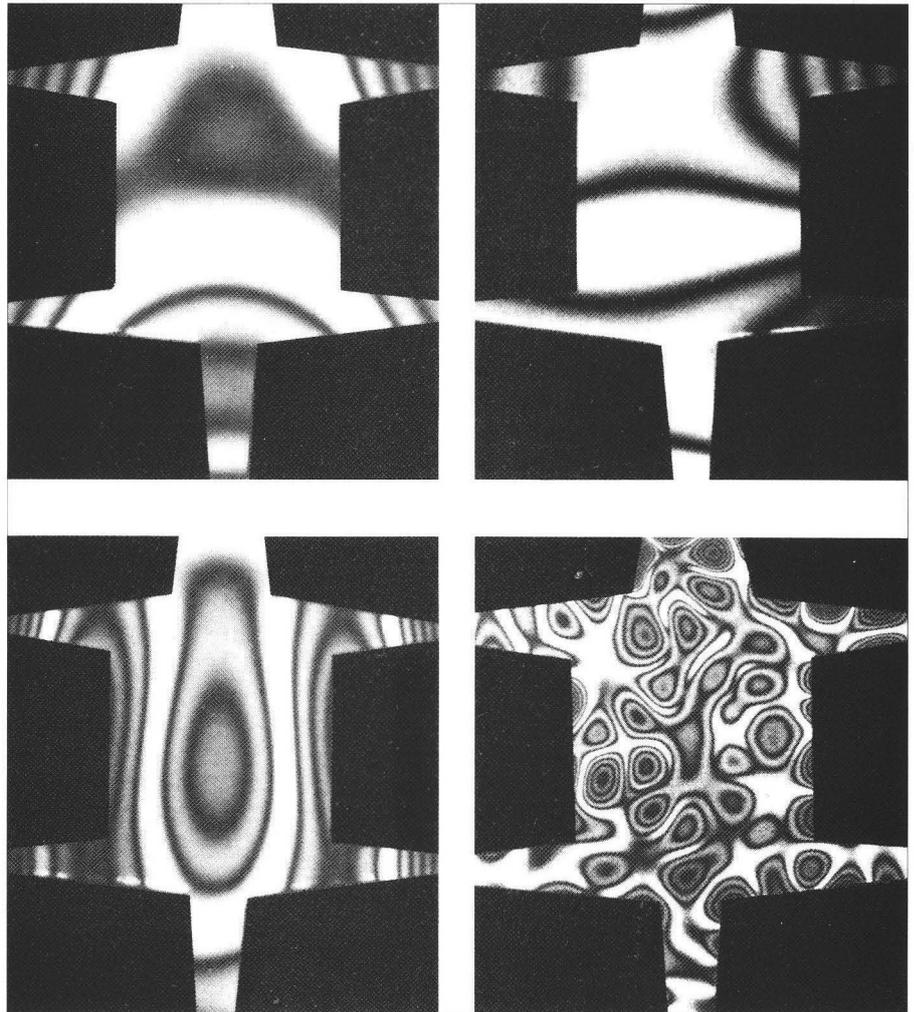


Figure 5. Standing wave patterns generated on thin vibrating plates simulate animal coat colour patterns (47).

ine by what intellectual faculty we can associate cause with effect. This paradox is created by a Newtonian world view in which reality is represented as instantaneous time slices (23); there being nothing to connect an earlier instant (cause) with a later instant (effect), once we abstract away the experiential being; for cause and effect are but abstracted states of one continuous process which we experience concretely as sentient, conscious beings.

In analogy to that, neo-Darwinism not only presupposes the separation between organism and environment – the one varying independently and the other selecting – it also reduces the organism into an initial state, the genotype (the totality of the genes present in the fertilized egg), which causes the final state, the phenotype (the entire organism itself). The separation between organism and environment is ensured by Weismann's concept of the independence of the germplasm. In other words, while the organism's body or phenotype is subject to environmental influences, its genotype is protected, and is passed on to the next generation virtually unchanged but for rare ran-

dom mutations. So it is tacitly supposed that organisms begin life with nothing save the genes they inherited from the previous generation, which is far from the case, even if we assume that Weismann's concept is correct. For organisms inherit much more; the cytoplasm and other maternal influences (24) as well as the environment of the previous generation (25). Social organisms inherit in addition, entire social orders and cultural traditions. These socially constructed environments set important parameters for development. One reason for the persistence of the class barrier is precisely because the inheritance of the social regime is much more tenacious than inheritance through the genes.

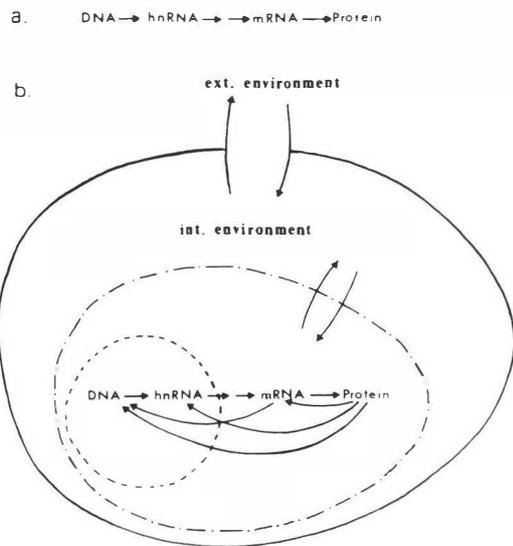
Recent advances in molecular genetics have indeed revealed that the genes, far from being static and unchanging as they were previously imagined, are in reality quite flexible and dynamic. So much so that molecular biologists themselves have coined the term, 'the

fluid genome', to describe the multitude of processes which mutate and rearrange DNA, amplify or contract DNA sequences, move genes around, or convert one gene to another. These processes go on during development in both germ cells and somatic cells (26).

Particular changes in DNA can occur repeatably in certain environments and become inherited in one generation. Somatic 'information', in the form of processes RNA, can be reverse transcribed into DNA and become part of the genetic material (27). Thus, there is no absolute distinction or separation between germline and soma, as far as the organism is concerned.

The picture of gene action during development we now have is very different from that embodied in the 'central dogma' (the central dogma being that information can travel from the DNA to the cell but not vice versa) (Fig. 6). Instead of a linear, one-way transfer of genetic information, there is a whole network of feedback interrelationships between organism and environment. One can immediately appreciate that it makes no sense to locate the *cause* of development solely in the genes. Instead, it is diffuse and distributed throughout the entire system of organism-environment interrelationships. Similarly, heredity does not

Figure 6. Two views of gene action during development. (a) the central dogma, (b) the process view (48).



reside solely in the DNA; it does not inhere in any particular material substance passed on from one generation to the next, but rather it is a property arising out of the same nexus of interrelationships that catenate within and

between generations (28).

It is clear that the organism is an integrated whole, genotype with phenotype, body with germline. These wholes are themselves in continuity with past and future generations through the nexus of physiological, ecological and sociocultural relationships. Within the life time of each generation, organisms not only construct themselves and their environments, they also enstructure future generations by setting or resetting the parameters for their development (29). Organism and environment engage in continual mutual transformation by virtue of an interconnectedness that reticulates in space and time, knitting together larger and larger units from families to communities to societies and beyond. When we follow these reticulations far enough, we begin to experience the entire earth as one interconnected whole, or a *super-organism*, as Lovelock (30) has intimated. And we may begin to resonate to every being that has ever lived, from whales in the ocean to the tiniest speck of microbe in the soil.

Biology and Society

From the experience of connectedness flows empathy, a feeling akin to love. (The ancients were right to think it is love rather than gravity that binds the world together). With love also comes a feeling of responsibility for the object of our affection. And that is the beginning of a universal sense of morality which is inherent to all sentient, conscious beings. One can appreciate the wisdom of Confucius, who exhorted us to extend the love we have for our children to other people's children, and to extend the love we have for our parents to other people's parents. He knew that morality must be heartfelt, it must be based on real experience, and cannot be externally imposed. It is also as natural as breathing and walking, and as the rich plexus of feelings of which we are capable.

How then, did we arrive at the Darwinian view that life consists essentially in the struggle for existence of one against all and all against nature? Why do sociobiologists claim that competitiveness, aggression, and worse, the propensity for rape or murder in males are universal human characteristics? Clairborne (31) points out that in reality, the overwhelming majority of human beings readily engage in activities to help or benefit others, whereas only a tiny minority have ever committed criminal acts. Therefore, it may be

argued that altruism, rather than aggression is the human characteristic. He does not regard altruism to be innate, however. Rather, he sees it as a learned behaviour based on the universal human capacity for empathy, that is, for deriving pleasure from other people's pleasure and distress from their distress. And hence, "satisfying the needs of others, and thereby sharing their satisfaction, is intrinsically rewarding". This empathy, as I have tried to show, comes from the experience of connectedness with other beings. As Bertolt Brecht wrote, "We crave to be more kindly than we are".

Thus, human nature is at source, neither good nor evil. Clairborne continues:

"... Set up a social framework in which men are encouraged to be altruistic and most of them will rise to the occasion; set up one that encourages them to be selfish and most of them will sink to it. If a society offers special rewards to those who pursue the strategies of dog-eat-dog and 'I'm all right, Jack', then many people are, of course, going to use those strategies."

Here it is appropriate to bring in the intimate relationship of science to society. Increasingly, it has been recognized that almost no scientific theory is a pure logical construct. It both takes root within a particular sociopolitical context and feeds back into it. This is particularly evident in the case of Darwinism.

Young (32) identifies the three immediate sources of the Darwinian metaphor as Paley's argument from design, artificial selection and Malthus' principle of population. The first posed the problem of adaptation: how it could be explained naturalistically. The second yielded the metaphor of 'selection'. But it was Malthus' law that finally provided the mechanism for natural selection. Malthus' law was that as human population has a natural tendency to increase geometrically while food supply increases arithmetically, the population is held in check by pestilence, disease and famine. By transposing this law to the rest of nature, Darwin found the perfect solution to Paley's problem. Whereas Paley stressed adaptation, Malthus stressed conflict; and Darwin synthesized them by proposing that struggle both *explains* and *produces* adaptation.

The Darwinian metaphor had its origin in the prevailing socioeconomic

view among the ruling classes that suffering was inevitable for the impoverished masses of humanity. Much of the reason for the instant success of Darwin's theory is that it was cut from the very fabric of Victorian English society: mechanical materialism, positivism and free market economy. As Barzun remarked: "What brought him rapid victory and prolonged sway over his age was... the ability of the age to recognize itself in him" (33). In other words, competition and the struggle for survival were so much seen to be the order of the day that everyone believed they understood the theory, and moreover, that it must be true. Ultimately, natural selection – a metaphor bor-

tions for their own acts."

This completes the positive feedback loop between the dominant sociocultural ideology of the day and a scientific theory to which it gave birth. Social Darwinism and theories of racial inequality formed the backdrop to the rise of the Nazi regime.

Is history repeating itself now with sociobiology? Sociobiology is not just a parlour game for dons. Like Social Darwinism, it has considerable sociopolitical implications. Bateson (35) points out:

"The emphasis on selfishness and the struggle for existence in evolutionary

respectively. Our predecessors were combating vitalism on the one hand and Fundamentalism on the other, and therefore could see no real alternative to mechanical materialism. It is not so with us. The theory of natural selection is already discredited by the empirical evidence now available (36). It presents a reduced and distorted view of the organism and of its relationship with nature. It imposes a conceptual framework that does considerable violence to reality, not only in theory but in practice as well. Because science and our perception of the world are interdependent, a distorted science can in turn distort sociocultural reality through the self-fulfilling prophecy. According to Vygotsky (37), mind itself is a social construct; it is a cooperative activity consisting of the interweaving of individual human intentions, symbolic and practical acts. 'Mind' in turn shapes social reality. It is time we take matter into our own hands, as it were, by reconciling our mind to matter and playing an active part in nature's creative process.

In order to make a start, I would like to demonstrate how art and science – the two great divisions of human creative activities – share the same realist basis.

Let us recall the two ontological principles of nature that we have developed so far: its rationality and unity. The rationality of nature is what makes it intelligible to us as archetypal forms or patterns. Another way of saying the same thing is that nature creates particular forms in both physico-chemical and biological domains which we can recognize as being related by some deeper unity. Nature's rationality is thus also its unity in the formal sense. The unity of nature encompasses besides, the continuity and interconnectedness of material processes in the physico-chemical and the biological realms. These two principles of nature may be taken to be the epistemic of the new science. I am going to suggest that art is possible precisely on the same principles.

Michel Foucault (38) draws our attention to the enigma of Magritte's painting of a pipe entitled, 'Ceci n'est pas une pipe', or, 'This is not a pipe' (Fig. 7). Why should Magritte say it is not a pipe when it is so obviously one down to the last detail? What is the answer to the riddle? It is that the painting of the pipe is not a pipe, nor the representation of a pipe; it is an object in its own right. It bears the



Figure 7. Magritte's 'Ceci n'est pas une pipe' (49).

rowed from life – was most easily mistaken to be an apt explanation of life itself.

Darwinism epitomizes the development of a *Zeitgeist* in nineteenth century Britain, which in turn lent credence to some of the most pernicious political ideologies in the present century. Barzun (34) continued:

"'Matter' and 'force', when applied to human beings, found some dangerously simple applications. And when the idea of force is embodied in the notions of Struggle and Survival of the Fittest, it should be expected that men will use these revelations of science as justifica-

biology has had an insidious confirmatory effect on the public mind...The political danger of representing all human social relationships in terms of competition is that the expectation is self-fulfilling."

Art and Science

The major weakness in most critiques of sociobiology, as in those directed against social Darwinism, is the almost universal and unquestioned acceptance of the foundations on which they are based: neo-Darwinism and Darwinism

same relationship of similitude to the idea, or form, of pipeness as the pipe itself. Pipeness encompasses the set of all possible pipes and pictures of pipes.

What both Magritte and Foucault are telling us, I think, is that we must see deeper into the merely common sensible reality, the seeming arbitrariness of the convention of language which happens to call a pipe a 'pipe', rather than anything else. When we do that, we arrive at the rational core that underlies the convention. This rationality is a pattern perceived, realised and created simultaneously through action or praxis. It is the same as that which underlies the generation of natural forms I have referred to earlier. *There is a universal ground of reality from whence all forms and patterns are drawn.*

But reality is much more than that universal ground. It is a shimmering presence of infinite planes, or subtle levels (39). It becomes transparent to us in varying shades through the perceptive act. This simple fact has been obscured by a scientific tradition that abstracts away the perceptive being as much as it reduces the natural phenomenon.

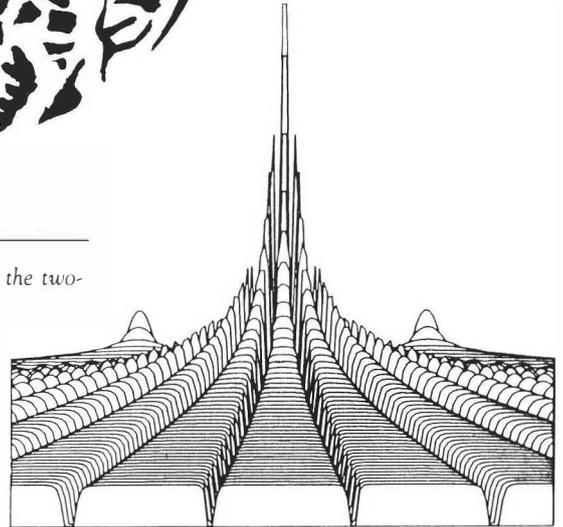
Newton replaced the phenomenon of colour with a set of numbers designating the frequencies of light in the visible spectrum. The introduction of quantitative mathematical methods into science led inevitably to the distinction between primary and secondary qualities. Primary qualities are those that can be expressed as numbers; by contrast, qualities such as colour, taste and sound are said to be secondary (40). This is responsible for the misplaced emphasis that only the primary qualities were considered to be real. The secondary qualities merely resulted from the effect of the primary qualities on the sense, being no more than a subjective experience and not part of nature. The consequence is that those features of nature encountered most immediately in experience are judged to be unreal. In this way, colour, form and music are written out of nature.

Bortoft (41) contrasts that with Goethe's scheme, in which perception is active: we experience the quality of colours by an act of perception. Our thoughts "re-create in the wake of ever-creating nature". There is an extra-sensory factor that transforms sensory data into cognitive experience. This can be demonstrated by looking at Figure 8, which at first glance seems to be a random collection of light and dark splotches. But as soon as one realizes it



Figure 8. *The hidden giraffe* (50).

Figure 9. *The quantum potential in the two-slit experiment* (52).



is entitled, 'The Hidden Giraffe', one readily sees the form of the animal. If perception were merely a passive intake of sensory impressions, then the giraffe would forever remain hidden. It is an intuitive grasp of the whole that is required. The knower is not a passive observer, but "a participant in nature's processes"; she is "the apparatus in which the phenomenon actualizes as a higher stage of itself"; the knower and the known constituting an indivisible whole.

It is in this light that creativity may be understood. A creative act is a special perceptive act. It involves seeing deeply into reality and drawing seductive patterns from that universal ground of similitude; seductive because they are communicable to other experiencing consciousnesses resonating to the same ground, being themselves likewise connected. This actualisation of patterns or forms, and the communion of shared experience through a universal ground constitutes the essence of both artistic and scientific creativity. We can at once see that both are collective social acts. They involve the conspiracy of an attentive inter-subjectivity. This is most easily appreciated in the performing

arts, where the audience participates in the creation of an aesthetic experience. Another point is that true art is never created out of nothing. It may be argued that great artists always draw from an intuited reality which is not immediately transparent to the merely common sensible. In other words, it is always a privileged insight, but an insight into a transformed yet recognizably universal reality. As Joan Miro insisted, "My figurations arose out of matter" (42).

Miro's 'Ploughed Field' (page 16) seduces us, not because it resembles a ploughed field, but because it actualises a reality of animated nature to which we resonate. We can see that in the eye and ear on the pine tree and the ploughed field itself, which undulates and moves as though it too, were alive. Similarly, we see in David Bohm's picture of the quantum potential (Fig. 9) an actualization of universal wholeness. The artist and the scientist both draw from the same reality ground, transforming it and referring back to it. In so doing they extend and enrich reality and our experience of it. They use different languages, but are both equally absorbing and magical. Ultimately,

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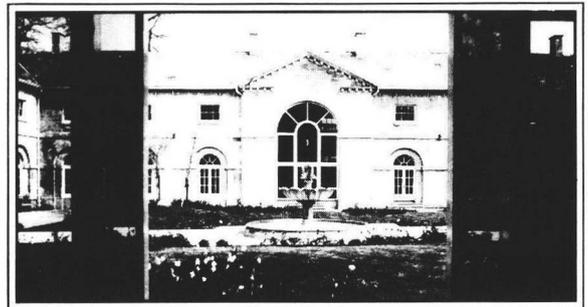
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meaning derives from our active and collective participation in nature's creative process.

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Courses at Chisholme House

SINCE BESHARA MAGAZINE began, we have often been asked about the other activities under the umbrella of the Beshara Trust, particularly the work of the Beshara School of Intensive Esoteric Education at Chisholme House in the borders of Scotland. So last summer we sent Angela Holroyd, journalist and prospective student, to talk to the Principal of the school, Peter Young, about the aims and intentions of the six month intensive courses which the Trust has been running since 1975.

What does the word Beshara mean?

Beshara means 'Good News'. It is reputed to be the word the angel Gabriel said when he announced the coming of Christ to Mary at the Annunciation. Beshara was his first word; 'Good News, a son is to be given'. It is common to three major world traditions; it is firmly entrenched in Hebrew, in the Aramaic language of the gospels and in the Arabic language, which are the three languages of the Abrahamic tradition. Perhaps one cannot get more universal than that; if there were a word which was also common to the Hindu, Buddhist, Taoist, etc. traditions, then perhaps that would be the word, but there is not such a universal language.

What would you say Beshara is?

It is good news in that it is the perennial announcement from our interior, from our essence, of its essential oneness to ourselves, which is its exterior. If you think about it, this is the

Chisholme House

When the Beshara Trust first found Chisholme in 1973, the house and the estate were derelict. Over the years, the house has been restored to its original Georgian style and outbuildings have been converted to student accommodation. All the main activities – meals, study, meditation and devotional practices – on all courses take place in the house. As many as three courses, involving up to 50 people, can be running at any one time.

good news which can free us from the illusion of self if we are receptive to it.

At one point I thought that I understood what Beshara is; now I am quite sure that I don't. And it seems that this not knowing is altogether more satisfactory and healthy, because what we study here leads us to the conclusion that Beshara is not at all something which is invented or brought about by people. It is a name for a movement from the one reality to the individual man. Beshara is from the Divine side, and therefore for a human being to claim to understand it would be at best partial. All of us who are involved are still finding out what it is, and I think that will continue.

You see, in a sense, what is happening now as Beshara is not new. Ever since there has been man capable of knowing himself, there has been an emergence of what might be called 'the perennial tradition' which has been known to a few. It has emerged in the great figures from time to time, in Socrates, for instance, or in Lao Tzu. What is new about Beshara is that the knowledge is accessible to all people. This school, for example, is open to anyone, from any tradition.

No prior knowledge is necessary, only a readiness and a willingness to learn.

Can you tell me how the school began?

Perhaps here we won't be able to talk about what happened except at the observable level. In terms of that, there was a tremendous interest in spiritual matters at the end of the sixties/beginning of the seventies in this country, with everyone dashing off in different spiritual directions. In London, a nucleus of people formed who were interested in a real spiritual direction, but without wanting to attach themselves to a guru or a teacher. They wanted to get to the heart of the matter, without any intermediary. Also in London at that time was a Turkish man by the name of Bulent Rauf, who, rejecting the idea of himself as a teacher, pointed in the direction of the work of Muhyiddin Ibn 'Arabi as being the basis for an approach in this way, without a formal teacher.

Eventually, in 1971, a charitable Trust was formed with the idea of acquiring a property where people could go and study these things – an open centre where they could go for the time they had available. This was how the first Beshara centre, Swyre Farm in the Cotswolds, came about. Bulent Rauf stayed as consultant to the Trust, but in a very retiring position, until his death in 1987.

As time went on, the need was recognised for a situation with a formal structure – a beginning and an end and a curriculum of study, and so the intensive courses began. Bulent was consultant in all aspects of the establishment of these courses and their curriculum, which is not exclusively Ibn 'Arabi, but starts with Ibn 'Arabi and goes on to the study of texts relating to the essential matter from all the major spiritual traditions.

What do you think is the main reason for people going on a Beshara course?

Of course, they will all say it in different ways, and everyone does come with a particular need. However, we would like to think that the main reason that they come is for what they find here, which is the proper understanding of the possibility of self-knowledge. In other words, the main reason that people come is in order to understand themselves and their relationship to reality. It is as if we are brought up nowadays without a context for understanding these things.

And Beshara provides that context?

Beshara first of all shows that there is a context, and then points the way beyond it. The context is just a beginning, because beyond it there is a real integration in being.

And this is revealed to us, or perhaps I should say, we reveal it to ourselves, whilst studying on courses?

The courses here first establish the context for self-knowledge. For some students, this may result only in their beginning to undo knots that have become tied over twenty, thirty or forty years. But I believe that in most cases it is more than that, and it certainly does not stop at the end of the course. Development goes on.

What do people get out of it? I know that you don't get a piece of paper at the end of six months, saying that you have achieved such and such; but what do you hope people come away with?

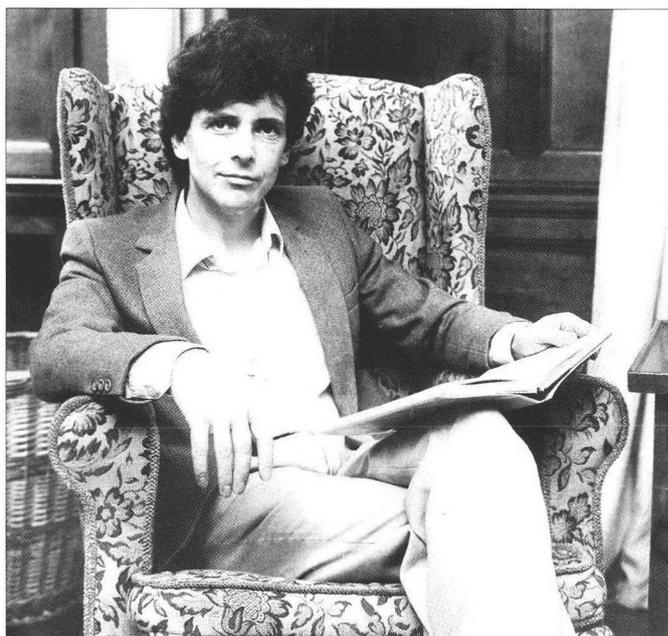
I hope that a certain connection becomes established for people, which is completely irrefutable for themselves – not for others, but for themselves – that they are in relationship to one reality, and that they are the possible place of complete mirroring of that one reality to itself. Even the certain awareness of that possibility is a source of constant growth. So one could say that it is not that the end result is expected at the end of the course, but that the effect will be felt at every moment of their life to follow; that they go on in awareness and growing understanding and actualisation of that possibility.

And of course, they will be qualitatively different, in knowing how they stand in respect to one reality, one God. They will inevitably be different, not in what they do – that may also be different, of course, but that isn't the point – but in the quality of their living. This will inevitably have effect on others, but again, the effect is not the point.

So what you're saying is that their approach, just to their ordinary, everyday lives, will alter considerably.

Since what we do is nothing other than our intention and attitude brought into visible play, then if our intention is a whole one, what we do will be whole.

That just about answers the next question I was going to ask you, which is, in what way will someone who has done the course be different from someone who hasn't?



Peter Young

I must make clear, though, that going on a course at Chisholme or at Frilford or at the new school that is just starting in Australia, is a great help, but it is not absolutely necessary; there is no exclusivity in this matter. What there is in this school is a source of help which can take effect over a very short period of time. For the people who come, this is necessary; because they have their lives, their families, work, etc. and even six months is a long time to take off.

What would you say to someone who said "I can read Ibn 'Arabi's work alone, at home. Why do I have to go on a course and take myself out of my life as it is at the moment?"

I would say, if it is true, very good. Get on with it, do it quickly. But if there is any reservation in them, then I would say, look at the reservation. Are they sure? Because it is much easier when there are more of you. Christ said “When two or three are gathered together in My name ...”, and there is a reality to that situation, and a help from it, which is not necessarily going to be available when you are sitting at home.

But I do not wish to convince anyone that they should come on a course at Chisholme, because the only prerequisite is a readiness and willingness to learn. The only students who should come are those who know that they want to come and to learn.

I have certainly felt, on my visits to Chisholme, that the other people matter very much. It reminds me of a time when I was taking a correspondence course in poetry. Studying at home, it was just my ideas, and I noticed an enormous difference when I started to do it as part of a university course. I feel that the people of Beshara would reflect your own need to, for instance, go in a different direction, or would mirror things happening within you.

Yes they do. The possibility of coming to real knowledge, self-knowledge, alone is always present for everyone. But in practice, it is the rarest of the rare who come to certain knowledge in this way. Most of us need all the help we can get, because we delude ourselves constantly. And as you say, being mirrors to one another, and being in a situation which is a total mirror, is enormously beneficial, and you are shown your illusion very quickly.

Also, the rightness of a certain intention in yourself is encouraged and allowed to blossom, just as a plant with a single potential will do well in one part of the garden and not in another. The conditions should be right, and anyone who says, well the potential is the same, hasn't taken into account the conditions. It may well be that he is in the right place, in the right part of the garden. But is he certain?

It seems also that Beshara acts as a sort of catalyst.

If by Beshara you mean the courses and the physical location, then yes, it's true.

Can we go on to talk a little about the format of the courses. What happens on them?

Apart from short courses – ten day introductory courses which are for people who can't come on a longer course, or who haven't yet decided that they want to commit themselves for six months – we run two sorts of six month courses at Chisholme. One is introductory, and the other is advanced, for people who have already completed the first, and they have different formats.

The introductory course, which is the one we are really talking about now, is a highly structured situation which begins shortly before dawn and continues until quite late at night, with very little respite. The reason for this is to make a complete break with all that has gone before, with all that one's life has been and with one's habits, and become totally devoted to a single aim.

The course is study oriented, but by study we don't simply mean poring over books, but study in every aspect of the day. We have days when we study and days when we work, but study is expected to be continuous.

Can you give me some idea of how the day is spent?

Study days do consist largely of poring over books, for around four and a half hours during the day. Other periods are taken up with meditation – for three half-hour periods during the day – and in the evenings, devotional practices. There is also a period in the afternoons when the students work. The work days are more or less the same, except that where there was study before, there is work, and vice versa.

The two work days following the study days are very necessary, because it is important that what is studied is put into practice, and that that very intensive activity be assimilated.

So you alternate two study days and two work days until you come to six. Do you rest on the seventh day?

No, we don't. It's right the way through, for six months. There are one or two days off, but even they have to be understood in the context of what we are doing; there should be no slacking off of awareness, which is the aim.

Do the students have any outside contact at all? Do they see other groups of people, for instance?

For this first six month period, the students really stay within the grounds. Towards the end, we invite lecturers from the major religious traditions, and also scientists, biologists, physicists, to talk about their various disciplines. And as we are so close to a Tibetan Buddhist monastery at Samyé Ling, which is only 30 miles down the same valley, then rather than invite them here, we sometimes take the students there, to sit in on some of the teachings. The idea is that they go to hear the same thing; because truth is one, however it appears and whatever clothes it wears.

Has anyone ever left a course?

Some do, but very rarely. Perhaps, 1 in 20 or 1 in 30 decide that it is not for them, and that's fine.

Why do you think that this sort of course is so essential now? What is it about life today that makes them so necessary to people?

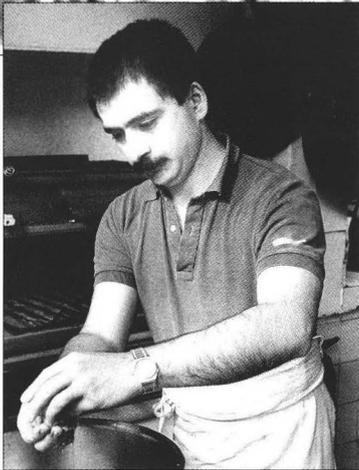
One way of answering that is that it is evidently so. There is a tremendous need, and you only have to speak to people to identify it. The other is in terms of a global spiritual evolution. I think that we are at the point of history of a *rite de passage*, about to go through – or maybe are already going through – an extremely crucial isthmus. In terms of maturity, this could be described as something between the teenager and the responsible adult. Frankly, the way that we conduct ourselves politically and in everyday terms, globally, is less than one would expect of one's own teenage child; we fight, we don't act with any responsibility towards our fellow human beings; our approach is entirely selfish. This crucial isthmuseity will be got through only with proper understanding of the self; or perhaps I should say, of ourselves.

The teenager, you see, thinks that he exists, that he stops with his own body. The adult who goes into a family situation knows that he doesn't stop with his physical body; his family is also his self. This is simply a way of explaining a spiritual awareness that man has to come to; an awareness which means not regarding himself as an existing entity, or even regarding 'mankind' as an existing entity, but knowing that the totality of mankind and the world of nature – the macro-environment – is reflective of one reality, and man's



Students on the 18th Course at Study

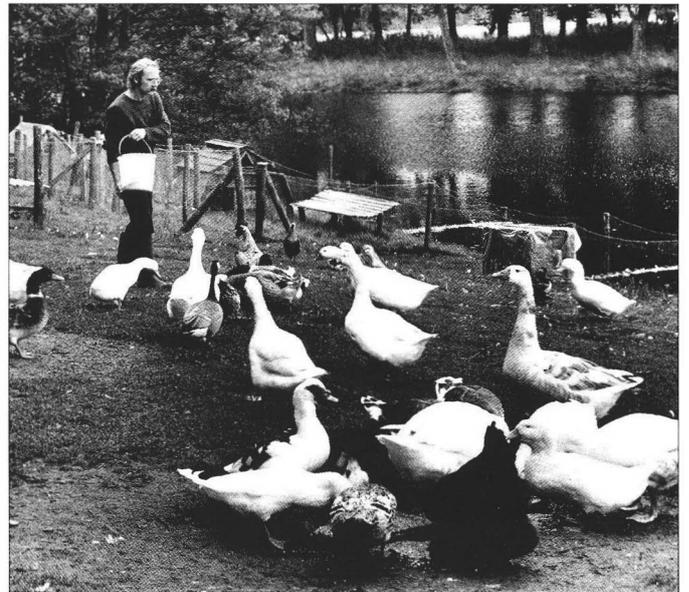
There are no teachers at the Beshara Schools. There is a curriculum, and supervisors who co-ordinate the study, but most of the sessions consist of discussion amongst the students. The material studied is wide-ranging. The core of it is works by Ibn 'Arabi but also included are the Tao te Ching; the Bhagavad Gita; the Acts of St. John from the Apocryphal Gospels; and selections from the Mathnawi of the great Persian mystic and poet Jalal'uddin Rumi.



Fikret, a student on the 18th course, making a cake for afternoon tea. Chisholme employs two full-time cooks, and the students help with the vegetable preparation, washing up and cleaning. They also make cakes and biscuits, yoghurt and jams. The manner of cooking, serving and eating food is considered very important, and it is always of a very high standard.

Birds on the Chisholme Lake

Chisholme breeds its own poultry, and keeps a variety of ornamental birds.



honour is to be of service to that reality in looking after the creation in a proper way; a responsible way.

Now this may not come about overnight; we have taken what are apparently very wrong turnings in the past – maybe they were necessary and maybe they weren't, I don't know – but now things are happening, and something big has got to happen to make a huge shift in consciousness. First of all the possibility has to become apparent, and this is where I think we are today; making the possibility a possibility by letting people know that it is there. As for the actual shift – only God knows how that will happen, and it has to.

This idea of service is very important on the courses, is it not? Especially in your attitude towards work?

Service is extremely important, but it has to be understood properly. It is not simply to do with doing work, although through doing work, one can come to a proper understanding of how it is to serve. If we were to take the example of serving food at the table; a good servant does the job perfectly, with perfect balance; he should serve in such a way that he is not noticed, and so that he does not intrude too much of himself into the situation, so that he is saying silently, look at me, what a good job I am doing. But neither does he hang

back; he knows what is needed. At the moment that the request is made, he knows and does, and that is how one should be in a state of perfect awareness, whatever one is doing – sitting, relaxing reading a book, or digging in the garden. Action is at the right moment in the right quantity, and this is serving reality, because we say: all service is to God, whatever the appearance. Whether you think that you are serving a human being or looking after chickens, all service is to reality.

This is an attitude which I always feel is very clearly demonstrated in the kitchens at Chisholme. One of the feelings that I have when I hear things like this is that it is very daunting. Do you think that people feel that they may not be up to scratch and are put off coming?

You could look at it that way; on the other hand, we maintain that everyone who comes to Chisholme is brought. If we serve, as we hope we do, the reality, then we don't bring them, they are brought. They bring themselves, if you like, but what is it in themselves that brings them? It is their own love to know the truth, and that in itself is truth. There is no doubt that it can appear daunting when you begin to see the largeness of the situation, but the reason that there is a

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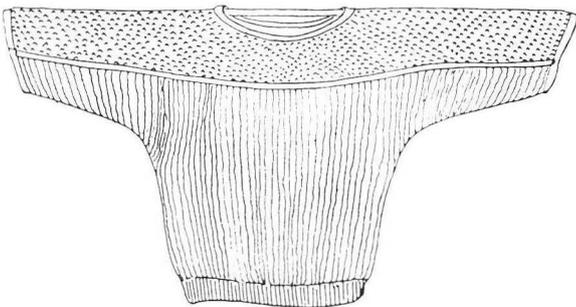
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school is that none of us are really what you call 'up to scratch'. If we were, there would not be a need for a school.

Do you find that people become institutionalised after six months of this sort of intensity? How do they manage when they leave, for instance?

It can be a shock. For six months the point of reference has been one being, one existence. While it may have begun as a premise, it ends in a degree of certainty, and to find that people in general do not live their lives in awareness of this can be a shock. And things stand out as not conforming to this point of view; the way decisions are made, the way people think and so on. At the same time, this awareness of non-conformity is an endorsement of what they have studied.

But I think the danger of institutionalisation is fairly remote over a period of six months. People do like to return to the school – many of them choose to do the further courses

that happen here, for instance – and I regard this as an entirely good thing. They do not come back because they have become institutionalised and can't do without their 'shot' of institutional food and living, but because to be in the ambience of the awareness of oneness, and to be amongst those who do like to discuss these things, is a pleasure. It is their life blood.

The intensive courses at Chisholme House begin in April and October each year. A full prospectus is available from the Secretary, see page 30 for the address. For details of courses in Australia, please write to Beshara Australia, address on page 3.

Photographs by John Farnham, except for the photograph of Peter Young which was taken by Gregor Stevenson of Hawick.

Angela Holroyd is a writer and editor who lives in London.



The Chisholme Estate

Chisholme has about 136 acres of land and two full-time managers are employed to maintain it. Apart from the lawn and gardens around the main house there are kitchen gardens which produce vegetables and flowers, and areas cultivated for timber.

Painting as a Means of Expression

Simon Blackwood talks about his work

Simon Blackwood (40) is a painter living in the Borders of Scotland. His paintings are in collections throughout the world, and his first British exhibition is taking place in April 1989.

I FIND IT DIFFICULT to say why I paint. There are so many different reasons, but once you start, it becomes almost obsessive, to the point that you are constantly conceptualising in that arena. What you are motivated by, what draws you, is the fundamental desire for love; the love of beauty. This is a passionate force; it becomes your life, and if it is not passionate, then it is not life.

I am fortunate in being able to involve myself every day in a direct relationship with this passionate response, whether in painting or in other activities. The relationship between painting and cooking, for instance, is one that has interested me a lot. Both involve the transmutation of base ingredients from one state to another in what one might call an alchemical process. And just as a well-prepared meal will itself arouse the appetite of the guest, so a painting should arouse a kind of hunger for beauty in those who see it.

One thing that has recurred in my painting is the desire not to fix an object. This is not vagary, but a conscious desire not to define the essential elements of an image, so that the painting grows out of itself as well as from the original image, which in my case is usually nature. And ultimately, it becomes lost in the real element which defines it, which is light.

The understanding of light has many different levels. You can talk about it, as people do with the impressionists, on the level of creating an atmosphere, of creating light and dark, harmony and balance. Or you can talk about it as the origin of all expression and communication, the point from which beauty loves to be known. From this point of view, what motivates the artist is not just his own desire to create images of beauty. There is also the force of beauty, the will of beauty itself to be expressed, to be communicated in whatever way, whether the man has a brush in his hand or a broom.

It is because it is so clear to me that the artist is just like a tool, or a brush, for this sort of vision that I can't identify with the modern tendency to revere the artist. If you look at the work of someone like Rembrandt, you can see that the man was inspired, and that he knew where the inspiration came from. He didn't want to be the *prima*-painter, or whatever the equivalent of a *prima ballerina* might be. His satisfaction was in the work, and in his relationship with the ideas. Most of his great paintings, of course, were religious in their

themes; and each one is enlivened by the fact that he was praising through it. If it is not like this, then it becomes self-aggrandisement, and one can see the evidence in the work; the paintings become dead. I can see it, when it happens, in my own work.

THE BEST ARTISTS are not really inspired by nature as an external object, but by an inner vision. Monet travelled throughout France, looking for a 'motif' or something which would fire his vision. He wrote letters to friends and gallery dealers in despair about not being able to find the right object. Then when he found it, it was so simple. I particularly admire his series of paintings of a haystack. Nobody had ever chosen such a simple thing before. You could say that some of the objects he chose were not so simple – Rouen Cathedral for instance, but all he took from that was the entrance porch, and he sat in a shop window with his easel painting the same thing for weeks. His paintings are not really about Rouen Cathedral; what he – and all the Impressionists, but especially him – said they were looking for was to capture the moment. Later on, he had the revelation, through a lifetime of looking, that what he had always been searching for was the spirituality of things. This was at a time when he spent most of his time looking into water; at reflections and the movement of light in water. It was his intense desire to encounter this spirituality which led him on.

The Arabs say that light comes from the eye and moves outward, rather than the way we see it in the West, that the eye is merely receptive. I find this interesting, because it means that our attention determines what we see. Therefore, our development, spiritual or otherwise, determines the things as they are. We don't, perhaps, directly change a tree when we look at it, but there is nevertheless a real sense in which the quality of our vision effects it.

And vice versa; just as your state determines what you see, what you see determines your state. It is a circular situation. So the process of painting is not like some people think, that you have an idea and all you do is transpose this to a drawing and fill in the areas between with colour. Every student at art college knows that as soon as you put a mark on a piece of paper, all the other possible marks come into play; they line up like a huge edifice before you. This can be totally daunting or it can be welcoming, depending on you, and how you are; how strong is your willingness to be positively motivated towards truth. If you are not, then you can get involved in all sorts of tangents, conjectures and confusions.

But you never know from the beginning what that final



Bosphorus – Early Morning

Young Apple Trees



image is going to be. It is a doubly creative process; if you are painting from nature like Monet did, mostly outside, then you are looking at the object and trying to recreate it, but you are dealing with the object on the paper at the same time. It is this process which is like an echo of the ordinary man looking.

If the thing is right, then everything to do with the painting – the artist, the brush, the canvas – become tools through which real perception can take place. By real perception, I mean perception of reality beyond form. I believe that this is what all human beings are striving for, and what all artists are striving for, whether they know it or not. This is not to place art above everything else; it is just one expression of it, and if someone like Monet were able to communicate by pointing to a tree, maybe he would have done that. But who would have listened?

But look at the value that modern man, capitalist man, places on a good painting. Van Gogh's 'Sunflowers' sold last year for some extraordinary sum and is now hanging in a corporate building in Japan. His 'Iris' sold recently for \$59.6 million! I believe that the reason behind the purchase – and why the Impressionists in particular gather this sort of interest – is because people who work in those sorts of environments need contact with the world such artists reveal; it's not just an investment. When you consider that cave-dwellers painted, and that human beings have decorated their homes from the very earliest times, then perhaps this is not so amazing. Painting and looking at pictures is obviously something quite essential in human nature.

THIS IS A VERY confusing time in the art world, when artists, and the art-buying and art-viewing public, don't really know where they are going. There is a language to art; a kind of sign language which requires common understanding as much as a written languages like English or German. Up until about 1850, it was quite straight-forward; art was a representation of what you saw, like photography. Then Picasso began to go to the farthest extreme of image-making, taking people's imaginative ability as far as he could, away from recognisable objects. As did Cézanne, who dissolved the landscape into a series of blobs or strokes, dashes, until in some cases there are no recognisable objects in the picture, just colours. These people paved the way for abstraction where the relationship is between pure colour, pure shape, rather like a child's approach. In each of these modern schools of painting, the language is totally different – people write books about the language of Picasso, for instance, and once you have understood it, then you can decipher all his paintings. But the vocabulary you need to understand the whole lot has become huge.

Since Cézanne and Picasso, there has been a movement into free expression, until we have reached a situation now where anything is possible; you can put a canvas on a wall with a slit down the middle and people will call it art. We have a wonderful museum of modern art here in Edinburgh, and I recently went to see a work by Donald Judd, called 'Installation Piece'. I walked into a huge white room where it was meant to be kept and couldn't see anything at all. So I thought 'This is obviously a conceptual piece'. But as I walked out, I suddenly noticed a thing like a radiator on the wall, and this turned out to be the Donald Judd. Now this is Minimal Art, which has become so minimal that it is barely recognisable.

This sort of work is extending the parameters of art, saying, we can go this far and still get it into a museum. The

Minimalists have claimed identity with a spiritual way, emphasising the clean simplicity of objects, like the Japanese. Similarly, the Conceptual movement with which I was involved in the early '70's, which will accept almost anything as art. The thinking, essentially (although it is all mixed up with other philosophies) is that the world is beautiful, the inner vision is beautiful and all that is necessary is for that reality to be pointed out.

This is true, and perhaps it is what painting is about. But still, there is the other part of it, which is the motivation. Once the signs and symbols are freed, then everything is possible for the artist; he can paint like Leonardo da Vinci or sculpt like the chap who put the bricks into the Tate Gallery, or he can be in it simply for the money. But this very freedom begs other questions, such as what is the best way of painting. And when I look back historically, I see that all the people I think are the greatest painters have been involved in what one might call a spiritual quest, or in a quest for self-knowledge. And this is something which strikes a chord with our modern society, where it seems that people are urgently looking for some real meaning in their life. We have become so conscious of it, I think, because of the threat of it ending. We are much more aware of the results of our actions now than we have ever been, on a global scale, and this is what I find so marvellous about our age – we are becoming globally conscious.

It is a particular kind of artist who has the integrity to align himself with an inner vision, regardless of fashion. I was astonished when I found that Egyptian art didn't change for 2000 years, and that each artist was anonymous. I find this extraordinary, because it shows that the religious quest, the spiritual quest, was more important to them than fame. I don't believe that they were suppressed, because they couldn't have created objects of such great beauty if they were. The artisans were free. You have a similar development in the Islamic tradition, in the extraordinarily beautiful court paintings, where only one or two of the very greatest artists ever became known by name.

Whereas in our time, there is an attitude, especially among critics and gallery owners, that contemporary art should develop in a certain way; that originality – not of thought but of form – is the most important thing. Technique is taken to be the meaning, and any apparently non-progressive step is considered to be merely retrogressive. I say this because people say that I paint like Monet, or like the Impressionists, but this is merely a technique. It is not like creating the Morris Minor in 1988 when you can have a Datsun Prairie, because what matters is the meaning.

What is so misunderstood is that Cézanne knew this; he wasn't trying to create 'original' art; he was working with himself and with his vision; and he was bound by his own desire to encounter that vision. This is the sentiment with which I align myself. I am accepting of all the ramifications of the modern movements; I can see the truth in it and the relevance of it. But a lot of it does not reach out; does not use its language to reach for something greater than itself. For me, the truth of painting lies in those men and those works which represent the quest for the highest truth.

Interview by Christopher Ryan

Paintings courtesy of Breyberry Ltd.

Simon Blackwood's exhibition is to be held from 11th to 21st April 1989 at the gallery of Anthony Mould, 173, New Bond Street, London W1.

Reviews

Books

...in brief

Science

Chaos

by James Gleick

Heinemann, London, 1988. H/back, 392pp, £12.95

Over the last 20 years, scientists in many disciplines have been focussing their attention upon phenomena which are inherently unpredictable and irregular – things such as the onset of turbulence in fluids, the weather or the processes of the human body. It has been discovered that such 'chaotic' phenomena are subject to unexpected regularities and this has given birth to the whole new science of 'chaos'. James Gleick, a journalist with the New York Times, interviewed most of the pioneers of the field to produce this readable and very accessible book. He gives a historical and anecdotal account which both appears to be scientifically accurate and also manages to convey the sense of intense excitement attendant upon a new idea whose time has come.

Superstrings

Ed. P. Davies and J. Brown

Cambridge University Press, London, 1988. P/back, 234pp, £6.95

Superstring theory is another new area of science, which many physicists feel is

the most promising approach to achieving the complete unification of physics, the so-called 'Theory of Everything'. In 1988, Paul Davies and John Brown collaborated to produce a radio programme in which they interviewed the leading physicists working in the field. This book, following their previous success with 'The Ghost in the Atom' (see BESHARA 6), is drawn from the original transcripts, and starts with an excellent introduction to superstrings, which exhibits all the clarity and readability we have come to expect of Professor Davies. The book includes conversations with Michael Green, Stephen Weinberg and the late Richard Feynman, who thought that the whole theory was a waste of time.

The World within the World

by John D. Barrow

Oxford University Press, London, 1988
H/back, 398pp, £20.00

This vast and thought-provoking book by one of the most versatile thinkers in science today explores the assumptions which underpin our modern, scientific world view: that the universe is ordered, that it is logical, that there are laws of nature which can be described by mathematics, that it is governed by something which is outside of ourselves, etc. It traces the development of these ideas from the very earliest civilisations in China, Greece and India, to the 'leading edge' of cosmology and fundamental particle physics today. Not

an ideological book, many of its arguments are sceptical of the proposition that we will be able to pin the universe down in an all-encompassing 'Theory of Everything'.

Science and Creation

by John Polkinghorne

SPCK, London, 1988. P/back, 113pp, £4.95

John Polkinghorne was a Professor of Mathematical Physics until he became an Anglican priest. This book continues his informed exploration of the common ground between science and theology which he began with his previous book 'One World' (SPCK 1986). Whereas with 'One World' he asserted the unity of the search for knowledge, here he concentrates on specific areas, starting with 'Natural Theology' which he defines as 'the search for the knowledge of God by the exercise of reason and inspection of the world', and going on to discuss such things as the new theories of order and chaos, the overlap in ideas of creation and a Creator, and the nature of 'theological science'.

Mysticism

Fusus al-Hikam Volume 3

by Muhyiddin Ibn 'Arabi

Ismael Hakki Bursevi's translation and commentary

Translated into English by Bulent Rauf
Muhyiddin Ibn 'Arabi Society, London,
1988. H/back, 238pp, £40.00

The 'Fusus al-Hikam' is the major work of Ibn 'Arabi (1165-1240), who was known as the 'Greatest Sheikh'. Ismael Hakki Bursevi, himself a scholar and mystic of stature, translated it into Turkish in the 18th century, adding a commentary which is considered the best of the many that the book has inspired. The theme of the Fusus is the infinite wisdom which is at once unique in itself and many-faceted in its representations; in form, the book is an exposition on the meaning of each of

the 27 prophets from Adam to Muhammed. This volume includes chapters on Jacob, Joseph, Hud, Salih, Jethro (Shu'ayb), Lot, Ezra (Ozeyr) and Jesus.

John of the Cross

Selected Writings

Ed. Kieran Kavanaugh, O.C.D.
SPCK, Paulist Press, London 1987
P/back, 326pp, £13.50

This is a welcome addition to 'The Classics of Western Spirituality' series which has brought many mystical works of importance to English speaking readers. John of the Cross (1542-91), a Spanish monk who collaborated with St Teresa of Avila in reforming the Carmelite orders during the 16th century, is one of the greatest mystical writers of the Christian tradition, and considered by many to be its greatest poet. This new translation by Kieran Kavanaugh includes an introduction to his life and thought by Ernest Larkin and selections from all his major works: 'The Ascent of Mount Carmel': 'The Dark Night': 'The Spritual Canticle' and 'The Living Flame of Love'.

God Within

The Mystical Tradition of Northern Europe

by Oliver Davies

Darton, Longman and Todd, London, 1988. P/Back, 224pp, £7.95

Oliver Davies has written this book because he believes that the mystical tradition of Northern Europe has a flavour quite distinct from that of Spain or the later movement in 17th century France, and that the voice of the men and women who comprise it should be heard. His book starts with an account of the life and work of Meister Eckhart, the great German mystic, and goes on to cover his followers, Johannes Tauler and Henry Suso. Also included are the Dutchman, Jan van Ruusbroec, and the English mystics Richard Rolle, Walter Hilton and Julian of Norwich, plus the anonymous work 'The Cloud of the Unknowing'.

The Theology of Arithmetic

Translated by Robin Waterfield
Phanes Press, New York, 1988. P/back, 130pp, \$13.95

Attributed to Iamblichus (4th century AD), 'The Theology of Arithmetic' is about the mystical, mathematical and cosmological symbolism of the first ten numbers. It is the longest work on number symbolism to survive from the ancient world, and has never before

been translated from the ancient Greek. This edition has been produced in collaboration with Kairos, and includes a foreword by Keith Critchlow.

General



The son of a Kurdish Prince. From 'Sultans in Splendour'.

Sultans in Splendour

by Philip Mansel

André Deutsch, London, 1988
H/back, 192pp, £17.95

An account of the last years of the Ottoman sultanate, this book is notable mainly for the wealth of archive material in the form of photographs and portraits.

Goethe Contra Newton

by Dennis L. Sepper

Cambridge University Press, 1988
H/back, 222pp, £27.50.

Henri Bortoft

THE THEME OF this book is clearly expressed by the title. Dennis Sepper is concerned specifically with Goethe's project for a new science of colour and the controversy which this aroused as a result of his attack on Newton. He seeks to elucidate why Goethe was led to make such an attack, when it seemed to be against his own nature to do so, and also what role this polemic played in the establishment of his scientific project in the field of colour. This was by

Temenos 10

Ed. Kathleen Raine

Distributed by Element Books, Bristol, UK and Phanes Press, Michigan USA. 1989. P/back, £9.95

This edition of the arts review (whose purpose is outlined on page 9) includes Henry Corbin on 'Emblematic Cities', William Chittick on 'The World of Imagination and Poetic Imagery according to Ibn 'Arabi' and Patrick Pye on 'The Intellectual Act in El Greco's Work'. There is poetry from Gennady Aygi, Kathleen Raine, Jeremy Reed and Fernando Pessoa; reviews by S. H. Nasr, John Mitchell and Keith Critchlow; paintings, in colour, by the Huichol Indians of Mexico and drawings by Ameena Ahuja.

Jung – A Biography

by Gerhard Wehr

Shambhala, New York, 1988
H/back, 550 pp, £20.

This book is a straight-forward biography, of which Franz Jung, C.G.Jung's son, says (on the dust-cover) that it is "the best available biography (and) a thoroughly reliable piece of documentation". Apart from three short essays at the end of the book – one on western consciousness and eastern spirituality, one on Jung's contacts, dialogues and disputes with well-known figures of the time, and one on Jung's influence – Gerhard Wehr does not attempt an examination of Jung's ideas but contents himself with giving an excellent introduction, with a thoughtful commentary and many pithy quotations culled from both Jung's formal writings and his personal correspondence.

... in depth

no means the only field in which Goethe worked scientifically. His work in botany, for example, is of equal importance (some would say more). However, it was with his work on colour that he achieved an unwelcome, although self-inflicted notoriety. (1)

Sepper shows how Goethe's achievement can be illuminated by the history and philosophy of science. In so doing he follows the pathway taken by Goethe himself, who came to understand that science could only be under-

stood by recovering the historical dimension which was essential to it. This is invariably covered over in that very common approach to science, both in his day and our own, which believes that scientific knowledge is simply gained directly by induction from observation and experiment. Sepper shows how Goethe also began from such a position of naive inductivism, and how, as a result of his failure to communicate his discovery effectively to others, he went on to discover for himself that scientific knowledge is situated in a historical context and not simply 'read off' nature directly.

dilettante, who had no firm grasp of what science is really about.

GOETHE'S CONCERN with colour arose out of his interest in art (Newton's arose out of his technical interest in improving telescope images). During his first journey to Italy (1786-88) he found that artists were able to give rules for all the elements of painting except colouring. This was unsatisfactory to him because he believed that the work of art was Nature realising herself (Nature was always feminine for Goethe) on a higher level through the artist. Hence he believed that the same

crepancy he experienced between the phenomena and the accepted theory led him to undertake a further series of experiments and observations. These, he believed, let the phenomena speak for themselves so clearly that it would be immediately apparent to everyone that the accepted theory was wrong. In the event, the opposite to what he expected happened. Goethe experienced great resistance to his work and he became isolated from his contemporaries, standing on his own on this account. So he went more deeply into the question, going into the history of earlier ideas about colour and into the history of science. It was through this deeper investigation that he discovered that science is intrinsically historical (thus becoming a precursor of the understanding of science which was to emerge clearly only a century and a half later).

The results of this intensive labour were eventually published as the 'Theory of Colours' (*Farbenlehre*) (1810). A complete translation of this work has not yet appeared in English (to the best of my knowledge). The translation published in 1840 misses out the polemic against Newton, and all of the historical part. Perhaps this is why Goethe's advance beyond inductive empiricism towards understanding science as historically situated knowledge has not been recognised. Sepper brings this out very clearly in what seems to me to be the major contribution which this book makes to understanding Goethe's science. He describes how Goethe's thinking shifted towards the possibility that there are several ways of conceiving things, each of which has its own value. These *Vorstellungsarten* (ways of conceiving) were explored by Goethe through his historical studies, and he came to see such exploration, and the historical awareness which it developed, as a necessary part of doing science.

He contrasted the atomistic, mechanical and mathematical *Vorstellungsarten* with his own way of conceiving, which he thought of as more inclined to the genetic, the dynamic and the concrete. He saw that an atomistic intelligence would see nothing wrong with Newton's theory, but to limit our understanding to this one way of conceiving would be to make the science unnecessarily one-sided. This is why he had to attack Newton: because in science he could not tolerate the authoritarianism which takes hold of what is only a part and insists that it is



Goethe (1749-1832). Courtesy of the Goethe Institute.

What emerges from Sepper's account of his early struggle is just how modern Goethe's understanding of science was. Now that the historical situatedness of scientific knowledge has been widely recognised (2), it is easy to understand why Sepper says that he has "come to believe that Goethe has an ampler conception of science than Newton, that he has a sounder notion of what an empirical methodology required and a firmer grasp on the epistemological and philosophical issues involved." (px) Yet how different this is to the usual picture which is presented of Goethe as the amateur of science, the dabbling

kind of lawfulness as was to be found in nature must be present in art; the division between art and science simply didn't exist for Goethe. So he set out to discover the lawfulness in the phenomena of colour.

To begin with "like everyone in the world I was convinced that all the colours were contained in the light; I had never been told otherwise, and I had never had the slightest reason for doubting it...." (p24) But not having seen the experiments upon which this Newtonian theory was based (as he supposed it to be), he decided "to see the phenomena for myself". The dis-

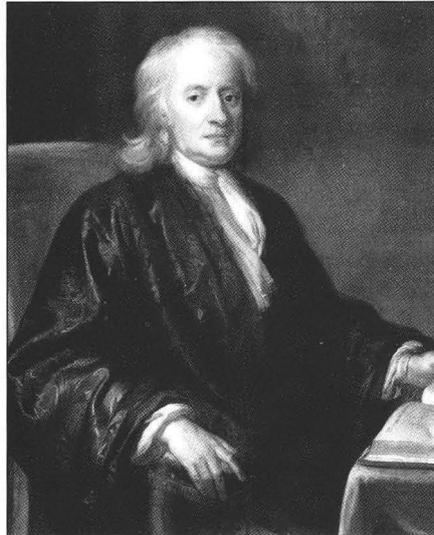
the whole. Sepper says that “the evolution of Goethe’s understanding of the *Vorstellungsarten* apparently has escaped notice” (p.96). He indicates how this is linked with the growth of Goethe’s ideal that science should become a many-sided activity, encompassing a plurality of ways of conceiving. This is in contrast to the reduction to a single way of thinking which had been the ideal of Newton and others in the development of mathematical science in the seventeenth century.

BY GOING AMPLY into the details, this book brings us to see how Goethe came to understand Newton and his experimental work better than anybody else in his own time. He came to understand that Newton did not say that white light is really a mix of colours which can be split up by a prism. All the German scientific *compendia* available to him at the time got this wrong – just as the physics textbooks available to schools in Britain today get it wrong. Goethe got it right, and in doing so leapt far ahead of his contemporaries in his understanding of what scientific knowledge both is and is not.

What Newton proposed, in tune with the new philosophy of his time – the revived philosophy of atomism – was that light is ultimately composed of tiny corpuscles. It was these which entered the eye and ultimately, in some unknown way, gave rise to the experience of vision. The atomistic philosophy, which was recovered from the works of Epicurus and Lucretius, fitted in well with the equally new quantitative approach which was concerned with measuring nature. Atoms and number (understood now as ‘quantity’ only) go together as readily as hand and glove. This in turn led to the distinction between the so-called ‘primary’ and ‘secondary’ qualities. Those qualities which are readily mathematizable, eg. size, motion, shape etc., were said to be ‘primary’ and it was supposed that these alone were real. Any other qualities of nature, such as colour, had somehow to be reduced to primary qualities, and the effect by which we recognize them (eg. the perception of red) was thought to be the result of some supposed interaction between the primary qualities responsible and the human sensory system. There is, then, no colour as such in nature, but only in human experience.

This doctrine of primary and secondary qualities is really an instance of methodological reductionism, whereby

nature is reduced to the requirements of a method. The requirements of a particular method of investigation are thus given a false ontological interpretation, which has the result of impoverishing nature in the eyes of man. Given this reduction, the task then becomes to explain the differences within a particular secondary quality (eg. the difference between red and blue) in terms of primary qualities. So Newton explained the difference between red and blue in terms of differences in speed between the corresponding light corpuscles. He proposed that the slower moving cor-



Sir Isaac Newton (1642-1727) in c1726.
Courtesy of the National Portrait Gallery.

puscle gave rise to the sensation of blue in the sensory system, whereas red was due to corpuscles which moved more quickly. The other colours were associated with intermediate speeds. Basically the same view is held in science today. It is only the details which have changed – instead of moving corpuscles, colour is now explained in terms of a wave motion, with high frequency waves (short wavelength) giving rise to blue in the sensory system, and so on.

Goethe would have none of this. He believed that light was simple and homogeneous, and that all the phenomena of colour must be understood in their own terms instead of referring them to mechanical causes. His way of science enhances nature instead of impoverishing it, showing how the phenomena are intelligible in themselves instead of explaining them in terms of something which is alien. He recognized that colours only appear at an edge or boundary, when this is seen through a prism, and that this is an essential condition. Whereas Newton tried to understand the physical condi-

tions for colour in terms of light alone, Goethe saw that light *and* dark are necessary, and saw the origin of the different colours as being in the dynamical interaction of the two. The interaction or interpenetration of the two poles of light and dark gives rise to the secondary polarity of red, orange and yellow on the one hand, and blue and violet on the other, depending on whether the light is darkened or the dark is lightened. It is at the meeting of these two secondary poles that green arises.

So the so-called spectrum of light is no such thing for Goethe. It is instead a polar interaction of light and dark in a way which is quite different to their mechanical addition (which would produce grey). It is a striking feature of Goethe’s approach that he is able to discover a necessity in the qualities of the colours, and in their relationship to one another, which no quantitatively based science could discover. We understand, for example, why red is red and why it appears in the spectrum in just that particular position which it occupies relative to other colours.

THE ESSENCE OF Goethe’s way seems to be in the demand that everything be known in context. Nothing less than this could count as understanding for him. In every respect he strove to see comprehensively; indeed, this striving to see comprehensively seems to have been the very spirit of the man. The basis of his complaint against Newton and mathematical physicists (and, in another context, against Linnaeus) is that they were selective instead of comprehensive. They took one aspect of a phenomenon and tried to base their understanding of the whole on that alone.

We can see Goethe’s comprehensiveness acting at different levels. First he sees that the colours become intelligible in the context of their surroundings. Then he goes on to show how any particular observation or experiment only becomes intelligible in the context of all the other observations and experiments with which it belongs. So he vehemently rejected what Newton insisted upon: the notion that there is an *experimentum crucis*, a single pivotal experiment on the basis of which his entire theory could be established. In the ‘Theory of Colours’ he sees the prismatic colours within the context of other manifestations of colour, physiological and chemical as well as physical, and includes the effect of the different colours upon the human being. So here

he strives to see colour phenomena as comprehensively as possible.

Finally, Goethe strives to see the science of colour itself in the context of the history of science – “We might venture the statement that the history of science is science itself”, he says. Here he put scientific knowledge back into the context of the thinking that produced it. This enabled him to recognise how Newton’s theory was presented by Newton himself as if it could be ‘read off’ his experiments, and how Newton did this by decontextualising his own work. At the same time, Goethe’s recognition of the irreducible historical dimension of scientific knowledge, and particularly the typology of the ways of conceiving (*Vorstellungsarten*) which he developed, enabled him to see the practical possibility of there being a much more comprehensive kind of science. Here “comprehensiveness must include not only the object in its manifold relationships but also the variety of human subjectivity, the many ways of experiencing the object” (p.187).

Sepper’s account brings out Goethe’s striving for comprehensiveness on these different levels. It is not always an easy book to read because of the density of detail which it necessarily contains. But whatever stylistic shortcomings the book might have in places, we must be grateful to its author for the trouble he has gone to in providing us with an account of Goethe’s philosophy of science as this is reflected in his work on colour.

1. *We may well suspect, though, that had Darwin also been in Goethe’s past, for the same length of time as Newton, then we might also have to consider Goethe’s polemic against Darwin! That seems very likely when we reflect on how, until very recently, Darwin has been accorded the same kind of authoritarian status in science that Newton later came to have. Surely, Goethe would have detected the same kind of one-sidedness in the Darwinian theory of the mechanism of evolution that he detected in Newton’s theory of colour?*

2. Thomas S. Kuhn ‘*The Structure of Scientific Revolutions*’ 2nd. ed. University of Chicago Press 1970; also Kurt Hübner, ‘*Critique of Scientific Reason*’ University of Chicago Press, 1983.

Henri Bortoft teaches physics, philosophy and the history of science at Tonbridge School. He has given several courses of Goethe’s way of science for audiences in UK and USA and has published a monograph ‘*Goethe’s Scientific Consciousness*’, (Octagon Press, 1986. ISBN 09054-67410X).

Science, Order and Creativity

by David Bohm and David Peat
Bantam, New York, 1987
Routledge, London, 1989. P/Back,
280pp, £5.95

Quantum Implications

Essays in Honour of David Bohm
Routledge and Keagan Paul, London,
1987. H/Back, 455pp, £20.00

Jane Clark

DAVID BOHM is one of the most interesting and important thinkers alive today. Recently retired as Professor of Physics at Birkbeck College, London, his pioneering work on quantum theory over the past forty years has influenced a whole generation of scientists and has found a wide audience outside his field. ‘Quantum Implications’, consisting of a lively collection of papers by colleagues such as Roger Penrose, Richard Feynman and Brian Goodwin – many of which warrant a whole article to themselves – is a testament to his influence within his profession. This sort of anthology is common in the scientific world at certain important moments – in this case, Bohm’s 70th birthday – but they are not normally suitable for the general reader. It is a comment on the breadth of Bohm’s vision that, whilst much of it is too technical even for someone moderately educated in physics like myself, it includes a number of ‘non-scientific’ essays accessible to anyone. These encompass such subjects as dreams, Zen Buddhism, the philosophy of Hegel and the Renaissance Magi, art, and a revealing interview with Renée Weber entitled: “Meaning as Being in the implicate order philosophy of David Bohm”.

Bohm has an impressive pedigree as a physicist, originally making his name in plasma physics in the late 1940’s. In 1951 he published a highly acclaimed text book on quantum mechanics which is still used on many undergraduate courses. Through it, he attracted the attention of Einstein, who felt that the standard approach to quantum mechanics – the so-called ‘Copenhagen Interpretation’ of Niels Bohr – was incomplete. Subsequent meetings with the great man, and a deepening understanding that quantum mechanics and relativity theory were in some areas fundamentally incompatible, led Bohm also to question the orthodox approach.

In 1952, he published the first of

many papers putting forward an alternative theory. This is often referred to as a ‘hidden variable theory’; i.e. one that proposes that the behaviour of quantum mechanical particles is not fundamentally random or unpredictable, as the Copenhagen interpretation asserts, but is caused by forces which are not apparent. Bohm suggests that the electron has associated with it a field called the ‘quantum potential’ which guides its actions. This potential, or field, has some unusual properties; the most important of which, as Bohm describes in the excellent essay which opens ‘Quantum Implications’, was that it makes explicit “the crucially significant new feature of wholeness... which Bohr had shown to be implicit in the quantum theory”. (p37). He goes on:

“...classically, the whole is merely a result of the parts and their pre-assigned interactions.... With the quantum potential, however, the whole has an independent and prior significance such that, indeed, the whole may be said to organise the activities of the parts”.

In 1957 he extended the idea further, and in his book ‘*Causality and Chance in Modern Physics*’, suggested that quantum mechanical particles are ‘unfolding’ from an unmanifest level of existence which he called ‘the implicate order’. It is worth quoting further from *Quantum Implications*:

“So the thought occurred to me: perhaps the movement of enfoldment and unfoldment is universal, whilst the extended and separate forms that we commonly see in experience are relatively stable and independent patterns, maintained by a constant underlying movement of enfoldment and unfoldment. This latter I call the ‘holomovement’. The proposal was thus a reversal of the usual idea. Instead of supposing that extended matter and its movement are fundamental... we are saying that the implicate order will have contained within itself all possible features of the explicate order as potentialities, along with the principles determining which of these features shall become actual. The explicate order will in this way flow out of the implicate order through unfoldment, while in turn it ‘flows back’ through further enfoldment. The implicate order thus plays a primary role, whilst the explicate order is secondary...”

“This approach implies, of course, that each separate and extended form



David Bohm (right) with Krishnamurti. Photograph by Mark Edwards, courtesy of the Krishnamurti Foundation.

in the explicate order is enfolded in the whole and that, in turn, the whole is enfolded in this form (though, of course, there is an asymmetry, in that the form enfolds the whole only in a limited and not completely defined way). The way in which the separate and extended form enfolds the whole is, however, not merely superficial or of secondary significance, but rather, is essential to what form is and to how it acts, moves, and behaves quite generally. So the whole is, in a deep sense, internally, related to the parts". (p40)

He goes on to explain that this first implicate order is in turn influenced by a second, super-implicate order which "stands in relationship to the first as a source of formative, organising and creative activity"; all of which tends towards "the possibility of considering the cosmos as an unbroken whole through an overall implicate order". (p44). The task of expressing this intuitive vision in a scientific form has become his life work. In 1961, he moved to England to take up the

Professorship at Birkbeck College, where he established a relationship with the mathematician, Basil Hiley, and began the project of developing a mathematical formulation which is still in progress today.

BOHM'S IDEAS HAVE not yet been widely accepted or, he claims, even properly understood by the scientific establishment, who, perhaps unsurprisingly, find it a large step to give such weight to unmanifest degrees of reality. (Hiley and Peat tell us that Pauli, unwilling to accept it, *accused* Bohm's approach of being 'metaphysical'!) (1). But they strike an instant chord with anyone who has studied the mystical traditions, or the holistic sciences of people like Goethe or Plato. The very universality of the principles he outlines also produces a breadth which takes them beyond the boundaries of science as such. For instance, he formed a relationship with the mystic and spiritual teacher Krishnamurti, who deeply influenced his thought, and some of their many dialogues were pub-

lished as 'The Ending of Time', in 1980. (2).

Also in 1980, he published 'Wholeness and the Implicate Order', a collection of essays which extended his ideas into the realms of philosophy and culture. In this, he argues that reality is an undivided whole, and it is our own fragmented thought processes which divide and partition it. In 'Science, Order and Creativity', aimed also at a lay audience, he similarly argues that it is our rigidity and fixity of thought patterns – our clinging to beliefs – which prevents us from participating in true creativity. He coins the term 'generative order' to indicate "... a deeper and more inward order out of which the manifest form of things can emerge creatively. Indeed, this order is fundamentally relevant both in nature and in consciousness".(p151). Thus, the concept of the implicate order becomes a special case of this more universal degree.

Bohm and Peat suggest that we desperately need new ideas at the moment. We are confronted globally with a cri-

sis, in which the negative effects of our actions threaten to engulf us on every level, and yet we seem unable to act effectively to solve the problem. Bohm tells us that this is because the problems themselves stem from the way we think; if we don't change radically, and soon, then we will not survive. The concepts he has developed in his physics are forged here into an effective language and a tool through which to discuss how, and from where, we might develop new ways of thinking and being – and consequently, acting. "...creative intelligence originates in the infinitely subtle depths of the generative order, which is basically not in the order of time" he says on page 225.

IT WOULD DO neither the authors nor the reader justice to try to summarise the wealth of insight and information contained in this book. The subjects under discussion range from an explanation of how science arrived at its present fragmented state to the nature of social and cultural revolutions, taking in art, music, the new scientific theories of chaos and fractals, evolution, the development of language, the meaning of religion, the nature of thought itself; and much more. I found the chapter 'What is Order?', a particular pleasure. Here, Bohm delineates his perception that all that exists is ordered. Thus, we are faced not with an opposition between order and chaos, but a continuum in which different degrees of order are manifest, ranging from the low degrees of simple geometric shapes to high, even infinite, degrees manifesting as apparent randomness.

Such a unitative and integrated approach informs throughout. There is no need, Bohm and Peat maintain, to see the world in terms of fragments and

oppositions, be they particles or nations. Science need not lurch, as Thomas Kuhn has suggested it does, from one fixed paradigm to another; society need not expect great changes to necessarily entail upheaval and confrontation between opposing points of view; we need not see a great gulf between science and art, or confine the ability to create new forms, to have new insights, to special gifted people or particular times of human history. If we are willing to put aside our assumptions about reality – about ourselves, our society, even our religious belief – and cultivate what Bohm calls 'conscious awareness' (a kind of active passivity of mind which constitutes openness) then we are all invited to participate in the flow of the 'whole stream'; the 'timeless moment' of the generative order.

"Through (the generative and implicate orders), it becomes possible to understand the unfolding of creativity from ever subtler levels, leading to a source which cannot be limited or grasped in any definable knowledge or skill. This source cannot be restricted to particular areas, such as science and art, but involves the whole of life. Therefore the creative urge which is called for will have to be general and pervasive, rather than limited to special fields". (p269)

The aim, therefore, is not to achieve fixed objectives, or solve a limited category of problems, but to initiate a new *modus operandi* which is as fluid and integrated as the interior degrees from which it draws. An important part of Bohm's prescription for bringing this about is dialogue; the ability to meet and discuss creatively with people of different or even opposing points of

view, which he feels needs to happen at a global level.

If there is a fault with 'Science, Order and Creativity', it is that it occasionally fails to convince me that even the authors believe that all this will actually happen. As such, it skirts, rather than completely falls into, utopianism and occasionally becomes prescriptive rather than illuminating. But against this, is an impassioned plea for action. It is not enough any more that creativity should be confined to a few 'great' people, be they political leaders, artists, saints or scientists; everyone must take part. "The ultimate aim of this book", it finishes, "has been to arouse an interest in the importance of creativity. Whoever sees this importance will have the energy to do something about fostering it...All great changes have begun to manifest themselves in a few people at first, but these were only the 'seeds' as it were of something much greater to come". 'Science, Order and Creativity' is not an easy book to read, but it is immensely rewarding, and highly recommended to anyone who is concerned about the nature of reality as it appears in our time.

(1) *Even Einstein disliked it because although the theory is causal, it is not deterministic in the classical sense. Rather, it contains within it the possibility of non-local connections between particles in a quantum system, (ie. particles seem to be connected, even though they are widely separated in space); a prospect which Einstein abhorred, but which has since been verified by experiments by Alain Aspect in the mid 1980's.*

(2) Gollancz, London, 1985.

Jane Clark studied Engineering and Physics at Birmingham and Warwick Universities. She is currently editor of Beshara Magazine.

Markings

by Dag Hammarskjöld

Translated by Leif Sjöberg and

W. H. Auden

First issued 1963. Reissued by Faber and Faber 1988. P/Back. 186pp. £3.95

Derek Elliott

"In our age the road to holiness necessarily passes through the world of action." (p23)

IT IS ALWAYS fascinating when a leader in the secular world, entrusted with large responsibilities, reveals an interiority to action which is singularly spiritual. It is evident from

this diary, which he describes as "a sort of 'White Book' concerning my negotiations with myself and with God", that Dag Hammarskjöld was such an individual.

Hammarskjöld led an extraordinarily successful public life, culminating in the post of Secretary General to the United Nation before his tragic death in an air crash in 1961. Occasionally, in this collection of poems, pensées and aphorisms, there are clues to how he saw the performance of an office which he considered as a duty or a calling. "Success," he says on page 128, "for the glory of God or for your own, for the peace of mankind or for your own? Upon the answer to this question

depends the result of your action". Shining through the whole book is the sense of a man motivated not merely by a set of ideals, but made malleable by a living truth. "You will know Life and be acknowledged by it according to your degree of transparency, your capacity, that is, to vanish as an end and remain purely a means". (p133)

The United Nations is an organisation with unique aspirations, the significance of which, rather than the performance it has been allowed up to now, is especially relevant to our times. Existing to carry out the peaceful intentions of its member states, it is more passive than any elected government. Nevertheless, an international body

ennobled by a declared veracity and occasionally peopled by those who live its ideals is bound to have a kind of transforming influence on the tasks it is asked to perform, and more, on the way those tasks are perceived. Here Dag Hammerskjöld comments on the nature of the 'neutrality' of being a civil servant:

"In the last analysis, this is a question of integrity, and if integrity in the sense of respect for law and respect for truth were to drive him into positions of conflict with this or that interest, then that conflict is a sign of his neutrality and not of his failure to observe neutrality – then it is in line, not in conflict, with his duties as an international civil servant". (p22)

'Markings' is a delightful book, and bears out the reputation that the author had with those who knew him. Its utterances reveal a man who brought himself completely to the writing of them, and it sometimes hits notes of startling clarity. The book is not a literary work; the poetry is if anything rather dull. Its joy is the almost Zen-like fragments into which the reader can dip in and out, always emerging with something valuable. Here are a few of the many gems:

"Never look down to test the ground before taking your next step: only he who keeps his eye fixed on the far horizon will find his right road." (p32)

"What you have to attempt – to be yourself. What you have to pray for – to become a mirror in which, according to the degree of purity of heart you have attained, the greatness of life will be reflected". (p32)

"Maturity: among other things – not to hide one's strength out of fear and, consequently, live below one's best." (p87)

"I am the vessel. The draught is God's. And God is the thirsty one." (p88)

"In the last analysis, what does the word 'sacrifice' mean? Or even the word 'gift'? He who has nothing can give nothing. The gift is God's – to God." (p88)

"At every moment you choose yourself. But do you choose yourself? Body and soul contain a thousand possibilities out of which you can build many 'I's'. But in only one of them is there a congru-

ence of the elector and the elected. Only one – which you will never find until you have excluded all those superficial and fleeting possibilities of being and doing with which you toy, out of curiosity or wonder or greed, and which hinder you from casting anchor in the experience of the mystery of life, and the consciousness of the talent entrusted to you which is your eye". (p38).

Derek Elliott read Religious Studies at Sussex University. He now designs and makes furniture in Gloucestershire.

My God

Letters from the Famous on God and the Life Hereafter

Ed. Hayley Mills and Marcus Maclaine
Pelham Books. 1988. H/back. 180pp.
£9.95 (All proceeds to Save the Children Fund)

John Hill

THIS BOOK is a wide and wonderful collection of answers to the questions "Who or what is your personal concept of God? What do you believe happens when you die?"

These two questions were asked of over a hundred people from all walks of life – religious leaders, politicians, scientists, novelists, actors, musicians etc.; people of strong religious convictions or none at all. Some answers were single sentences, some several pages long.

It is stimulating and compelling light reading, and not only because of the gossip-column fascination of reading what John Cleese, Jonathon Porritt or Sir Fred Hoyle have to say on these matters. It is the wealth of human response to these intimate and profound questions that is itself very moving.

While a few of the answers are flip-pant, the majority have addressed the question with depth and sincerity. For Sir Yehudi Menuhin, for example, the first contributor, "God is a great circle all-encompassing, infinite and eternal in its ever-changing myriad parts, yet all related in motion..."; Shirley MacLaine tells us that "when conceptualising God I see brilliant white light and I feel that the light is Love"; while Arthur C. Clarke admits, "I don't believe in God, but I'm very interested in Him...".

There is often a striking contrast between the doctrinal responses of the religious exponents who express their corporate creed with many references and quotations, and the touching sim-

licity of many of the 'non-religious' who speak purely from their own personal experience. But in all cases the nature of the question itself elicits an honesty in the response, and the sheer number and variety of such responses collected in this book serves as a vivid illustration of 'the many ways to God'. Indeed their very juxtaposition gives each of them a greater depth by setting them in a context greater than their own individual vision, and illuminates them as refractions of a single theme.

In reading 'My God' there cumulates a strong sense of the very real inward activity of man facing towards his Lord with openness and honesty. It is this that gives the book a special quality and sensitivity and makes it of particular relevance at this time.

John Hill read Social Anthropology at Churchill College, Cambridge. He now runs a landscape gardening business in Gloucestershire.

Theatre

Signs and Wonders

A Journey into Jewish Mysticism

Written and played by Oded Teomi.
November 12th - 19th 1988, New End Theatre, Hampstead.

Stephen Hirtenstein

"Can you give me a hand?" the old man asked. The three-wheeler was lying on its side in the road, and would have require d a great effort to right it.

"Well, I'm sorry but I'm afraid I cannot." Teomi was tired, it had been a hard and frustrating day and his search for a real mystic, a true Kabbalist, was proving hopeless.

"You can but you don't want to."

"What do you mean? How do you know I can?"

"How do you know you can't if you haven't tried?"

THIS CONVERSATION with an insignificant old plumber in the middle of a village in Upper Galilee was one of the many pearls that Oded Teomi offered in a compelling play entitled "Signs and Wonders". It was a pearl not only for the delightful way in which the story was told, but

also for the subtle meaning which the story conveyed of the nature of a spiritual quest. As it turned out, the plumber was precisely the kind of man he had been looking for, an Elijah figure who subsequently instructed him.

The play is a true story, based on Teomi's personal experience, of a journey into the Jewish mystical tradition. It is written by someone who is at once both inside and outside that tradition, a person who is discovering the true meaning of his heritage for the first time. Oded Teomi is a seventh generation Sabra, a world-class actor, director and playwright, whose previous one-man show 'Above and Beyond' ran for over 500 performances. He has won the Israeli Harp of David award three times, and has appeared in many plays and films.

"SIGNS AND WONDERS" starts with a dream in which Teomi sees his dead father's head in a clock-face amidst a pile of old books and manuscripts. His father tells him: "a bird will suddenly appear, a wandering bird will appear". Teomi is convinced that this dream is important, and in his search for the meaning of this cryptic sentence, he is led to the ancient centre of Safed (see notes on page 44) where the great masters of Kabbalah lived and are buried. The first stage of his quest is marked by the dilemma of whether "there is a guiding light that is leading me on this journey" or whether it is just a matter of imagination.

Beginning at the Isaac Luria Synagogue, he goes through a series of meetings with various people including the plumber, culminating in a visit to the old cemetery at Safed and the tombs of the great masters like Joseph Karo, Moses Cordovero and Isaac Luria. He is taken to a cave where he becomes the tenth member of a kabbalistic minyan and learns the meaning of the covenant which every Jew can make to fulfil his destiny. His particular duty as an actor is to pass on this story to his audience.

Teomi is an actor of consummate skill, and no member of the audience that night can have remained unaffected by his marvellous portrayals of the people he met. His descriptions demonstrated not only an acute sense of observation but also a wry sense of humour: there was the man who looked after the synagogue with his great concern for timing ("if you want to meet a kabbalist, it's all a matter of timing; you're a mere 400 years too late"); the girl

whose attractiveness almost makes him give up the whole idea; and the old man who can hardly walk and yet rushes down the hillside of the cemetery with his coat-tails flapping like a great bird. I certainly cannot do justice to the scenes Teomi evoked so beautifully, for this was the ancient tradition of storytelling coupled with the modern theatre, to provide a solo performance of immense power which kept the audience spellbound for almost two hours.

The setting was extremely simple: three boxes, covered in cloth, which served as seats or tombs or speakers. There was none of the baggage associated with so much modern drama, no

himself; whose unrest is not general but directed towards a search for the truth about himself". These are sentiments that one feels Oded Teomi would share, for his play is a passionate declaration of the spiritual search.

What really marked this play out as unusual was not that it was superb theatre or an entertaining story, but that it managed to convey the meanings of spiritual teaching. It became clear that of the events that Teomi laid before us, not one was insignificant or unimportant. Everything in our lives can be touched by a vaster meaning that changes our 'flat' perceptions into a multi-faceted and never-ending dance.



Oded Teomi. Drawing by Evelyn Morrison

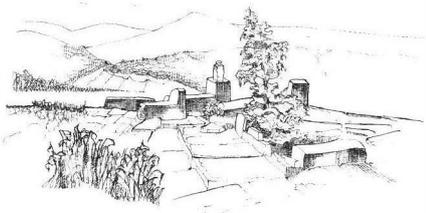
make-up, no props, no scenery or special effects. In the small New End Theatre at Hampstead, which can hold up to 100 people, Teomi insisted on a maximum of 70.

All this reminded me of the theatre-craft of Jerzy Grotowski, the well-known director of the Polish Laboratory Theatre in the 60s and 70s. Both have stripped the performance of all but the most essential, i.e. the human being and his condition. As Grotowski wrote almost 20 years ago, "we are concerned with the spectator who has genuine spiritual needs and who really wishes, through confrontation with the performance, to analyse

Thus the conversation with the plumber took on a different and enlarged significance, putting man's responsibility into clear focus: real change is possible and the only requirement is the resolve, the desire for it. "You can but you don't want to." The tragedy of modern people is not our inability to act, but that once having seen what action is required, we fall back into an unwillingness to behave in accordance with that vision.▷

Stephen Hirtenstein studied History at Kings College, Cambridge. He is editor of the *Muhyiddin Ibn 'Arabi Society Journal* and currently teaches in Oxford.

Notes on Signs and Wonders



Safed.

A small town in the Galilean hills some 20 miles north of the sea of Galilee, Safed emerged in the 16th century as one of the great spiritual centres of the world, and became synonymous with the tradition of Kabbalah (the Jewish mystical tradition). The community of Jews who lived by this elevated valley were drawn from all over the Western world, having gathered as a direct result of the expulsion of the Jews from Spain in 1492 and the subsequent warm welcome extended to them by the Ottoman Empire. (The Sultan Bayazid II is reputed to have said of the Spanish King Ferdinand who ordered the expulsion: "Can you call such a king wise and intelligent? He is impoverishing his country and enriching my kingdom.")

Thus Safed, being close to the large community at Damascus, became a major textile and trade centre. Even today, it bears evidence of its Iberian origins; the Jewish quarter at Toledo may very well have been a model in its construction. But above all, the town was chosen because of its great and ancient sanctity, where many rabbis of

the talmudic period had been buried. Notable is Rabbi Shimon bar Yohai, known as the father of Kabbalah, who had escaped from the persecution of the Emperor Hadrian by hiding with his son in a cave for 13 years, where they were instructed by Elijah in the mysteries of the Torah.

The community which thrived in the 16th century was remarkable in many ways, none more so than in the fact that mystical practice was not seen as confined to the rare or special initiate, but was openly proclaimed as the birthright of each and every human being. The following are some of its celebrated masters:

Joseph Karo (1488-1575)

Probably born in Toledo, he was taken by his family when he was nine to Turkey, where he lived for 40 years. There he met prominent Kabbalists such as Solomon Alkabez. In 1537 he moved to Safed where he became the pre-eminent legal authority. His work 'Shulhan 'Arukh' remains the authoritative code of Jewish law for traditional Jews. He was also a great mystic; he had no earthly teacher but received inspiration directly: "As I was reading the Mishnah, the voice of the beloved knocked in my mouth and the lyre sang of itself". His diary, 'Maggid Mesharim' contains exhortations to the spiritual life.

Moses ben Jacob Cordovero (1522-1570)

Probably born in Safed, he studied law with Joseph Karo and Kabbalah with

Solomon Alkabez, his brother-in-law. His great contribution was the total synthesis of the Kabbalistic tradition up to his day, and his work remains the key to the proper understanding of Kabbalah (from the root 'to receive', the term means 'Tradition' ie that which is received both temporally and eternally). Among his many books are 'Pardes Rimmonium' (Orchard of Pomegranates), 'Or Yaqar' (The Precious Light) which is a huge commentary on the Kabbalistic text book, the 'Zohar', and a short but very influential work 'Tomer Devorah' (The Palm Tree of Deborah). His disciples included almost all the great Kabbalists of Safed.

Isaac Luria (1534-1572)

Born in Jerusalem, he spent his early years in Egypt, studying the 'Zohar'. In late 1569 he travelled to Safed where he studied with Moses Cordovero, "our teacher, may his light be prolonged". Following Cordovero's death, Luria, who was also known as the 'Ari (lion) became the centre of an extraordinary circle of students, amongst them Hayyim Vital who became one of the major expounders of his teaching. Luria committed almost nothing to paper, saying: "It is impossible, because all things are connected with one another. I can hardly open my mouth without feeling as though the sea bursts its dams and overflows." Although his activity in Safed lasted just over two years, his influence upon later generations has been so profound that the kabbalistic tradition after him is often referred to as Lurianic Kabbalah.

Exhibitions

Leonardo da Vinci

Hayward Gallery, London
26th January – 16th April 1989

Richard Twinch

'Seeing that I can find no matter of much use or delight, because the men before me have appropriated to themselves all the useful and necessary subjects, I shall do what the poor man does who comes last to the fair: since he cannot provide himself with any other stock he picks up all the things which the others had seen but

rejected as of little value. These despised and rejected goods which were left behind by many buyers I shall load onto my feeble donkey and shall carry them not to big cities but to poor villages and distribute them, taking a price as the wares I offer may be worth.'

THIS EXQUISITE expression of Leonardo's humility and wisdom is quoted by E.H. Gombrich in his excellent preface to the catalogue of this fascinating exhibition. It is Gombrich's hope that visitors to the Hayward will "be able to find out what it was that the learned men before Leonardo had rejected and what he left for us on the stalls of the fair." Since then many reviews have been written and this reviewer likewise comes last to the fair.

The invitation arrived on the 12th of January between 9.30 and 10.00pm in the form of an item on Radio 3 (The BBC's classical music channel) announced as:-

The Leonardo Cylinders

Sydney Anglo, formerly Professor in the History of Ideas, University College Swansea, discusses recent and extraordinary discoveries with Leonardo da Vinci scholars.

With increasing incredulity one listened to a description of the discovery of certain wax cylinders recorded by Leonardo 500 years ago! It transpired that scholars had long ago known that Leonardo had had the capacity to make such recordings but until now the evidence was lost. 'Recordings' made by

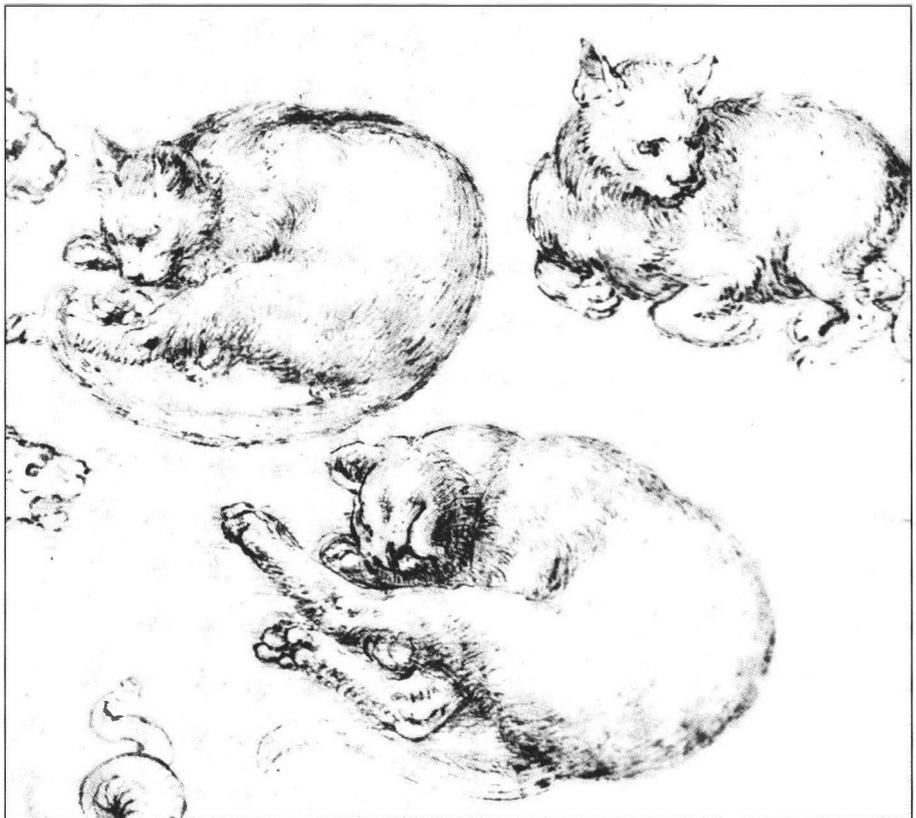
Leonardo himself were played back with suitable crackles and hisses – but it was not until the explanation by the Mona Lisa herself that she suffered from Bell's palsy (which paralyses the face) that incredulity was stretched too far. How could the epitome of mystery, the smile of the Mona Lisa, be relegated to the level of a physical condition? So there are no cylinders, the radio programme was but an amusing and clever invention (that would have appealed to Leonardo whose own sense of humour comes across in such sketches as item 38: Cats, Lion & a Dragon). But what matter, since Leonardo speaks with no less immediacy through the writings and works displayed at the Hayward Gallery.

This exhibition pays tribute to him as artist, inventor, scientist and engineer. At its heart is the greatest range of Leonardo drawings ever assembled, including 88 works from the Royal Library and loans from other major libraries all over the world. There are also thirteen large-scale models of his engineering designs, including a spectacular version of his flying machine, with a 36 foot wingspan, which has been specially built, and elegant computer simulations of his mathematical ideas.

What is most evident in the work is passion; a passion so intense as to take Leonardo into every known and unknown corner of human knowledge, admitting no limitations and no boundaries. To Leonardo there was no barrier between Art and Science and, as so eloquently expressed by Gombrich, he would not have understood the distinctions that we make.

"To his contemporaries 'art', *arte*, meant skill, much as we still use the concept in 'the art of war' or 'the art of love', while 'science', *scientia*, meant knowledge. Leonardo emphasised again and again in his writings that the art of painting had to rest on knowledge."

Leonardo's passion was thus for knowledge; but not merely for its own sake. The knowledge for which he searched was that which would be both useful on a practical level – even if that meant designing ingenious weapons (such as a prototype armoured car or rows of mortars) for his powerful patrons – and also, ultimately, serve the purpose of beauty in bringing his paintings to life. What he studied arose from necessity rather than pure whim and he did only as much as was necessary to meet a spe-



Studies of cats (c1513-14). From the Windsor Royal Library.

cific aim. Seeing his work gathered together reveals that his manner of working followed a definite interior logic, albeit inaccessible to anyone but himself.

For instance, his love of water and spiralling vortices was to run throughout his life and appears in many guises. At the exhibition there is a wonderful sequence of drawings entitled 'The Vortex'. The catalogue explains: "The vortex epitomises in tangible form Leonardo's passion for geometry, and the geometry of his passion for motion", and indeed, many of these works are reminiscent of recent studies on the self-organisation of water flow in chaotic systems. The chronological order (which is unfortunately not the way they are shown at the exhibition) demonstrates a spiral of its own: first there are studies of a water screw and perpetual motion pumps and wheels, followed by a map of a breakwater and eroded banks, then a study of the head of Leda displaying intricately woven hair. Then, studies of water passing obstacles and falling into a pool leading on to a spiralling Star of Bethlehem (with other plants) and culminating in an exquisitely delicate study of a sleeve of the Virgin. The series is complete with an anatomical study of the vortex motion of blood in the heart and, finally, a Deluge study in black chalk, pen

and ink. That the flow of blood in the heart should lie chronologically between the gentle beauty of the Virgin and the destructive power of the deluge is interesting, since it is traditionally in the heart of man that apparent opposites are united.

The reader might say that to read such meanings into the work is stretching a point too far and, like the wax cylinders earlier, must be relegated to playful fantasy. But this would be to miss the meaning known to 'the men before me'. In the unified world of the medievals, nothing was out of place or happened 'quite by accident', and the relevance of coincidence and analogy was measured by the degree to which it revealed truth. This is what Leonardo meant by 'experience and observation', which is rather different from what we mean today. Some of his apparently strictly anatomical drawings (eg. item 52 'The Principal Organs of a Woman') owe as much to inherited symbolism as to strict observation. To quote the catalogue "The heart, lacking atria, and the spherical womb, with prominent horns and internal 'cells', are conceptualised structures, blending inherited wisdom with design according to functional prescription."

Looking at 'The Vortex' series in retrospect, the interior logic is clear, and each study can be seen as a preparation

for the next. Much is made of the criticism that Leonardo did so many things that he finished very few, because of his impatience to move on to something new. But this is to misunderstand the motivation which lies in being of service to truth and following its dictates according to its own order, rather than trying to impose an order upon it. Impatience is, perhaps, a concept we apply when we do not understand what is happening; indeed Leonardo claimed that to rush to finish something abbreviated the result and only after each aspect had been examined in great detail (such as the paws of a wolf in item 39), could something reach completion. Here again, we find a difference between the modern concept of 'finished' and the medieval understanding of 'completion', which has its origin in a greater order.

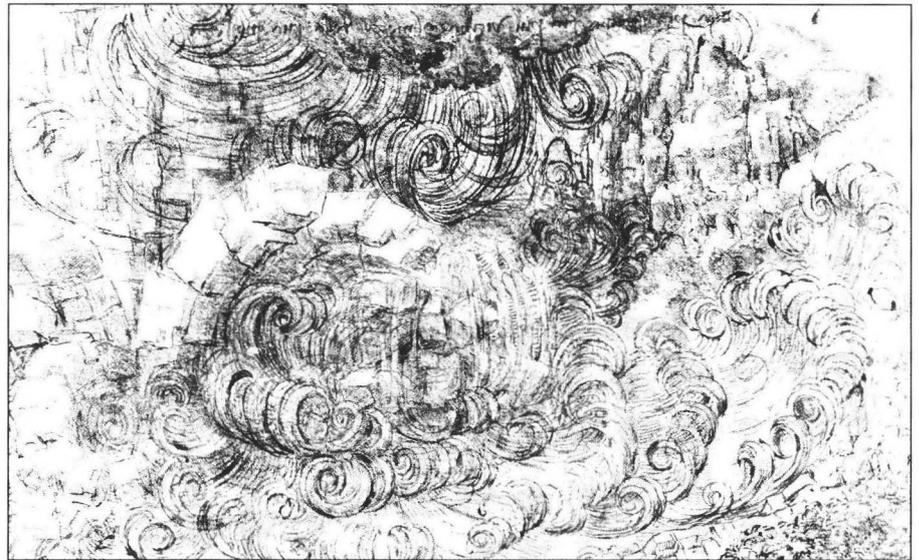
LEONARDO STANDS AT a turning point in man's knowledge and development. On the one hand he is of the Middle Ages and pays respect to 'the men before me', yet he presages many of the great achievements of western science – the most well-known being that of flight – which have been based on what has been called 'empirical knowledge'. What the exhibition shows is the enormous breadth of his study, and how, only now, are technology and higher mathematics able to convey a portion of his vision. The computer graphics provided by IBM (who sponsored the show) use the latest 'ray-tracing' techniques to animate the studies of shadows on spheres (items 100 & 102), truncation of Platonic solids to create other regular polyhedra (item 104), the growth of trees, the complex perspective used to balance the composition of his painting of the Last Supper and 3-Dimensional generations of Leonardo's centralised church designs. There is also an extraordinary wooden model some 1.2 m (4ft) high of a church based on these designs (though the design owes as much to historical research and modern interpretation as to Leonardo's own sketches).

The other models of lifting gear, cogs, ball bearings etc., though elegantly made, were unfortunately too precious to be actually worked. My children (and myself) were dying to turn all the handles – but had to make do with looking at a video of them working. It would have been much more in keeping with Leonardo's spirit of experiment and observation to have made durable, practical models that could actually be

worked. Looking at a video intellectualises the process of learning whilst Leonardo well knew that education comprises a balance of feeling, experience and thought. This is adduced by his own processes of experimentation and in particular his love for drawing – where the hand, eye and mind are focussed. The hand is traditionally the extension of the heart (which is why hand-shaking is such an important greeting). The expression in drawing thus ensures that the mind does not divide the technical and practical from the faculties of intuition and feeling that perceive the beautiful.

WE CAN LOOK AT Leonardo as a man in time, but with great men there is also a trans-historical meaning to their lives. His specialness was recognised even by his contemporaries, from whom most of

tion between art and science, neither would it have recognised the distinction we make between spirit and matter, soul and body. To the medieval mind it was not that the spiritual was a dimension of the material, but rather that the material was a dimension of the spiritual, which is inherently unified. Geometry is that in which the integral relationships within the unity are both expressed and made intelligible. Leonardo being steeped in the wisdom of this age, also well knew that neither the spirit nor the geometry which reveals itself to the intellect are static, but both are in constant movement. The resultant expression is known as beauty, which is of the essence or spirit and appeals directly to mankind through intuitive understanding or the 'spiritual vision' which is centred in the heart. Within this frame-



Deluge Study (c1515). From the Windsor Royal Library.

his researches and thought were hidden in coded and personal notebooks – though not from us. Giorgio Vasari said of Leonardo in his Lives of the Artists in 1550:

"The most heavenly gifts seem to be showered on certain human beings. Sometimes supernaturally, marvellously, they all congregate in one individual. Beauty, grace and talent are combined in such bounty that whatever that man undertakes, he outdistances all other men and shows himself to be specially endowed by the hand of God. This was seen and acknowledged by all men in the case of Leonardo da Vinci."

Much is made of the 'spiritual dimension' of Leonardo's work, but in the same way that the medieval mind would not have understood our distinc-

work of understanding, the five bodily senses and the intellect are seen as the faculties of this spiritual intuition rather than as separate entities.

To understand this is to begin to understand the all-inclusiveness of Leonardo's restless search for meaning and perfection. What Western science has lost in its ever greater capacity to dissect the world is a sense of the beauty and order of the whole which he portrays so vividly. Perhaps we can learn most from Leonardo's 'vision' and example in which each aspect of life and each detail, however apparently insignificant, reflects the perfection and sweetness of the whole.

Richard Twinch studied architecture at Cambridge and at the AA. He runs a computer software company and is computer correspondent on 'Building Design'.

Events



LECTURES AND SEMINARS

Morphic Resonance and the Collective Unconscious by Rupert Sheldrake

20th April 1989. Analytic Psychology Club, Essex Church, London W8

Information from: Dr Paul Black, 36 Briavels Court, Ashley Road, Epsom, Surrey. Tel: Epsom 27264.

The Annual Teilhard Lecture

Cosmic Evolution, Human History and Trinitarian Life

by Professor Raimundo Panikkar.

21st April 1989. Faulkner Hall, London

Raimundo Panikkar is a distinguished scholar of comparative religion, and author of many books, including 'The Vedic Experience'.

Information from: The Teilhard Centre, 23 Kensington Square, London W8 5HN. Tel: 01 937 5372

Utopia or Oblivion? – The Vision of Buckminster Fuller by Roger Golten

May 5th, Charing Cross Hotel, London

Roger Golten is the chairman of a Buckminster Fuller network.

Information from: World Goodwill, Suite 54, 3 Whitehall Court, London SW1A 2EF. Tel: 01 839 4512

The Ecological Crisis as an Evolutionary and Spiritual Challenge

May 20th, Imperial College, London

An open conference hosted by the Medical and Scientific Network. Speakers include Dr Henryk Skolimowski, Monica Bryant (Director of the International Institute for Symbiotic Studies) and Peter

Russell, author of 'The Awakening Earth'.

Information: Medical and Scientific Network, The Old School House, Hampnett, Northleach, Glos. GL54 3NN. Tel: 0451-60869

Music, Cosmology and Number by Jocelyn Godwin

Wednesday 12th July, Institute of Complementary Medicine, London

Information: Medical and Scientific Network, see above

CONFERENCES

THE 2ND ECKHART CONFERENCE

14th-16th April, West Wickham, Kent

Speakers include Gai Eaton on 'Eckhart and Ibn 'Arabi,' Rev. Professor Rowan Williams on 'Eckhart and the Spanish Carmelites', Simon Tugwell and Oliver Davies.

Information from: The Eckhart Society, Blackfriars, Buckingham Road, Cambridge. Tel: 0223 352461

THE TEILHARD CONFERENCE

Being and Becoming

June 2nd-4th. London Colney, St Albans, UK

The first conference at a new venue, this year's speakers include Ursula King on 'The Spirit of the Earth': Fr Gerard Hughes SJ on 'The Vision of St Ignatius' Spiritual Exercises' and Dr P Gaffney on 'Scientific Possibilities – Ethical Horizons'. Information from: Sr Frances Kelly, Loreto Convent, Hatfield Rd, St. Albans AL1 3RQ. Tel: 0727 53185

KALACHAKRA FOR WORLD PEACE

July 10th-18th, Los Angeles.

A public gathering for both Buddhists and non-Buddhists.

HH the Dalai Lama will give Lam Rim (The Graded Path) Teachings and the Kalachakra initiation – one of the highest of the tantric yogas, which is considered to be a powerful force for world peace. It is traditionally given openly to large groups, thus giving ordinary people a chance to establish a karmic link with the Kalachakra. There will also be other events, including lama dancing.

Information from: Thubten Dhargye Ling, 2658 La Cienega Avenue, Los Angeles, CA 90034.

SCIENCE '89

British Association for the Advancement of Science

September 11th-15th, Sheffield

These annual events are the 'Edinburgh Festival' of British science, drawing together scientists and laymen for lectures covering every aspect of the current scene. You can book for the whole jamboree, or just go along to the occasional lecture. This year's topics include new materials, quarks, black holes and communication.

Information: Dr Connie Martin, BAAS, Fortress House, 23 Savile Row, London W1X 1AB.

IBN 'ARABI SOCIETY (USA) SYMPOSIUM

The Reality of Man

30th September - 1st October Berkeley, California, USA.

The third American symposium on the great Andalusian mystic. Information from: Ibn 'Arabi Society, PO Box 1899, San Francisco, California 94101-1899 USA

EXHIBITIONS

LEONARDO DA VINCI

January 26th -16th April Hayward Gallery

Celebrates Leonardo as artist,

scientist, engineer and inventor. Includes the largest collection of his drawings ever assembled and models of his inventions specially built.

MIRO 1929-1941

3rd February - 23rd April Whitechapel Art Gallery, London E1

A spectacular show of one of the greatest talents of surrealism. Many exhibits have not previously been seen outside Spain.

ROYAL TREASURES FROM SWEDEN'S GOLDEN AGE (1550-1700)

17th March - 18th June

Royal Academy, Piccadilly, W1 Collections of jewellery, textiles, and armour, plus Queen Christina's Coronation throne.

ROYAL COLLEGE OF ART DEGREE SHOW

7th-17th June 1989

South Kensington, London Includes work from the Visual Islamic Arts Centre directed by Keith Critchlow.

RUSSIAN TREASURES

1st May - 31st October, York

About 60 exhibits which are too precious or fragile to travel have been encased in holograms for this remarkable exhibition. They include exquisite gold jewellery, ivory figurines and icons.

Information: St Saviours Archaeological Resource Centre, York. Tel: 0904-6743211

If you have an event you would like to be included on this page, please send information to:

The Events Editor, Beshara Magazine, Frilford Grange, Frilford, Abingdon, Oxon. There is no charge; however, inclusion is at the discretion of the editor.

Icon Collections in Britain

IT SEEMS that there is a growing public interest within the UK in icons. Over the last few years, the British Museum has been establishing a National Icon Collection in London, and last October Blackburn Museum opened a special gallery to set up the second permanent exhibition in Britain.

Icons are images of sacred persons, executed in painting, mosaic or sculpted, and are themselves considered to be sacred objects. They have been associated with the Byzantine Church since the very earliest times, and the art was carried to Russia after its conversion in the 10th century, where they took a distinctive form.

The British Museum Collection comprises eighteen pieces, six of which are of outstanding quality. The first, a 14th century Thessalonian icon depicting four New Testament scenes in miniature, was acquired in the 19th century; the others have been added recently. They include a notable representation of St Peter, probably painted in Constantinople in the early 14th century: a 'crusader' icon of St George: a Russian St George (at present at Blackburn) also painted in the 14th century: and a Constantinopolitan John the Baptist painted around 1300.

In November, a major new piece was added. Entitled 'The Triumph of Orthodoxy', it commemorates the end of Iconoclasm in AD843, and the restoration of images to Eastern Christendom. The event it depicts is of great interest in that it reveals some of the meanings of the sacred art form.

Christian religious art has always been dominated by the depiction of the human form – in contrast to, say, Islamic art, where the prohibition on the use of icons has resulted in an expression based on geometry, pattern and the forms of nature. But in the 8th century, an Iconoclastic movement arose in Constantinople which shook the very foundations of the Empire. The Iconoclasts believed icons to be equivalent to idols. They argued that the nature of Christ, being both divine and human, rendered iconic representation impossible, for "the image of him must either be picturing the divine, which is impossible, or it pictures the human nature alone, thus breaking the unity of Christ's person."

(1) This view was officially adopted by the Byzantine Emperors Leo II and Constantine V; consequently, icons were banned throughout the Empire and an era of persecution ensued.

Opposing the Iconoclasts were the Iconodules, who had as their spokesman the greatest theologian of the age, John of Damascus. He held that the Iconoclastic arguments were invalidated by the Incarnation: since Christ had taken on a human form, he could be depicted in a form, and so could his mother and disciples. "It is not divine beauty which is given form or shape, but the human form which is rendered by the painters brush. Therefore, if the Son of God became man and appeared in man's nature, why should his image not be made?"(2). For John, image was essential as a support for contemplation, as absolute beauty can only be



Russian St. George. Courtesy of the Trustees of the British Museum.

apprehended by the soul. The eye can grasp only the visible form.

The doctrines of John of Damascus finally prevailed and it is this which is celebrated as 'The Triumph of Orthodoxy'; a theme which was often to be depicted in the great era of Byzantine art which followed. The British Museum piece is unique in being the only example known to be painted before the fall of Constantinople in 1453. It contains a representation of the 'Hodegetria', (Mary who Shows the Way) which was special to Constantinople and believed to guarantee the safety of the city. The original was said to have been painted from life by St Luke.

The Blackburn collection consists of about 25 works of art, and is divided into two parts; one based on Mary and the Christ child, including a 'Hodegetria' painted in

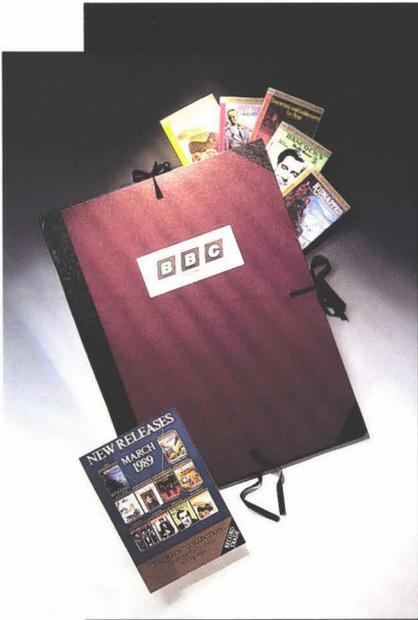
17th century Anatolia, two late (18th and 19th century) 'Vladimir Virgins', and a Greek 'Lady of the Unfolding Rose'. The other is general, and includes an 18th century Russian icon of Abel the first martyr, depictions of Elijah and John the Baptist: a Russian 'Birth of John the Baptist' dated around 1500 and a late 18th century 'Archangel Michael', as well as the 'St George' borrowed from the British Museum Collection.

Blackburn Museum, Museum Street, Blackburn, Lancs. Telephone: 0254 667130. Open Tuesday to Saturday 10am-5pm.

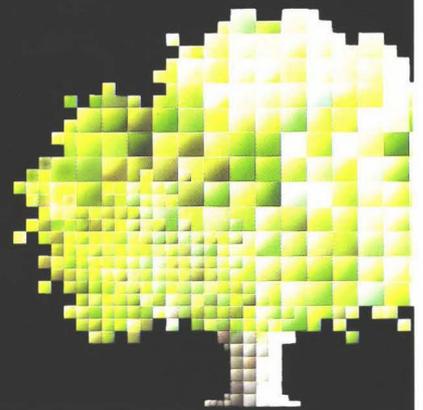
The British Museum, Great Russell Street, London WC1. Open Monday to Saturday 10am-5pm, Sunday 2.30-6pm.

(1) Sir Steven Runciman, 'Byzantine Style and Civilisation'. Penguin, 1975.

(2) John of Damascus 'Defense of Holy Images'. quoted in 'The Icon'. Bracken Books, 1982.



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