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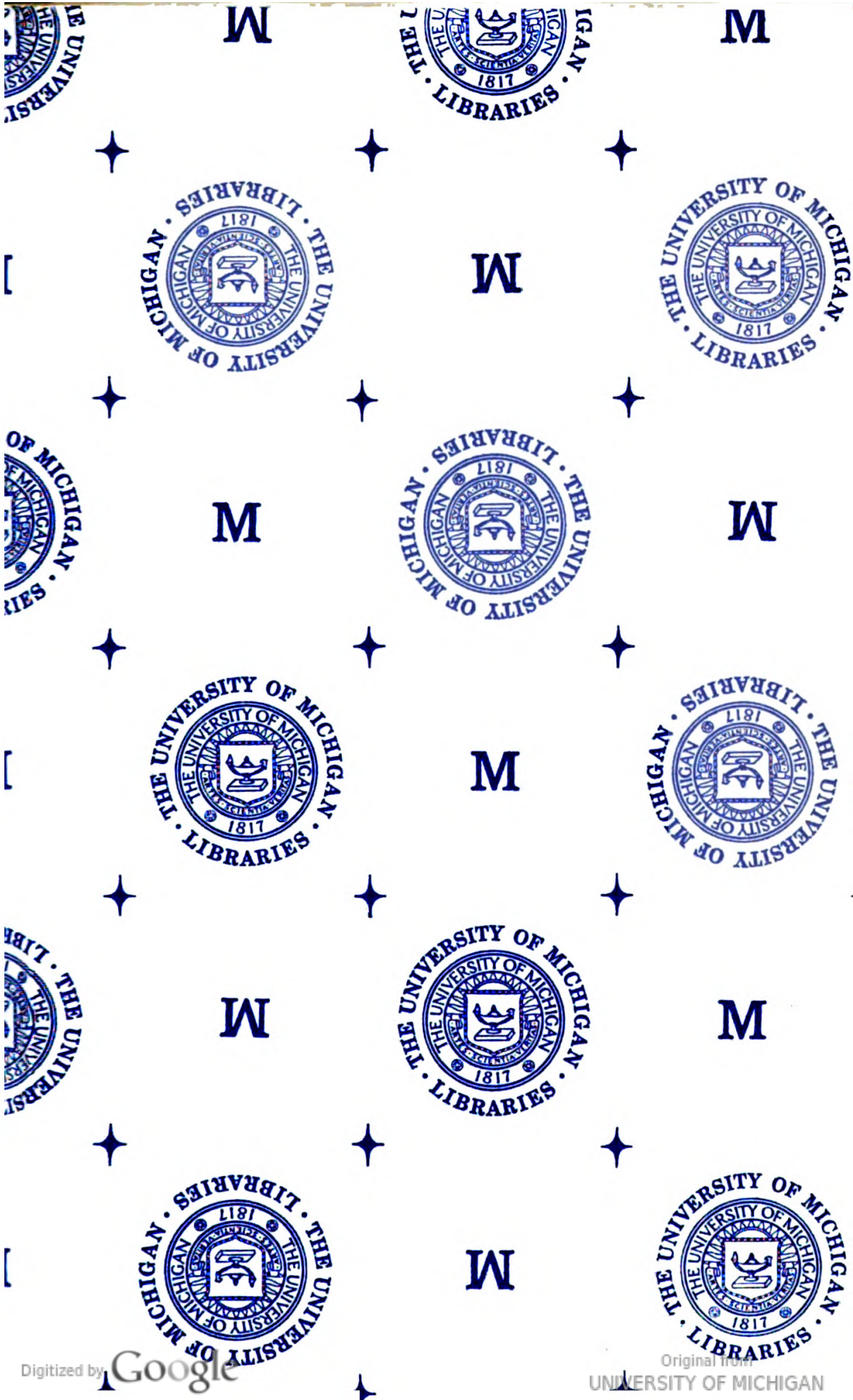


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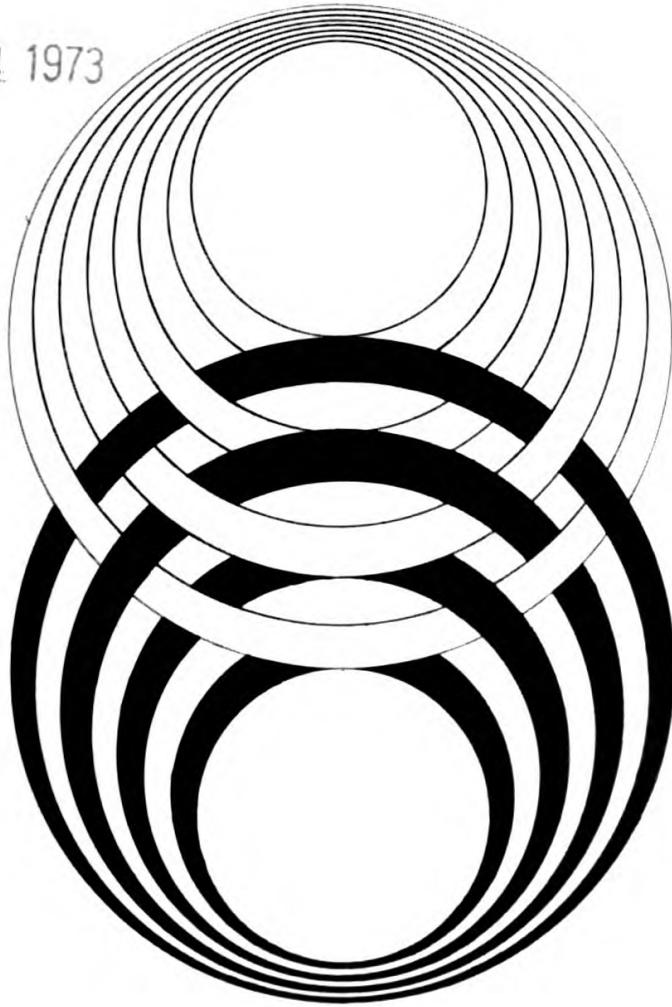
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ACUPUNCTURE—Rose Neil : Koestler : Green
The Crisis of faith—IAN RAMSEY

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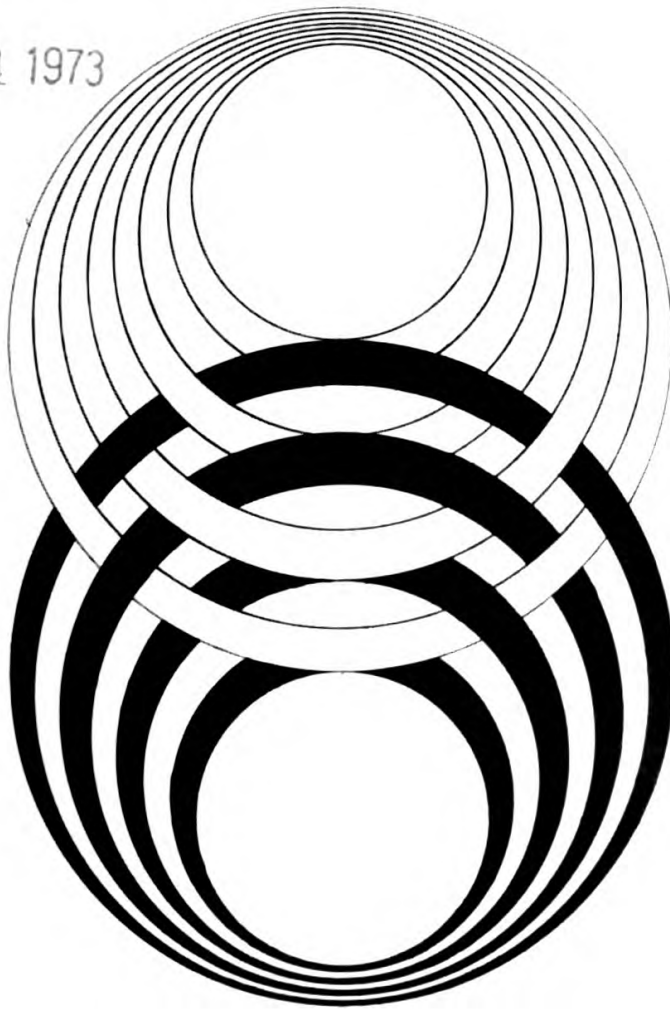
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Editorial

We are publishing in this number the greater part of a long address that Ian Ramsey, Bishop of Durham, gave at the Church Leaders' Conference in Birmingham last September. Ian Ramsey died in October, so this was his last big public utterance. When one of our friends and collaborators dies, as a memorial instead of a *Times*-like obituary we prefer to publish something that shows his method of thought. Ian Ramsey was a friend and contributor to T. to T. from the beginning; in Volume I, iii we had a review discussion of his "Models and Mystery" to which he replied. Latterly we had had several talks with him about how we might further the work behind T. to T. and find more support for it. Unlike many Church leaders, under his imperturbable demeanor he had a feeling of desperation about the need to rethink the problem of religious truth in a world where our scientific understanding of man and indeed the understanding of science and philosophy themselves were changing in ways of which most people in the churches were unaware. Hence his concern, which comes out at the end of this address, to see ways in which theology could be treated otherwise than as a separate subject—and otherwise also than as a prescriptive one, claiming authority by referring to its own history. Instead he thought theologians should be working with people in other disciplines in looking at deep and important questions which are not quite anyone's specialism, and he hoped that out of a common intellectual struggle might come "a common moment of vision".

Ian Ramsey put this conviction even more explicitly in an article in *Theology* for December 1964. Referring to the establishment of the Honours School of Theology in Oxford in 1868, he says: "When the Universities . . . were moving into a situation novel and revolutionary, packed with uncertainties and anxieties, what did Christians—at least at Oxford—do about the study of theology? When the air was full of challenge and possibility, what did our predecessors do? With a loss of nerve, they went out of their way to set up a discipline of their own, a subject considered to be academically unique, a theological training which catered for the clergy, not as gentlemen and citizens, but as an exclusive group Pusey could now claim enthusiastically 'Theology is a subject quite apart . . . in that the question is not one of mere knowledge of facts, or of opinions, or of philosophies, or of philosophical theories, but of a revelation of God

for the salvation of men'. But the implication of this argument was that to read for the Honours School of Theology guaranteed a revelation of God—and that, by now at any rate, is not particularly evident". Ramsey goes on to speak of how "Present insights into evolution, investigations into the molecular basis of life, developments in cybernetics and neurosurgery—all these must as inevitably influence our attitude to persons and society as they appear to challenge traditional Christian views of man's origin and purpose. Yet another frontier area is that of health and healing which needs and deserves joint thinking by doctors, psychiatrists, theologians and others; and again it may be that educational problems are precisely those which need a cross-fertilized study". Note that he is asking for serious common study in interdisciplinary groups, not just occasional lectures on other people's specialisms as a means to general culture. He looks for a theologian (we should want him also to be a philosopher of science) who could be "a pioneer in his own field, but also someone who alike by his personality as by his scholarship would bring together experts in different disciplines and from different occupations so as to foster joint work on frontier projects". Some of these might be working parties for temporary periods, but beyond such he suggests it might be possible to have "a Research Centre or Institute within the precincts of a University, or otherwise in close association with one; and Churches might well spend their money less profitably than in combining to endow such a Research Fellowship and/or to provide some suitable centre." Such an approach would address itself to "intelligible questions people are asking rather than unintelligible ones that they are not". Unintelligible, that may be, except to people working within the narrow frame of reference of a specialized bit of an already specialized subject. Of course specialisms are necessary, but we would add to Ramsey's plea for interdisciplinary groups that members of such groups need to have a mutual and responsible concern to avoid the kind of buck passing of those academics who say, if some awkward question comes up, that this is the special line of Dr. X at Y College and that it can be left to him: in fact that we do not want to know about it.

Tim Eiloart, who writes elsewhere in this number about how people can be got to work together in industry, and who is now helping us in T. to T., gives us his view on interdisciplinary groups: "It is difficult to justify any policy towards which one is already committed, without the appearance of special pleading. None the less there may be some reasons for preferring an interdisciplinary group

to one which is composed of a single type of expertise and it seems worth while to consider what these reasons are.

“The first reason for preferring an interdisciplinary team is that problems do not fall into any one area. A group may wish to try and compare one therapy with another or one system of allocating power with another. These are matters that normally concern psychologists, social scientists or leaders. The group members may not be leaders but will very probably need to talk in the language of the psychologist and the social scientist.

“Strictly speaking this makes a case for talking several languages, rather than coming from the different countries where those languages were the mother tongue. Indeed almost any group concerned with problems which fall in various disciplines will see the need to speak the relevant language and this is the way most specialist groups are in fact constituted. A set of trained x-ologists (to choose a neutral and non-existent discipline) will get together from different branches of x-ological thought. There will be the religious, the philosophical, the scientific, the literary and the historical x-ologists for example. Their deliberations or their actions should indeed then owe something to all the different branches of x-ology and may well be considerably more interesting than those of x-ologists who have all come from one facet and devote their time to that one.

“But after justifying various facets of the same discipline the case for recruiting people of truly different backgrounds remains to be proved. Let us suppose that Shelter wishes to sponsor cheap housing. A number of different specialists are called together: quantity surveyor, architect, engineer, materials expert. All of these have been trained in one branch of building science. Certainly they sit down and design a number of ways to lower the cost of houses. There will be some good schemes some bad. But their effort will very probably produce some worthwhile saving. What has gone wrong? Why might the whole job have been done better by a group which included, for example, a butcher, a journalist, a cleric and a ten year old child? There is little evidence in the field of social or spiritual opportunities but there is quite a lot of evidence that a really diverse group does produce more interesting results in the field of product design and invention. The sort of answer that the wider group can produce may well be much more suited to the real problem which, in this case, is to house homeless families at less cost. In fact this country has more rooms per person than any other in Europe and the shortage we experience is due to bad sharing, so that schemes to use

existing properties more fully seem quite likely to prove much cheaper than those to build more houses at less cost. If the problem is defined like this then it can be subdivided into lots of little problems some of which are almost certainly going to suit the enlarged group better than the group of specialists. How to persuade old people to vacate large houses and feel pleased with a new departure rather than resentful, how to get work to areas where there are empty houses, how to diminish the loss of privacy if one shares ones house, how to match potential sharers so that they enjoy each others company. And so forth.

“So the first advantage of the interdisciplinary team as opposed to the multifacet team is that it may look at opportunities from much further back and will not be constrained to produce such a narrow range of options. The second advantage is rather more utilitarian. A team that wants to be seminal will almost certainly stand a better chance if it cultivates an area outside the fields of orthodox thought which are always crowded. In those fields the probability of planting seeds which flourish is really quite small. The great danger lies in a interdisciplinary team which becomes dilletante. Members can easily stir each other ignorantly along to dabble in many things and excel in none. Indeed this is a fairly common occurrence in industry, where quite mediocre people parade one another as leading experts, being too ill-informed to judge. Time and the rotten fruit of their labours will reveal such teams in the end”.

Tim Eiloart is here thinking primarily about interdisciplinary groups on practical questions and policies. But those which are trying to think seriously about scientific-cum-philosophical questions, if they are not to be dilletante, will need to build up the kind of working experience he describes.

* * * * *

In our last editorial we looked at the unsatisfactory nature of the philosophy of religion as currently practised in Anglo-American universities. We mentioned the anti-philosophy of Biblical Theology, the “ordinary language” treatment of sentences such as “God loves us”, the “tight corner apophaticising” of people who cannot take the ordinary language literally, but who make it suffer the “death by a thousand qualifications”, and the neo-Wittgensteinian fideists who try to present it all as a “language game”. We also mentioned J. N. Findlay, who tries to have a serious metaphysical philosophy. This mention itself should have warned us that we were being parochial, since Findlay has always been a philosopher who looked out-

side Anglo-Saxon fashions. We ought to have been aware of the serious attempt of the Catholic philosophical theologians Bernard Lonergan and Karl Rahner to construct a metaphysical philosophy of religion which takes account (as the Catholic Church hitherto has not) of Kant's Copernican Revolution. We shall be discussing these theologians next time.

Their work brings up seriously the question of how one relates theology, philosophy of religion, metaphysics and science. Ramsey's view about the interdisciplinary milieu in which he thought theology should live also raises this question, for it may well be asked what is the particular role of the theologian in the interdisciplinary group, if he is to be more than a compere (and why do we need him as a compere?). Ramsey himself thought that the distinctive character of theology was to be receptive to "disclosures", moments of wonder and illumination, and to try to find ways of expressing them. But this is also true of artists and scientists. "Disclosures" can come to a person who is in a state of intense inner concentration on an intractable problem. In the "Crisis of Faith" address (see p. 34 below) Ramsey says he calls them "revelations" when they occur in a Christian context. This begs a lot of questions, including how one is to judge claims to revelatory insight which do not occur in a Christian context. Ramsey tried, but never quite successfully, to show there must be a connection between a disclosure and what he called its "empirical fit". If this is to be shown, will not the theologian need to be a certain kind of scientist?

* * * * *

In this number we also continue with the interest in Acupuncture opened up by Jonathan Green's article last time. Sidney Rose-Neil, Chairman of the Acupuncture Association, and Arthur Koestler came and took part in this discussion. Acupuncture suggests that our supposed macroscopic understanding of the control systems of the body, concerned with its healing and recuperative powers, are still not adequately understood. A considerable part of our own "interdisciplinary" effort is directed to finding ways of thinking about living organisms in ways which do not succumb to the simplifications of old fashioned vitalism or crude mechanistic materialism.

* * * * *

Will readers note that the office address of T. to T. has now changed from 9 Marion Close to 20 Millington Road, Cambridge? (Telephone Cambridge [0223] 59877)

Discussion: Acupuncture

Sidney Rose-Neil, Arthur Koestler, Jonathan Green, Ted Bastin

Ted Bastin. I wonder if you could start off with a general description of what acupuncture is from the medical and patient's point of view?

Sidney Rose-Neil. I'm not a doctor, not on the medical register. In 1958 I was first introduced to acupuncture while studying in Germany. They say acupuncture has its early history in the fact that soldiers injured by knives and pointed instruments sometimes tended to recover from other illnesses; and a regular pattern was slowly established. Acupuncture is possibly the most important medical modality which exists. It's the oldest—it has been used in China for perhaps 7000 years and has changed little today. If it has been going for so long then you may ask, can it be any good, not being up-to-date as modern medicine? But it works and doesn't build up side effects—and as it continues to work there's no need for change. However, there have been new developments, particularly in China, in its use for anaesthesia. Over 800,000 operations have been performed by this method and this has thrust acupuncture to the West. Western scientists have tried hard to fit acupuncture into their ideas, but they will fail because the concepts of West and East are so different.

Acupuncture can be done in a series of ways. 1) Massage: which stimulates energy. This is how acupuncture works—not on the chemistry of the body, but on the energy contained within all atomic structures. It is done using needles—gold and silver ones originally—which have *different* electrical effects. Now stainless steel is mainly used and the effect is almost as good.

There are about 700—800 points on the body surface which the Chinese have noted, and developed their relations empirically. Electrical apparatus has now been developed. Essentially such apparatus has a negative and a positive electrode with a transformer in the machine to transform the current down to average body resistance. The patient holds the negative electrode and the doctor probes with the positive. Increased conductivity is found at certain points and these points correspond to the 800 points laid down by the Chinese for thousands of years.

These useful machines enable readings to be taken at different points; it has appears that the meridians echo, in some way, their vitality at the radial pulse. The Chinese, instead of one radial pulse on each wrist distinguish twelve radial pulses at the radial arteries, six on each arm. With acupuncture we take a reading on the two radial arteries, and we can in fact feel six pulses in each arm near the wrist which give us information as to the state of the vitality of the meridians, whether the vitality is low (Yin), i.e. over-relaxed or weak—or too strong (Yang), i.e. in tension or dammed up. In case of tension or over-relaxation or where the vitality isn't flowing freely through the meridians, some are caused to be dammed up and others to lack vitality. This dammed up energy condition tells us a great deal straight away about functional illnesses—migraine, headaches, high blood pressure—and states like anger and frustration. Conversely with loss of vitality (energy) in the meridians, we can think of conditions such as lassitude, anaemia, low blood pressure. From the assessment of the pulses we determine which acupuncture points to treat.

In acupuncture the organs themselves are not of great importance, insofar as you treat the meridians as part of a whole controlling system of relationships.

T.B. If I were trying to understand a steam engine I could do it by using concepts of tension and relaxation, but I think it would be a bit perverse because the truth is I understand it quite well already.

S. R-N. But the steam engine is rather a static object. The human body is much more in a state of ceaseless change. If I am not allowed to think of it in terms of tension and relaxation, there are no suitable terms in which I can talk about it.

T. B. Would you say what a meridian is?

S. R-N. Originally the Chinese meant by 'meridian' a line of force. They claimed that all energy was laid up as positive and negative forces, as we talk of positive and negative electrodes. They say all things have this opposition. These opposing energies must be in balance for the health of the body. If these complementary and opposing forces of energy are in balance, the body is healthy.

The overall picture of energy is 'chi' energy, which runs through the meridians. This you manipulate on the acupuncture points and try to restore to balance.

It's difficult to reconcile this with Western medicine. If you think

in terms of physics, it is more possible to comprehend it. However, acupuncture works and if you accept this, you must accept that it's energy being manipulated in a certain way.

T. B. Why, what would it be like to accept that? Meridians are channels, are they? Something in some sense flows?

S. R-N. Yes.

T. B. And these can be mapped all over the body?

S. R-N. Yes.

T. B. What happens when you go to an acupuncturist?

S. R-N. He finds out which points to puncture with a needle, and you get better.

T. B. What sort of diseases?

S. R-N. Every sort of disease responds—even infections.

T. B. What is the difference between what the patient is like before and after? What is successful treatment?

S. R-N. If you have migraine and after eight treatments it's gone, it's successful. But with organic illness, the body must be encouraged to call on its own regenerative forces, as in all medicine.

T. B. A friend of mine had migraine, which was cured by a strong vegetarian diet. I don't suggest that invalidates acupuncture, but can you comment on it?

S. R-N. There are many ways of treating such things as migraine. I recommend whole treatment, including diet etc. as well as acupuncture.

Arthur Koestler Let's get to physics. If there are two types of energy, how are they defined? Are they characterised by different directions of flow or ionization?

S. R-N. It's difficult to talk of a model till there have been experiments to prove that these types exist.

The Chinese in their philosophy use the term Yang, meaning active and striving, and Yin meaning passive and yielding. Yin is always predominant. Yin and Yang is a monistic principle, and acupuncture has its roots in this philosophy. It is one principle expressing itself as two poles, independent and yet complementary. One

cannot be conceived without the other, they fade into one another and yet retreat away from each other, they balance and yet weigh each other down.

There is no true static, everything is in a state of becoming. What is to become is in the future and what has become is in the past. Everything relates and nothing is permanent. Everything exists as a relationship and nothing exists as a static, not even for a moment of time. Time itself is not static and is but a relationship which is becoming. There is no static space or time in pure science. All is in opposition and all is complementary, in fact all is an expression of Yin and Yang.

So in acupuncture we claim there is a polarity of positive and negative in energy.

T. B. There is a difficulty here. If a thing has electrical polarity it will be charged and energy notoriously is not charged or directed. The problem is that of the correct use of language. You can't have it both ways: if you want the advantages of using physical terms then you have to use them in the conventional way.

S. R-N. I don't agree. How does a magnet work if there is no positive and negative magnetic charge? In electricity too. Why can't you say all energy is charged?

T. B. That just is not the way the concepts are interlinked. You can say a charged particle will travel along an energy gradient if you like (strictly a potential gradient).

S. R-N. Nobody has studied energy charges.

T. B. It is not a question of that, but of using the right word to describe the right thing. I think you are trying to get the advantages at the moment of having an idea of energy which is both like the physicist's one and yet which has the Yin-Yang polarity, and that isn't possible. If you want a thing which has magnitude and polarity then you take electric charge, but I quite realize that that hasn't the further properties you want, and you should recognize that and learn to live with it.

S. R-N. The Russians claim substantiation in Kirlian photography. Adamenko in Russia first noticed that although the coronas move around, certain parts of the auras remain stationary and these stationary points correspond to acupuncture points. The two different types of lights—bluish and reddish—which he identified as positive

and negative energy, come from the acupuncture points. This gives some idea of the nature of the energy.

T. B. What is actually photographed in Kirlian photography? Presumably some things are too dangerous to photograph e.g. the head.

S. R-N. The hand. The high frequency apparatus they use was invented by Kirlian in 1939. While using H.F. apparatus he put his finger under the plate. A lot of work on it is going on in Russia—and in America by Dr. Thelma Moss.

In one set of pictures I saw of leaves, you can see not only an aura, but a bright fluid in a psychedelic pattern. It represents organic energy, according to Thelma Moss.

Jonathan Green What happens in Kirlian photography?

S. R-N. With the leaf, it's put between two electrodes, and you operate the voltage near breakdown voltage, and the frequency is very high—near 300 metres or 1 megacycle^x. You are operating at high voltage, so the insulation is near breakdown and you get something like a brush discharge. You're exploiting the tendency for the organ to exhibit its electrical properties in these conditions to tell you about its state in some way.

If you take a Kirlian photograph of a leaf, you get an aura round it and this is very stable,—an hour later or the next day, it is almost the same. With a detached leaf the aura fades immediately and inside the leaf black patches appear. If you take photos every 10 minutes, you will see the inside change rapidly. The black patches spread quickly until the whole inside goes black. The colour of the leaf remains green to the naked eye and the shape the same. Within an hour the inside is black in the photo.

If you cut the leaf the energy begins to die, and you photograph the actual process of dying. What is being claimed is an energy flow through the organism which acupuncture is manipulating.

J. G. It may be that all the effects you describe in connection with Kirlian photography are the sort of thing we would expect from the known biology. For example, you'd expect more water molecules in the neighbourhood of sweat glands, and at those points you would get an intensified brush discharge just as you hear the insulators on overhead power cables crackling and sizzling on a damp day.

S. R-N. Why are you concerned with seeing if it can be related to sweat glands?

J. G. It's a simple question of methodology. It doesn't mean one disbelieves other explanations, but you have to eliminate trivial explanations e.g. conductivity.

S. R-N. Sweating may cause increased conductivity, but would it cause it always at the same places? Always at the acupuncture points? How odd! This rules out to some extent the idea that sweat causes the machine to operate; the machine would go on all the time if the person were sweating.

J. G. I said if sweating causes charge conductivity, then a possible explanation of the acupuncture points is that at these points there is more sweating going on.

S. R-N. That would mean there were no acupuncture points, just more sweat glands.

T. B. The hardest criticism is not that we are disagreeing with Eastern doctrine, but that there isn't anything being put forward to agree or disagree with. It's put in terms of energy—which you want to use because it's the nearest scientific term to what you need, but we still have only a vague idea of what you do need and we must not try to fill the need by using terms that presuppose the gap has already been filled.

A. K. Your going straight to the Yin-Yang language leaves everything hanging in the air. It's too flexible. You need a physicist, a doctor, an engineer and so on, to see if you could formulate the Yin-Yang polarity in terms that are not as flexible. If you bring in electrical conductivity experiments and scientific instruments, you bring in western scientific explanations.

S. R-N. Electrical apparatus in anaesthesia is needed not to produce a charge but to vibrate the needles.

T. B. Suppose you replaced the acupuncturist by an automaton, would it work, or does it depend on there being two human systems?

S. R-N. I don't know. In radiaesthesia they claim that an operator must work the pendulum. It will not work with a machine. I don't know whether you could get an automatic needle, or whether there is some sort of discharge from operator to patient.

T. B. Has a control experiment been tried to see if an acupuncturist who has established a rapport could put needles in at random using the vibrational effect, to see if hypnosis comes in at all?

S. R-N. To my knowledge it has not been done.

A. K. Going back to the beginning—what you called “positive” and “negative” energy. Was it a corruption of Yin and Yang? Did you really mean positive and negative energy, Sidney, or energy flowing in different directions?

S. R-N. I was talking about a factor which balances. Acupuncturists refuse to accept a dualistic concept of mind or energy or matter. They look for a balance where each is equal and complementary to the other. They are neither good nor bad but equal in every way.

A. K. The Yin-Yang idea shouldn't be dragged in where there is no evidence of a polarity. For example, if you have flexors, extensors, parasympathetic, sympathetic, you can define the opposites. But here we are told of a negative and positive flow on the meridians. Is one inhibitory, and the other excitatory?

S. R-N. Yes.

A. K. Why don't you call it inhibitory/excitatory if that is what you mean? Negative/positive are confusing terms in this context.

S. R-N. That would be a better way of putting it, but this is how it has developed. But then can you say of the black/white dichotomy which is “inhibitory”?

T. B. No. Why on earth should you want to?

S. R-N. Acupuncturists have polarity, but they don't accept a dualism.

A. K. ‘Dualistic’ is a bogey word. The only philosopher to whom dualism really meant dualism—and there's some doubt even about that—was Descartes. In order to liberate science from theology, he had to postulate two independent realms, so he created this dualism of the psychic and the material. At least it seems plausible and you can more or less understand what Descartes meant. Otherwise unless you specify what is dualistic in what respect and how deep the dualism goes, you haven't said anything.

T. B. No one has been persuaded that your different examples of polarity have anything in common in their origins. You can't just assert a common origin.

S. R-N. The person who has done most work on this is Hans Selye with his work on stress. This fits in beautifully.

T. B. Is there a theory, besides the general notion of Yin-Yang, of why those parts of the body should be responsive and why the meridians run in the direction they do?

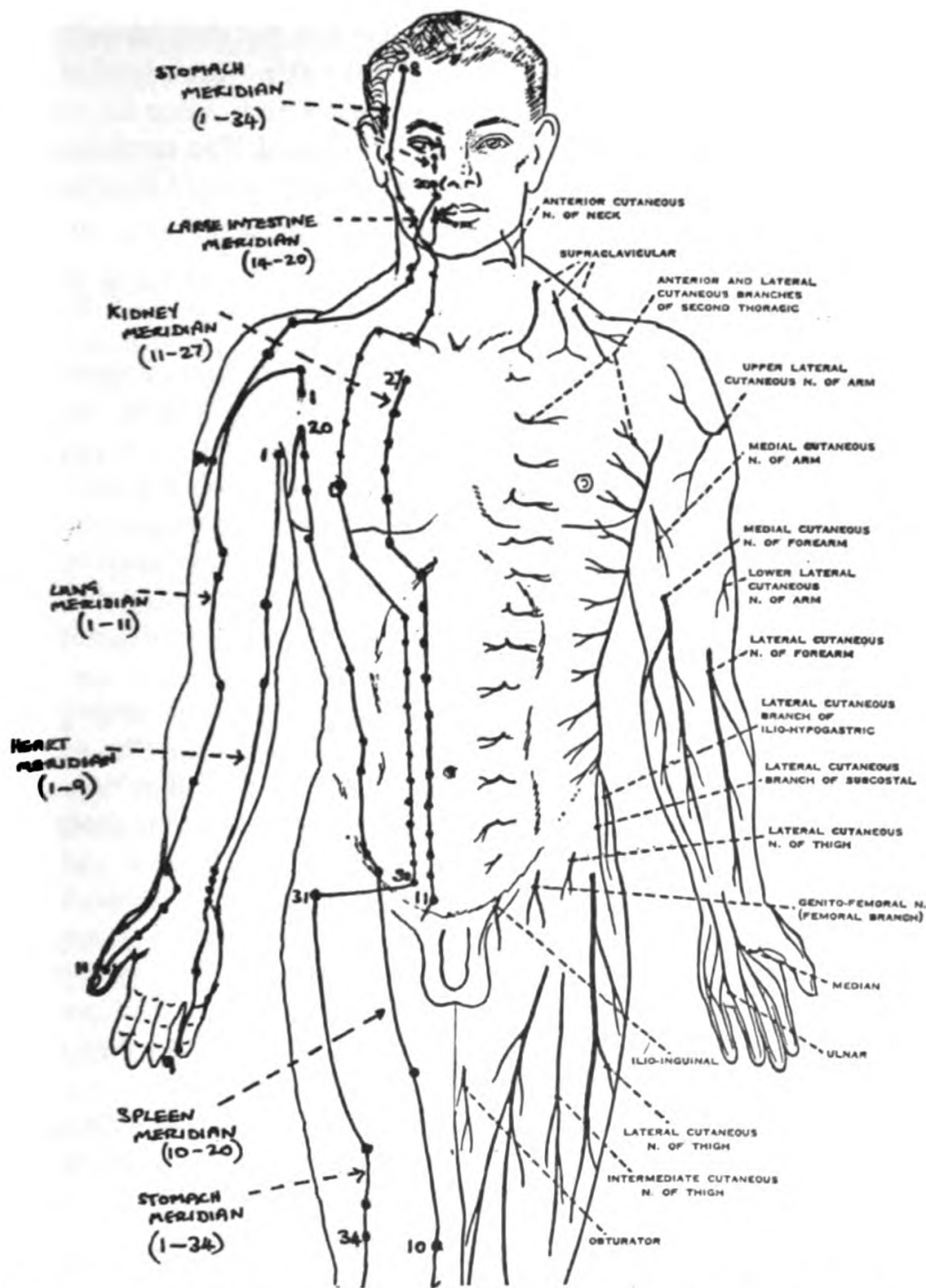
S. R-N. I haven't got an answer. Dr. Han Suyin, the authoress, is a Chinese Westernized doctor. She put forward an embryological explanation of why meridians go this way.

J. G. I think that the embryological theory is very interesting. I would like to make out a case for saying that the system of meridian organ relationships shows correspondences to nerve/organ relationships in Western physiology.

In this diagram of meridians and cutaneous nerves there seems to be strong similarity between the courses of the two systems. This holds true also on a deeper level: if we take, for instance the meridian which in Chinese medicine is said to have a connection with the heart, there is a pattern of cutaneous nerves which duplicate its course—and the main heart point in the Chinese map corresponds to the point where the ulnar nerve becomes superficial as its palmar branch. Now the origin for these nerves in the spinal column is the same level from which other nerves (sympathetic) leave to innervate the heart. So one could say that in Western terms too the areas of skin covered by the heart meridian are also related to the heart.

I want to stress that Western physiologists have never shown that stimulating these areas of skin could affect the heart. But there are other known physiological effects which show similar properties: it is recognised that if the skin of the face or neck is pinched this causes a change in pupil size, or if the skin of the shoulder is irritated this can stop coughing. The known physiological mechanisms in these cases are analogous to what I propose.

There are a number of these correspondences between meridian-organ and nerve-organ relationships. Looking at the torso in the figure, we can see on one side the stomach meridian and on the other the line of the anterior cutaneous thoracic nerve. As you can see, the line they follow is much the same. There is a similar correspondence



here to that which I showed for the Heart meridian: some of the roots of these nerves are also roots of sympathetic nerves which innervate the gut and stomach.

T. B. Could you say that these facts are known to anatomists and physiologists but they have never used them, never drawn the meridian line but left everything anatomic?

J. G. They haven't drawn the meridian line but they have drawn segmental patterns of the innervation of the skin—each level of the spinal cord has a segment of skin associated with it, since the nerves supplying this area of skin, come from that level. The meridians lie on a succession of these areas and are therefore related in a way to the spinal chord.

T. B. Are you saying they are one and the same thing as the cutaneous nerve?

J. G. There is too little known at the moment to be so dogmatic—that may prove to be too straightforward an hypothesis. But the correspondences between the meridians and their target organs on the one hand, and some nerve-organ relationships on the other, do suggest at any rate that the meridian system is not random but is logical and coherent. And there is also a lot of other evidence as well as that which Sidney has given us, all showing that many different phenomena occur along the meridians—their pattern of distribution seems to have a significance on a number of levels.

There might be an explanation for this in terms of the embryonic development of the body: Felix Mann has a theory that the meridians develop in the embryo in the same way as do other tissues—nerves for instance. It is known that during development there are certain paths of 'least resistance' along which cells migrate and this results in certain characteristic adult tissue patterns (in the same way as, for instance, the pattern into which lightning forks is an expression of a path of least electrical resistance in the air). How these paths exist isn't known, but hypotheses that they are of a chemical or electrical nature have been put forward. Felix Mann thinks that these paths of migration continue into the adult as meridians. And this, of course, was precisely the Chinese conception—that meridians are paths of flow: in their case the flow of Chi, the body's vital energy. But this is only speculation—it needs experimentation.

T. B. Could there be two systems that developed embryologically in a similar way?

J. G. That's a possibility.

A. K. You say, Jonathan, there's a correspondence between meridians and nerve-organ relationships. But you haven't demonstrated it in each of the twenty six meridians?

J. G. I have done it for the eight main meridians.

A. K. How many characteristic kinks or other features have they in common?

J. G. There are certainly meridians that don't correspond although they aren't on the whole the main ones. They have kinks that couldn't possibly be explained using an argument about nerves.

S. R-N. I think the idea of a correspondence sounds very exciting but that we are not looking at one system, but two with similar embryological developments. Could I read something that might be of use? I gave a talk at the weekend on some recent advances in acupuncture, and I discussed what is called the gate theory of pain: - Some Western researchers think acupuncture anaesthesia works on the gate theory. According to this, sensations move along peripheral nerve fibres, and from there come to what is called the gate in the spinal cord. The sensation is allowed to pass through the gate, and from there up into the brain. In order to experience pain the gate must be kept open. This is effected by relatively thin fibres, the idea being that pain sensations go along thin fibres, which pass them slowly. Thicker fibres pass other sensations and these move faster. As they move faster the thinner fibres are not able to pass out of the peripheral nerves into the thicker nerves, as slow moving water could not pass into a fast stream.

Vibratory sensations pass into a larger nerve and then over-ride the thinner fibres that cause the sensation of pain. The rotatory needle used in acupuncture is supposed to produce a vibratory effect on the thick fibres and therefore over-ride the thin fibres. The gate blocks and stops transmission to the brain of the pain sensation.

The gate theory would only explain how nerve fibres were blocked when travelling along the peripheral nerve fibres to and from the brain via the spinal cord, i.e. from the neck down only. It doesn't explain how abdominal surgery can be performed after needles have been inserted into the face, or how dental extractions have been carried out after needles are inserted into the arm.

Although some scientists put forward the gate theory as the explanation of acupuncture anaesthesia, the inventor of the theory, Professor Wall, does not share this view, He says the sites for acupuncture insertion fit no known nerve pattern, on any other interaction discovered by researchers.

J. G. Well, of course I disagree with that.

S. R-N. The gate theory says pain is locked at the sites of the peripheral nerves.

J. G. But the nerves which take pain from the abdomen to the brain come into the spinal cord very much higher than the abdomen. The gate theory works in the spinal cord. This gate is more complicated than it sounds—it has to happen in the spinal cord. But the brain is in some ways just an enlarged spinal cord, especially in the medulla. You have a very sophisticated spinal cord system in the medulla,—which is where pain sensations from the face would enter the brain—and it could well have a blocking effect there.

S. R-N. The way I understood the gate theory was that pain was blocked at the peripheral nerves and overridden by the larger nerve before it reached the spinal cord.

J. G. No. That's not true.

A. K. The question is whether the location of the gate theory couldn't be transferred from the spinal cord to the mind brain, the hypothalamic region. After all, the pain is in the brain, not in the limb or phantom limb, and the gate is a gate to consciousness. You can alleviate pain by freezing and other techniques of brain surgery. Is there a possibility of transferring the gate theory to the pain centres?

S. R-N. The point is, something must happen so that the nerves do not transmit pain.

J. G. The nerves can transmit "pain", but it doesn't need to reach consciousness.

T. B. Is there a way of testing your theory, Jonathan?

J. G. A simple experiment would be to stimulate a point on the heart meridian and see if the heart speeded up. If you've got an actual sympathetic action like an increase in the rate of the heart, that would be quite significant.

T. B. May I ask you, Sidney, what your private speculations are? You must have formed some idea what happens when you stick in these needles.

S. R-N. I have formulated a theory, which I can't substantiate. I'm of the opinion that plants can transform inorganic energy into organic energy. Animals cannot, they have to use the organized energy

given them by plants. Animals can only utilize organic material. Our food must then be organic. We have to have food given by plants. There must, be something in this organic food that we need. That particle which is the difference between organic and inorganic must be used in the body. But what are we metabolizing? Not chemicals: chemicals as such are neither organic nor inorganic.

J. G. I don't think that is really true.

S. R-N. We'll talk about that later. We must metabolize the organic part of food. If it is metabolized it's changed, the parts not needed will be excreted. Why may the acupuncture points not be points for excreting unwanted metabolized energy? In other words the acupuncture points would be a filter to allow through that unwanted metabolized energy. And because tension in old age is diminished, partly metabolized energy would pass through too. In old age one is weak and tired. Conversely, tension increases pressure on acupuncture points, thereby not allowing all metabolized energy to be released, causing a build up in the body and resulting in tension diseases like headaches. Needles would act as regulators of acupuncture point tension, allowing the points to refill more effectively. Now of course chemical structures are fantastically complex, but chemistry deals fundamentally with the parts of a molecule. You don't go further back than that. How many forces that hold them together there are, we don't know. There may be hundreds of them.

The Russians put forward the concept of bioplasma as an explanation of the concept of organic energy interaction. They believe this energy to be a 'fourth dimension' enabling transformations into other states of matter by interaction just as solids change into liquids and gases. Adamenko believes it is this bioplasma that explains the working of acupuncture. It is postulated that bioplasma enables the telepathic subject to move messages from a distance. It is bioplasma which is the force behind radiology, homoeopathy, and magnetic heating. This is the force which has been photographed in Kirlian photography. Doctors in Russia say they have developed an electro-detector of bioplasma, which is sensitive enough to register in any part of the body. The electric activity of excited animal cells is due to vibratory, low-temperature plasma. This led researchers to believe that biological plasma is subjected to the same requirement demanded by thermo-dynamic systems. Vibratory energy frequency given off by bioplasma is about 75 Hertz. The total effect on living organisms is the emission of streams of protons and electrons. The

greatest amount of bioplasmic energy is concentrated around the cerebral cortex. So all these ideas—homoeopathy, E.S.P. acupuncture—tie up.

T. B. Oh, do they? This last speech of your's really points our problem nicely, because as soon as you are let off the hook you adduce all sorts of shaky evidence as counting for a non-theory. You aren't uncritical about your own ideas in that way. *You* know when you are speculating.

S. R-N. The Russians make these claims. They are wanting to identify the opposing forces with something in electro-magnetism.

A. K. The Russians use the term plasma sometimes in the way physicists use it to refer to an ionised gas, and sometimes in the sense of an unknown emanation, aura or astral body. They play very cleverly on this ambiguity, and I can't blame them so long as nobody really knows what the photographs of Kirlian photography represent. You have a similar ambiguity in acupuncture: on even days it's all strictly empirical and down to earth, on odd days it's all mixed up with Yin-Yang metaphysics. The third ambiguity is the relationship between Kirlian photography and acupuncture. But I think we agree that ambiguity has its occasional uses—and that it all looks like a hopeful muddle.

The Crisis of Faith

Ian Ramsey

(Ian Ramsey, Bishop of Durham, died in October. He was one of our friends and subscribers from the beginning of T. to T., and as a memorial to him we are publishing the greater part of an address he gave to the Conference of Church Leaders at Selly Oak, Birmingham on September 12th. As it is very long, we have omitted some what he said. Anyone interested in seeing a full roneoed version passages, without, we think, thereby altering the main substance of might enquire from the British Council of Churches, 10 Eaton Gate, S.W.1. where copies may still be available).

To link 'crisis' and 'judgment' is a well-known and well-worn device as etymologically sound as it has proved often to be empirically shallow, and when associated with a *deus ex machina* theologically unedifying. So for myself in this context of *crisis* and *judgment*, crisis and decisiveness, I rather picture a crisis of faith as a decisive time, a time of decision between two eras. What then are the ingredients which enter into the present to make it the critical, decisive time it is? What routes have brought us to this watershed, this Continental divide between two eras? What must be our response deeprooted issues which confront us?

under God and inspired by his gospel in Christ to the complex and

Let us begin by looking at some of the issues, and first, at the growing implausibility of a prescriptive theology. For long years theology, and for the moment I use the word with deliberate vagueness to cover inter alia the language of the scriptures and of doctrine, was supposed to participate in the givenness of God himself. Its words were supposedly authenticated and guaranteed by the revelation they expressed. In that sense theology was a part of the revelation of God—so that in a literal direct sense there were revealed truths. Revelation not only referred to an activity of God in Christ; it referred to particular God-given propositions as well. God did not only act, he spoke; he not only spoke, he dictated. On this view, it is not surprising that theology should seek to control and prescribe the conclusions in every other subject while being itself unaffected by discoveries about the world. Determinative of other knowledge, it was a purveyor of truths which all other studies must accept.

Here was theology as the Queen of the sciences demanding a strict obedience from her subjects. Empirical studies were held to be either unimportant or, if they conflicted with the tenets of theology, not only wrong but blasphemous

Part of the reason for our contemporary crisis of faith is that despite all the challenges over the last century, and of course with notable exceptions like Thomas Arnold and F. D. Maurice—and that is the point, they were exceptions—the prescriptive character of theology not only remained unquestioned, but was the more resolutely affirmed. Faced with the challenge of empirical knowledge, men became negative not to say neurotic, insensitive not to say incensed, in the defence of the status quo. I have often wished that a century ago we had had the mass-media of today which, whatever be their defects, would at least have ensured that in every home there was a hearing of all sides. True, the nineteenth century would have been to many even more shattering than it was; but there could not have been the same self-confidence and hollow victories. As we face the crisis of our own time, the reaction of our predecessors to the crisis of a past age is a terrible warning. Not only did they fail to face up squarely to searching issues; their side-stepping merely postponed until today the crisis which should have been faced yesterday.

As late as 1891 Robert Gregory, Dean of St. Paul's, could join with seven other deans in issuing a statement on the 'Truth of the Holy Scriptures' in which they said "the Holy Scriptures 'are inspired by the Holy Ghost: that they are what they profess to be: that they mean what they say: and that they declare incontrovertibly the actual historical truth in all their records both of past events and of the delivery of predictions to be thereafter fulfilled.'"¹ Somewhat earlier, in 1868 when the Honour School of Theology was established in Oxford, Dr. E. B. Pusey could feel that the setting up of this separate honour school safeguarded the uniqueness of theology within the university system. "Theology", he declared, "is a subject quite apart . . . in it the question is not one of mere knowledge of facts, or of opinions, or of philosophies, or of philosophical theories, but of a revelation of God for the salvation of man."² It was still supposed, in other words, that theology was guaranteed by its object. Here again we see how a failure of analysis concealed from men the

¹ "The Fourth R." pp. 31-32. (*Durham Report on Religious Education 1970*). The quotation included in the reference is from an article of mine in *Theology*, December, 1964.

² *Loc cit.* pp. 29-30

crucial problem and compromised the very commitment and conviction they valued as their lives. Theology is certainly concerned, as the gospel is concerned, with “a revelation of God for the salvation of man”, and the scriptures are certainly “inspired”. But this does not mean that theology has itself a God-given character, that its words carry in themselves the authority of God himself. Yet one element in the critical situation today is that there are still many Christians who take up the standpoint of Dean Gregory or Dr. Pusey. Those Christians who take an alternative view seem to their fellow Christians to be faithless unbelievers; and this infighting encourages many contemporaries not only to disbelieve what we say, but to be convinced that we ourselves don’t believe what we say. Our epistemological muddles play as much havoc with relations between Christians as they do with our relations with unbelievers

So the first feature of our present situation which needs a thorough thinking through is a problem in the theory of knowledge: the relation between revelation and its expression, between revelation and talk about revelation, between what is God-given and how this is articulated. What is at issue in what is often represented as a tension between belief and unbelief, conviction and scepticism, is rather two different views of theology and its relation to revelation, and if we are to face the present crisis responsibly we have to grapple with these two views of theology, the attitudes they foster, and the character they give to the Church, its ministry, its evangelism and its moral reasoning. For far too long we have failed to get to grips with what is this basic underlying issue. What undoubtedly has made the attitudes of Dean Gregory and Dr. Pusey increasingly implausible has been the development of historical studies over the last century and a half. These studies have made it plain that theology cannot have a monolithic and self-guaranteed character; that there is no precision-built theology to be prescriptive. It only gained this appearance in the past by Christians taking cognisance of only a partial selection of the relevant facts with different Christians taking different selections and making sure they never met each other. Critical historical studies however make it impossible for instance to hold that there is but one view of the Christian ministry which itself contains the whole truth; that alternative views are just verbiage. Again, the idea that doctrinal controversy yields clear unambiguous views of (say) Christological or Trinitarian truth can hardly be sustained. It is high time that theology as she is preached and theology as she is practised in liturgies listened to theology as she is taught. A Nel-

son's eye attitude has run through preaching and liturgy for far too long.

The second ingredient of the present situation which calls for a faithful and frank response is the growing importance assigned to the empirical and the secular.

One particular result is that it becomes increasingly unsatisfactory and difficult to read off at all easily God's purposes in nature and history—a point which is obvious enough to the critical reader of the Old Testament and which lies behind John Wisdom's famous remark: "The existence of God is not an experimental issue in the way it was". The point may be put in words from *The Fourth R*: "On the one hand there was the theological view that God controlled the events of nature—rain or sunshine. Natural calamities were viewed as punishment, national prosperity as reward. God was directly involved alike in man's prosperity as in his failures. Further, it was God who gave men the victory in battles between nations. Yet for some four hundred years men have been developing very different interpretations of nature, human nature, and history. The new ways of talking about the world, about human nature, about history, not only seem never to need the concept of God, but often seem to be in head-on collision with all the ways of talking traditional to the theologian."³ All this has an obvious bearing not only on traditional Christian teaching but on the articulation of our prayers—a point I touch on later. But nowhere have the collisions and tensions emerged with more unmistakable force and clarity than in the area of human nature and human behaviour, not least because of the comparatively recent developments in psychology and the behavioural sciences generally. At one time, sin and wrongdoing seemed to be clear and unambiguous. But not only developments in psychology, more lately developments in the biological and medical sciences, and in endocrinology in particular, have led to an acknowledgment of new factors which must be reckoned with when we appraise human behaviour. Glandular secretions and biochemical imbalance are of undeniable importance in any full understanding of human behaviour; it may not always be John himself but his testosterone which is to be blamed for John's sexual irregularities. Sin in the sense in which it is to be assimilated—though I realise not too readily—to moral wrongdoing will always be, in part, a frontier problem between biochemistry and psychiatry.

The practical and social implications of these moral developments

³ *The Fourth R.* p.42

are legion, and they more often than not conflict with the built-in attitudes which are the legacy of a past approach. For instance, it was once supposed that left alone in the isolation of a prison cell, a person would come to his senses, be brought to penitence, and all would be well. What so often happens is that when judgments such as this are now rejected on empirical grounds, the rejection is taken to be a rejection of Christian theology, and so it would be, and will be, if this is all Christian theology has to say.

What these reflections thus underline is the need to ask ourselves, against the deeper understanding of human behaviour which it is now possible for us to have, how far can the old personal, social and theological generalisations be reiterated? Better: how do we move towards a better understanding of human behaviour both in terms of theology and biological and behavioural studies? Here, undoubtedly, is one of the most threatening as well, I hasten to add, as one of the more promising aspects of the contemporary crisis of faith. How can we avoid being naive and superficial about God and humanity alike?—for that is the terrible risk we run. Nothing does greater harm to our witness than to let fall from our lips whether in prayer or teaching the commonsense of a past age masquerading as theological assertions, which not only never latch on to the empirical situation, but use such large-scale language which shows itself both ignorant and insensitive about the circumstances that are being judged. I have pointed out elsewhere that the criticism of being judgmental, often levied against Christian social workers and clergy, and indeed Christian people generally, reduces in its main thrust to a criticism of an *a priori*, authoritarian theology imposed in an ignorant and insensitive fashion on to the superficial features of a human problem.

So, the second feature of our contemporary situation contributes two problems to its critical character. First, there is the problem of making judgments about nature, history and human nature, a problem which demands for its solution a new matching of theological and empirical language. How do we reach judgments which do justice both to the gospel and to the vastly increased empirical knowledge we now possess about man and the world?

But that problem presupposes another—and an even more far-reaching one connected with the shifting of theological interest to the secular; for thanks to neurotic churchmen of a past age, this has now reached a climax precisely at a time when secular studies are enjoying an unprecedented and in large measure a spectacular success

story and feel they can afford to stare the theological gift horse in the mouth. So, theology having now met up with empirical studies, far from this being a joyous reunion for two prodigal sons whose father, Descartes, against his own better judgment had encouraged to go on their separate paths, the questions which now haunt Christians are radical and far-reaching: is not our secular knowledge of the world, the knowledge supplied by the natural and behavioural sciences, self-sufficient? Is there any empirical evidence of God being active in the world at all? On what grounds can we be convincingly articulate about the activity of God in nature and history? In other words, the growing interest of Christian theology in the Incarnation, and therefore no matter how reluctantly and indirectly in the humanity of Jesus, a Jesus who is *Lux Mundi*, the growing concern of theology with the empirical and the secular, a splendid tradition to which men such as James Ward, F. R. Tennant and Charles Raven—to mention no others—have been outstanding contributors, has reached a climax at the very time when empiricism in science and philosophy seems to be leaving no room for the transcendent, no logical place for mystery, no place for that to which theology tries to do justice. Is the new approach to theology, then, coming to birth at a time when theology is doomed to be stillborn in the hands of an empirical midwife? These are far-reaching questions to which we must address ourselves with urgency if we are to come out of the crisis on the right side.

We have now been brought conveniently to a third feature of the contemporary situation—the contribution of philosophy to the present crisis. Having had to shorten this document by more than one third of its length, it is here that I have exerted the greatest self-denial. That as recently as forty years ago there could be a philosophical study of Hegel, which was a best-seller at Oxford and which spoke of the coincidence of religion and philosophy, is an old but not an exaggerated story. That was the day which thought in terms of a Christian philosophy whose framework was absolute idealism; the climate in which, of recent theologians, William Temple especially was nurtured. But it is also an old but not exaggerated comment which recalls that this same absolute idealism could be viewed either as a disguised enemy or a treacherous friend. For while it essayed a world-view of magnificent coherence and comprehensiveness with undoubtedly Christian components, it could do nothing for the distinctiveness of Christianity, nor did it give any central place to a gospel of redeeming love in Christ. It has been argued that Temple

himself finally surrendered his Hegelian hopes in the light of Barthian theology and the events of World War II. My own view would be that while he came to see that the idea of a Christian philosophy would be something very different from the kind of blueprint which traditional metaphysics, and in particular absolute idealism would offer, he never surrendered completely the hope that there might be some over-all Christian perspective but one showing a greater empirical seriousness than absolute idealism ever displayed, displaying a broader sense of reasonableness than ever the Hegelian dialectic contemplated, and not least doing greater justice to the unsearchable riches of Christ, and the sinfulness of man. But Hegel and William Temple apart, it would never have been supposed 40 years ago that there was an imminent crisis to the rapprochement of philosophy and theology. Further, it is only fair to our predecessors to say that the prevailing philosophical fashion, and contemporary cultural attitudes, encouraged them to be patronising towards the scientific and the empirical. But by now the empirical strength of science and philosophy has broken down the sandbags by which defenders pathetically thought that they were fighting the battle of faith when in fact they were merely resisting its claims and preserving their own insularities. Our gratitude that the situation has now been opened up, that we now have a crisis which cannot be side-stepped, should go in no small measure to logical positivism. We may regard Wittgenstein, I suggest, as he who represents the development of logical empiricism over some thirty years, as, in the providence of God, the Cyrus of our time.

But the challenge of the earliest logical positivism was all the more devastating since it was not concerned with the truth or falsity of theology but with the prior question of its meaning. Indeed, it now became a compliment to a subject to deny that its assertions were true, for that denial at least implied that the assertion was meaningful. Theology did not receive many such compliments. Yet it is somewhat over 25 years ago that I implored the Oxford Society for Historical Theology, not to mistake the empiricist's bark for his bite, but to take empiricism seriously, as having a positive contribution to make to theological studies, and the development of empiricism over that period has, I believe, made that plea more, rather than less, important.

Now the crucial question which recent empiricism raises for theology is this: granting that there is no longer a positivist's veto against a meaningful theology—what is the logic of religious discourse?

What is its empirical anchorage? What is the character of religious discourse and to what sort of situations does it belong? At the same time the hints which recent empiricism gives us are two:

1. There is no single brand of reliable reasoning; language is very variegated. At one time it was supposed that there was only one pattern of reliable argument . . . On the contrary, it is recognised that there are many different patterns of reliable reasoning . . . We go to theology then expecting to find many interwoven strands, each strand being an endeavour to talk in one particular direction of the moment of vision from which the language takes its rise.

2. We need to be on our guard against supposing nouns, e.g. episcopacy, priesthood, ordination, consecration, grace, for example to stand for isolable topics and commodities which are, and must for ever and always be, their "meaning". Rather, in order to see what is being talked about, we must consider words in the context of sentences, themselves in the context of discourse, which itself is given its full concrete situational setting. Personal situations may well provide helpful parallels to those situations in which religious language is grounded, and here the interests of the empiricist and those of existentialist can come close to each other. So much for contemporary philosophy in relation to the crisis of faith . . .

Fourthly, there is the matter of authority. Our problem today—whether in theology or morality, whether in making personal, or social, or political judgments—is how do we embody in our judgments, our organisation, our planning and our structures, the authority which fulfils and releases and speaks of freedom rather than the authoritarianism which oppresses and restricts and speaks of tyranny: recognising that part of the devilish attraction of authoritarianism is to be clear and forceful in its views and to yield striking success by criteria as immediate as they are superficial, a success in other words that is only matched by the long-term disasters which it brings in its train. We may also recognise that nothing is likely to make men authoritarian more than the idea that they are uttering a God-given language; in these circumstances, men not only forget that they are men, not God—they also forget that their God is not a God whose dealings with men makes them mere larynxes and vocal chords for the production of divine noises. God's grace in Christ Jesus is a relationship which makes that supposition a blasphemous travesty of the facts. But here again we see how inter-connected and criss-crossed our present problems are: for it is all too easy to mis-read the Bible in such a way as to conclude that God uses men as

mere mouth-pieces. Unless we are either very unsophisticated or very sophisticated, passages in the Bible which use the word "God" as the subject of a sentence are hazardous in the extreme: for they read as if God had been observed to say and to do precisely what is there described. They conceal the fact that the words are the writer's interpretation of a situation, not his reporting of observable features as news of the world and God. If all this seems by this time trite and obvious, I can only say that unfortunately much of our reasoning about God, man and the world proceeds on the assumption that far from being obvious, it is plainly false. This is another measure of the herculean task which confronts us.

Fifthly, let me by a few random strokes of the brush—some four in all—paint some features of the contemporary social scene with which any assessment of the contemporary crisis for faith must reckon.

First, so far as religious education goes—and of course we always, and rightly, hedge our generalisations with acknowledgments to the conscientious, well-trained, well-informed and devoted teachers of which there have always been some—the superficial and unnecessarily dogmatic teaching of the Christian faith has led to the Christian faith meaning very little indeed to the population in general, even though for about a generation we have had the 1944 Act. As for believers, I am bound to ask whether the situation has been helped by a traditional Catechism which, however excellent as a syllabus, is absolutely disastrous when indicative of a method, since it presupposes a way of learning which, of all others, is least likely to help pupils to make what is learned part of themselves. Where in fact do we look for an approach to the Bible and doctrine which has learned from the problems, mistakes and difficulties of the last century and a half? Does a broad common intention and outlook unite ministers and clergy on the one hand and teachers on the other? Are we over-stocked with theologically educated or even just theologically well-informed laymen? I am not here apportioning blame—though we may all have our views about that—I am simply recognising a feature to which we must not be blind if we are ever to emerge from our present crisis on the right side.

Secondly, children and their parents look on, and move in, a society where the Christian faith and the Churches apparently mean so very little, at least in the sense that monopolies, trade unions and management, national and international sport, mean very much. Is it then surprising that there is every encouragement to scepticism?

Further, the very fact that different world views are openly canvassed and discussed obviously contributes to a general sense that no one view matters very much, and a religious view seems to matter least of all especially if it bears little, if at all, on the world around us. I recall some words of Sean O'Faolain as he looked back on the faith into which he had been born. It was a faith, he says, which revelled "in the liquefaction of common life, the vaporisation of the mortal into the mystical, the veiling of the natural in the fumes of the supernatural, always at the expense of failing to develop the character of men as social animals." He continues: "So then, far from providing me with codes, values or rules for living in this pragmatism of a world, as Yeats calls it, all that, so far as I could see, the faith into which I was born offered me was a useful set of formalities, rather like a passport stamped with a lot of visas, guaranteed to get me as quickly as possible through this unpleasant world to my happy destination in the next. Since I was fated to become a writer concerned with the character and behaviour of men and women, I could not but feel that this kind of mystical contempt for common actuality was something that would have to be put severely in its place if I ever hoped to write one truthful word about the human condition."⁴ No doubt there is here an element of misunderstanding, misrepresentation and exaggeration. But we have something to learn from the overall point.

More particularly, as we saw, for some 300 years there has been a growing gap between the Christian faith and scientific studies and, more lately, technological development, between the Churches and life, between the gospel aspirations and the work-patterns of man in an increasingly industrial society. The soup-kitchens and the recreational facilities for instance in Jarrow some forty years ago were needed and valued; but there should well have been a more vigorous theological critique which related the social and industrial scene to the quality of human life and the nature and destiny of man. This would of course have necessitated a communication between the Churches and an industrial and technological society over bridges that had not only not been built over some 300 years, but where a refusal to build had been a point of principle, not to say honour, on both sides. For the one wanted to be free of the ecclesiastical tyranny and control which had atrophied its development, and the other was content to believe in itself as a subject and an institution so much apart that its concern was entirely elsewhere.

⁴ *The Listener*, 11th May, 1972. p.606.

There are, thirdly, other features of society we must briefly recall. Not only is the radical character and rapidity of social and industrial change producing great insecurity and unsettlement, it is matched in these islands by the loss of our world bearings as well. The old tag that we have lost an empire and not yet found a role is not only politically shrewd. It reminds us how, for many, the Empire and later the Commonwealth gave the sense of their having a place in the world; they were solidly built into the Universe and had a mission to fulfil in it. Little by little the links have been broken, and there is now a sense of being not only politically but cosmologically adrift. Insecurity in the docks, insecurity for executives as well as trade unionists, serious as that is for everyone, becomes also the point at which these deeper needs are laid bare.

Again, fourthly, the necessarily large-scale patterns of government or industry—necessary at least if we are to benefit from computers, trade patterns, growth in productivity and so on—inevitably bring with them an erosion of the place of the individual. Hence, the many features of our present society which express, at least in part, a desire for self-affirmation, which may be a subject for self-identity and self-realisation no matter how misguided; features, too, that show a desire to escape from the imprisonment of planning, and even the imprisonment of rules. Drugs, the Skinheads, Hell's Angels, the vandals—everybody across to those who wish to be “somebody” by distinctive dress, or hair, or ways of living, all of them exemplify this deep-seated need. Let us note the recent words of someone who recalled coming out some years ago from “Rock around the Clock” at the Elephant and Castle. He was asked why the occasion inspired and caught hold of him. His answer: “You felt big; nothing could stop you; you were the Government and the King. You found in your work and your life you could go so far and no further—so you had to do something to get rid of it” i.e., the frustration. Again, with some of our contemporaries: “We just go (they say) to Blackpool or Margate or the Pop Festival. Others, when they go places, may wonder what to go in, what sort of accommodation to get, they may want to plan details. Not us. We just go.” A one-sided reaction perhaps. But couldn't we in the Church do with a bit more of this spontaneity of action and could we not make it plainer than we do that the faith is in fact fulfilling and not oppressive? We have been brought full circle. For the problem with which we are presented is how to make our presentation of the gospel less authoritarian, less oppressive. How do we ensure that our discourse, our liturgies, our

structures make more evident the gospel, reflect better the light of the knowledge of the glory of God which we have ourselves seen in the face of Jesus Christ?

So much then for the ingredients of the crisis in which we find ourselves. What do we see as the ingredients of a faithful response?

The first and all-important need is to come to a better understanding of Revelation and the character of the theology suited to it. More broadly how do we ensure that we talk sense, and how do we make good sense rather than bad sense of what lies at the heart of our religious faith and convictions?

If a brief autobiographical reference will be allowed, it was when I had to ask myself such questions in a youthfulness surrounded by logical positivists and challenged at every point to elucidate the meaningfulness of religious discourse, that I came to see that such discourse cannot do without alluding to the facts and features of the world around us, yet cannot be satisfied with such an empirical cashing alone. It must appeal to empirical criteria and more: but not more such criteria, or else there is no transcendence; nor to similar criteria but in another world, for that is to buy sense and reference at the cost of intelligibility. Faced by this predicament, I came to talk of disclosure as that by which the transcendent makes itself known in and through things spatial and temporal, whether subjectively as that in ourselves which is more than our observable behaviour, or objectively as that which we speak of in terms of the Word of God. In other words, as we look around us, some so-called "facts" are there to be discriminated and looked at—these are the stock-in-trade of informative, descriptive language—in the case of persons, eyes, ears, hair and skin, as Bishop Berkeley reminded us in *Alciphron*; but some other facts declare themselves, make themselves known to us, they capture our attention—disclose themselves, and that is how we recognise persons, personal activity, spirit, to remind ourselves again of Berkeley.

In short theology and all religious claims, Christian or any other, in the end appeal to disclosures, moments of vision, flashes of insight, though those phrases conceal the point that a disclosure may not be at all spectacular, but rather possess the impressiveness and growing significance of a silence. Hence the two metaphors—"the ice breaks" (a spectacular discontinuity) and "the light dawns" (a gradual awakening). Perhaps I should add that I speak of revelation when the disclosure occurs in a Christian context. It is in such situations of vision and disclosure where a flat impersonal, narrowly empirical

situation takes on depth and another dimension, that theology arises. Theology trades in models and metaphors each of which occurs within, and arises from a particular disclosure situation, and each of which licenses discourse by which we can be articulate about what the disclosure discloses. So theology becomes a complex interweaving of different strands of discourse each proceeding from different models, and each at different points and in different ways being qualified so as to indicate their disclosure basis. For all the strands are attempting to be articulate in one way or another about a vision.

The resulting discourse is then subject to formal and material checks and criteria. Thus, for example, that discourse is better than another which is the more coherent, consistent, comprehensive and simple; and we shall constantly ask, of each area of discourse, what is the character of its empirical fit: how well does this enable us to interpret the world?

But one way or another, theology has to be regarded as multiple and not linear; not primarily descriptive of fact, but primarily pointing to situations by trading in terms of plain language, which it uses in such a special way as to provide a particular inroad into a disclosure. All this means that theology is much less stereotyped than once was supposed. Far too much of our theology is read as though it were monolithic not multiple, and prosaic, formal, descriptive, matter-of-fact language and, as readers of Bishop Barry and *The Times* will recall, doctrines of the Last Things provide the obvious example, though we have also to become accustomed to a logical intricacy and diversity about any apparently uniform area of discourse such as eucharistic theology. In short, we can all welcome the so-called "Death of God" controversy in so far as it is concerned with the death of a certain kind of god-language. . . .

Such an approach to theology, which sees theology as a multiple attempt to be articulate about a vision, not only makes no pretence that theology is a subject apart. Rather does it ground theology in disclosure situations which arise around matters of fact and empirical patterns. So while theology necessarily goes beyond the secular, all theological articulation starts from the secular and never despises it. Jacob's ladder, embodying communication between heaven and earth, had its feet on the ground though we may suppose at the top disappeared in the infinite distance. True, our faith starts with God but theology only begins when words pass our lips. It is plain that here is a view of revelation and of the relation of theology to other

subjects, radically different from that which we found unsatisfactory at the outset.

Now if we are to emerge from this crisis on the right side, there are two major items on our agenda :

(i) we must find ways and means of creating, for our contemporaries as for ourselves, moments of vision and disclosure. For without these there is no cash value to be given to anything we say or do. Without such occasions of insight there can be no foothold for religious discourse in general, or for the Christian faith in particular. Our contemporaries will then rightly conclude that Christian institutions are at best no more than phenomena with an impressive past and little future, catering for those who happen to like the kind of social behaviour to be found in our Synods and Assemblies, our Churches and Chapels, our Schoolrooms and Parish Halls. Our primary and urgent need, on which all else depends, is to make possible occasions of insight, moments of vision and disclosure, occasions when our society could re-discover a sense of the sublime.

(ii) The second item on our agenda runs in double harness with the first. The first was the need for moments of vision, disclosure, occasions of festival; the second is for a theology and institutions which match and make evident their basis in such a vision. But this means an emphasis on theological reticence rather than theological loquacity, in an endeavour to do greater justice to the mystery and infinitude which should characterise the moment of vision, and which extravagant theological utterance only too easily dispels. In short, there must be radical changes of theological attitude and expectation, a new understanding of the point and significance of theological controversy, a new idea of what is desirable theological agreement, and radical changes in our idea of different Churches and their relationships. We must sponsor a multiple theology and we must eschew uniformity as an analysis of union.

Lest my remarks be misunderstood, let me immediately make an important supplementary point. This does not necessarily imply that we must be relativists in theology, or loose federalists in Church organisation. It does not necessarily imply a take-it-or-leave-it attitude about theology or the Church. For the cost of a multiple theology, and the cost of variety in unity is not only a constant vigilance, but a constant exercise in co-operation, in mutual edification that both edifies and builds up. In short, with a multiple theology we must always be concerned with cross-references between the various strands, with locating strands in their moment of insight,

with constructing what I called above the most coherent, comprehensive, consistent and simple map we can, and of testing it for empirical fit; and with a federal unity there must be constant grappling together with common projects and problems—not least the theological project I have just mentioned. Meanwhile we shall remember that it is certainties which have divided as they always divide; what unites is—not certainties—but the common vision which leads us all to recognise our common ignorance as we look from our shore over the infinite sea towards a moving horizon which opens towards the future. It is then not a day for the mere reiteration of theological conclusions but for encouraging new attitudes and methods. In this way we contrast decidedly with the Patristic and the medieval periods where, as Professor Nineham has reminded us, Christian thinkers were, on the whole, systematizers and codifiers, not dreamers or poets.

In this connection let me avert briefly to our contemporary moral unease and turmoil. Part of our trouble today with moral issues is not that all past principles are outworn, but that while situations remain macroscopically in the large the same, e.g. curing a patient or having sexual intercourse, microscopically in the small we now know that these situations have many more ingredients than once we supposed, ingredients of which the natural and behavioural sciences have much to tell us. In these circumstances some principles still remain above question. But with others it is more important to see what insights they embody than to think of merely applying them, though once we have made a moral decision no matter how novel a new moral principle or rule becomes available. The crisis in Christian morality is not met either by merely mouthing old principles or by suggesting that principles have no place in Christian moral decisions. Above all else we have to make clear what is the logical function, the basis in an inspiring vision, of a sense of obligation of any moral rule we use in our discussions. Rules are only invoked constructively when a thoroughgoing empirical analysis of a situation has shown them to be needed and called for their assistance.

Here again, it is more a time for learning new methods, new ways of reasoning than for merely reiterating old conclusions even though these be wise and reliable, if not misused. What this means in practice is that it is the day of the multiple group for moral and political decisions, the interdisciplinary, which David Jenkins has wisely suggested we better call transdisciplinary, groups. Such groups will be, I suggest, a regular feature of our Church life—will be indeed

the means at one and the same time of proving our convictions, grappling with problems, learning better our faith and ministering the grace of God to man and society. Such groups will recognise the need both for a classical theology which gives us the necessary professional background, and also for what has been called a contextual theology where in a transdisciplinary group, believers develop the facility for latching on to the multiple discussion of a problem. Such a discussion not only aims at a creative decision, but in reaching such a decision discovers also new developments in theology, new possibilities of theological articulation. It is in this contextual theology that there will be found the growing points of our faith and the intimations of a new culture, a culture Christian, scientific, technological and humane. Incidentally, while being careful to distinguish the logic of scientific discovery and theorising and the logic of religious discourse, we can note that the supposed enmity disappears when the old rigorous attitudes and authoritarian claims for both disappear. Both can then be seen as responses to wonder, as the articulation of a vision, as understanding the ways of God whether as Creator or redeemer. Theology may learn from the new outlook in science how to display in its utterance what for long has accompanied the exposition of scientific cosmologies—a sense of wonder, a response to the infinite, the spirit of relentless enquiry that aptly accompanies the exploration of a vision. And science may learn from the new outlook in theology that supplement which enables it to talk of the one world, to display moral and social responsibility, and to point forward to a humane technology. I cannot exaggerate the necessity for transdisciplinary groups, nor their significance, nor their theological and educational value any more than their novelty and difficulty. To me they represent a structure that anticipates the future. . . .

To put the whole matter in another way, what is needed is a new concept and pattern of leadership. Leadership must no longer profess to give ready-made answers to all questions of importance. What is important is to ensure that in every problem the points at issue are made plain, a radical treatment is given, the roots displayed, that we are articulate about the gospel in such a way as to give an authoritative but not an authoritarian grounding to the principles which are used, and all this in the hope that a creative decision will emerge whose light is that which glorifies the Father and alone gives a clear lead

Report on a Meeting with Uri Geller

Report of a meeting with Uri Geller at the Royal Garden Hotel, London, on October 30, 1972, at 3.00 p.m.

Those present: Uri Geller, Andrija Puharich, Uri Geller's cousin, Ted Bastin, Tim Eiloart.

1. *Ted Bastin*

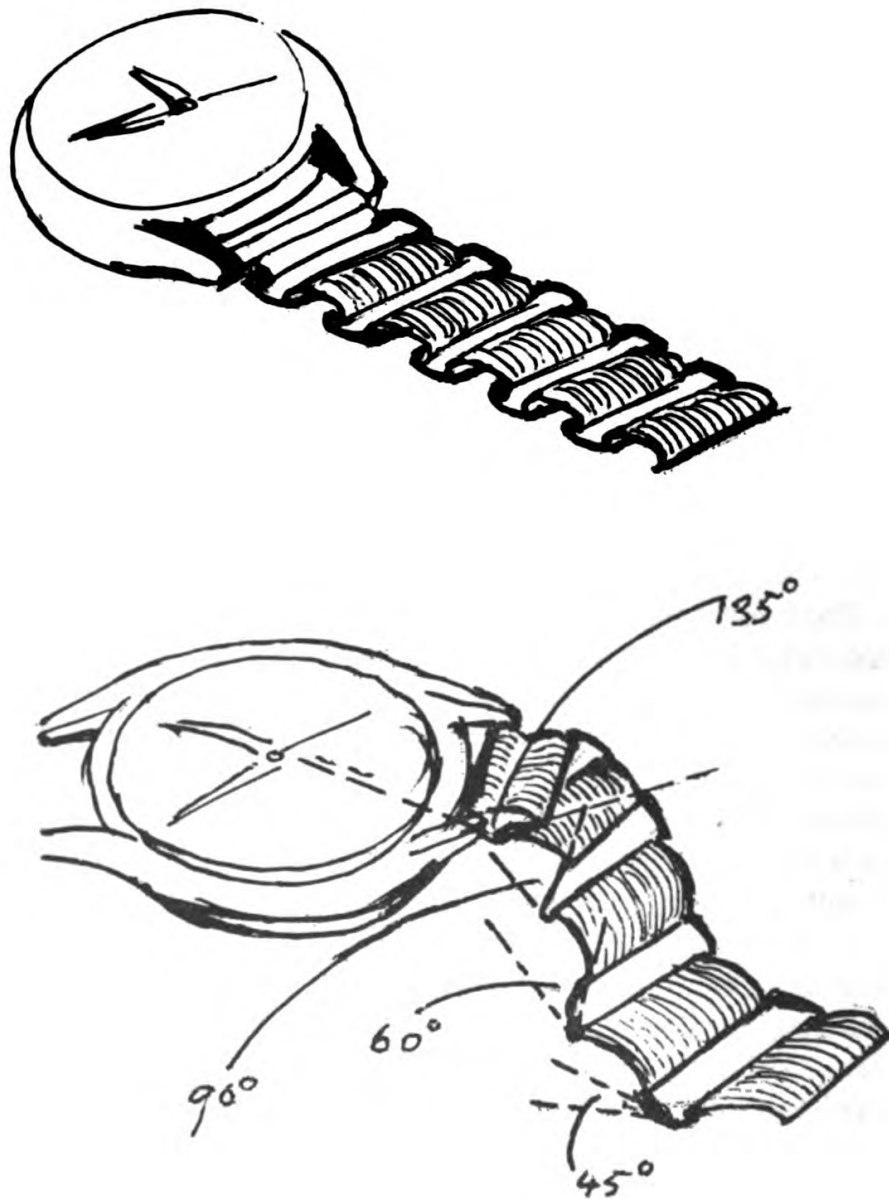
The meeting began with Geller attempting some quite ordinary "thought transference" tasks which were at first not very successful but became more successful later on. It seemed that Geller liked to "warm up" in this way—indeed he himself said that this was so. He also said that if there were few people present then he needed to have a deep warm relationship with each. If there was a large audience this did not matter so much (Geller is used to giving music-hall demonstrations of his powers).

Geller then asked for some fairly small metal objects—preferably of a rather personally familiar sort. He didn't like money. No one proffered a ring, and all we could find were spoons. One was a stainless steel spoon which Bastin found in Puharich's bathroom while looking for metal objects. It turned out to be a spoon Puharich used for taking medicine. The rest were teaspoons belonging to the hotel. These latter were silver plated and quite robust (probably with a cupro nickel base—it was later confirmed that they were E.P.N.S.). Geller asked Eiloart to hold these four spoons loosely in his hands, which were cupped, with the spoons vertical and hands and spoons resting on the table. Geller then put *his* clasped hands an inch or two above the spoons—not in contact—and appeared to concentrate his thoughts upon the spoons. He concluded this "concentration" with a tightening of the clasp which usually made his fingers click. Geller then said he thought nothing had happened. Eiloart released the spoons onto the table.

A minute or so later Bastin asked if the others thought that the stainless steel spoon had flattened its handle. No one was sure. Bastin picked it up and immediately dropped it involuntarily because it felt somehow "alive". Then all saw that the bowl of the spoon was bent sideways, and some discussion took place as to whether the spoon could have been distorted as much as that before the experi-

ment without this having been noticed. It was thought this was most unlikely since the spoons had been scrutinized when they were collected. This spoon continued to deform slightly in that the bowl took a sharper angle to the handle in the symmetry plane (the first movement had been at right angles to the symmetry plane).

In the next experiment Geller said he would try to move the hands



of Bastin's wrist watch (which had a segmented stainless steel strap). He laid the watch on the table face up and made the same motions as were described for the spoons. Nothing happened. (During this, and the next, attempts everyone watched to see if there was daylight between Geller's hands and the watch.) Geller then tried with the watch turned face down, and this time it was found that the hands had moved from quarter to five (the correct time) to quarter past three. The new position was a "possible" one in the sense that it could have been reached by turning the watch handle. The watch was still going, and Bastin returned the hands to the correct time after everyone had observed them.

A half a minute later Bastin thought he saw the back of the watch (then lying face downwards) begin to go concave. In fact this was an illusion and was probably caused by a deformation which had started in the metal strap where one end of it was connected to the watch. Two links had been considerably twisted. Eiloart then examined the strap and made estimates of the angle through which it had twisted. It took about ten minutes to reach the state in which it finally settled, by which time the four end links had been twisted. The twist might have been produced by manually applied force, but it seems more likely that the strap would have broken.

The last phenomenon to be observed occurred when Geller made a movement to pick up one of the spoons (it is not certain whether or not this was one of the original set) which was lying in a saucer in order to stir his coffee or put in sugar. He lifted the spoon (as I saw out of the corner of my eye) by the end of the handle, and as he did so the bowl of the spoon fell off and clattered into the saucer. Everyone then looked, and Geller became excited saying "look what has happened". Eiloart then took a rather similar spoon (no exactly similar one could be found) and bent it backwards and forwards as far as it would go using all his strength. It took about 20 such flexures for the spoon to break, which it did in a similar place to the fracture of the first spoon.

The affected pieces of metal from the various experiments were placed in separate plastic bags together with brief notes to describe what had happened in each case.

The only general remark I am able to make about the fractures from a physical point of view is that the easiest way to imagine them would be to consider the metal becoming momentarily plastic at the relevant point, and then being subject to gravitational and inertial forces for a moment.

2. *Tim Eiloart*

My first impression of Uri was of an immensely enthusiastic person who really seemed pleased to encounter us. All smiles and friendliness.

He sat us down and warned us that he would not be able to do as well if he had not got a big audience nor if we were sceptical (This warning seemed to rule out any really sceptical investigation or thoroughly scientific procedures so what follows is put forward as an honest description of Uri's way of working, not a proof of his paranormal powers). Then he said he was able to do two sorts of paranormal thing, one being telepathy and the other being action at a distance. I expressed surprise about the telepathy which I had not previously heard of. He then said 'yes' and asked Ted to write two series of three numbers on a sheet of paper. Ted did so putting the numbers in groups of three. Then Uri asked Ted whether he could remember the last of each series. Ted couldn't and I could so Uri asked me to transmit the numbers. He seemed quite sure he could get the first after a while but not the second (or maybe the other way about). He then got the one he thought he could get.

Next we tried with me sending a picture. Uri was blindfolded when I drew this and in most other cases was apparently looking away or was blindfolded. He was wishing to transmit this to Ted and we stood in various positions with Ted next to him and me on various sides of him. He admitted defeat after a while and Ted said "was it a castle". As he said so, Uri said "was it a house with a big chimney"? Uri was right, though Ted was also pretty accurate. Ted also asked about squares which were prominent in the windows.

Uri tried to guess a tree and got a circular thing with two lines but horizontal not vertical beneath it. He tried to draw what I was holding which was a comb but "could have been a comb or pen." He drew a sort of cigar like object in fact and was disappointed that it was about 5mm too long. He had hoped the right length to one mm or so.

He tried to soften some spoons and bend them. After he had done so one was very bent although it was just conceivable that we had missed this when looking at them before he tried. At the time I held the spoons in my hand and he held his hand over mine as if warming them with body heat. He had previously failed to make any impression on an individual spoon as far as we could see, though the curvature of the handle might have changed a little. I doubt that.

At a very early stage Uri had tried to transmit colours to Ted

without any success and had transmitted green to me (though I never felt any conviction and felt I was merely guessing).

He then tried to change the hands on Ted's watch but without success.

Next he did some more guessing of pictures from Ted. He got one impression of "a box shaped thing on circles with lines beneath which could have been a train." In fact there was a box shaped church on some lines of hills but no circles we could see. Later I held the piece of paper up to the light and the word Green appeared where Uri had written it when transmitting it to me in rounded script where the wheels would have been. (Uri never saw this interpretation of the circles).

I went to the loo and when I was coming out Uri was trying to alter the hands on Ted's watch again. It seemed to work. The hands went back an hour and a half. I had not seen them previously and could not say that the effect was real apart from Ted's word for it. Then he tried to alter Ted's watch and produced a very pronounced twist in several of the links of the strap. This appeared to increase and spread from one link to another. Eventually the first link went through about 135° and other links through 90, 60 and 45° odd. I saw a few days later that all the links were nearly back to normal and the effect could hardly be credited any more. Ted was wearing the watch and the tension on the strap would tend to straighten the links.

The last effect was when Uri picked up a spoon to show us something about it and it snapped in two. In fact although this was a few feet from me, I was not looking at it directly. I could see it from the corner of my eye. I heard a bang, straight away as he picked it up and Uri leaped with delight that it had broken in two. He could just have palmed it without anyone seeing. It was broken as though it had bent double first, which is inexplicable too since it certainly did not seem to be bending double. Put this another way, if it had broken alone this might have been less odd than the fact that it bent double and then broke as he picked it up. As a piece of spoon to palm it was an odd choice. On the other hand bending with subsequent breaking is standard Geller practice. Uri also tried to guess numbers from Ted which did not work to well. He guessed 10 for 5 but got one other number right, 4 I think. He failed to get a picture of a boat from me but got a picture of a face with hairs coming out of it from Ted. I was watching Ted draw this and felt that it was a face. In fact it was a cat's face with long whiskers.

In summary the watch strap was the best piece of work apart from

the spoon, which could have been a trick. The watch changing its hands should have perhaps impressed Ted most. I did get the feeling that the telepathy was real and either a correct image came to Uri or he refused to guess in most cases. Only the single wrong number with Ted was a positive failure.

If Uri and Puharich were working an elaborate double act it would have been possible to do some of the guesses, though a radio transmitter would have been needed for the cases where Uri was blindfolded and Puharich would have been an accomplice.

If we were hypnotized it would have been possible to twist the links in the watch strap to their original final twistedness using pliers without our noticing, and to change its hands. However the twist which is now visible could be produced with a quick hand movement.

In so far as Uri cannot operate well with sceptics it would be very difficult to test his powers properly, since he could always employ quite sophisticated tricks up to the point that the crosschecks stopped him, then plead scepticism. I did try writing down the state of the watch strap at 5.10 or so when it seemed to be twisting more every few minutes and at that time it stopped changing as far as I could see. He does seem very genuine and might well be self deluded if he is hoaxing. But then it is impossible to say how anyone could not be aware of such a depth of trickery if that were the case. It would need to be some kind of walking trance state, I guess.

3. *Coda* by J. B.

At 10.00 a.m. on the morning after what Bastin has described a further meeting was held at 52, Berkeley Square. Those present apart from myself were Uri Geller and his young cousin, Andrija Puharich, and Ted Bastin.

Geller began with "thought transference" experiments in which he tried to guess simple line drawings and digits which I had drawn on a piece of paper. He had varying degrees of success with this, but the last attempt was strikingly successful. I had drawn a circle with a vertical diametric line, and began to hold the figure in my mind. He then reproduced the figure on his paper with complete assurance and no delay, and we both held the figures up for the others to see. This experiment convinced me that Geller was succeeding genuinely, though, of course, the elaborate precautions customary in this kind of experiment were not taken.

We then turned to metal objects. Geller wanted objects with some personal "Character" and I produced a very heavy object

like a marline spike. Geller said he thought that would be too strong for him to affect, and this turned out to be true. After that we were again reduced to the spoons which had come in with the coffee I had ordered. They were again quite heavy silver-plated spoons. Geller asked Bastin to put his hands over one spoon, which he did in such a way that we could see the spoon and could see daylight between the spoon and his hands. Geller then put his own hands above Bastin's and concentrated on the spoon. It was just as he stopped we saw the handle of the spoon begin to distort slightly and I immediately said "That's it: it's going." Then I drew the meeting to a close as I had a further engagement.

I put the spoon in a drawer in my desk although Geller had wanted Bastin to take it away for some reason we did not fathom. Later it was put on a filing cabinet in my Secretary's office, where she commented on how badly it was bent. I told her the spoon was to be left on the cabinet and not to be touched by anybody. After about an hour the spoon handle was seen to have become much more bent. The spoon stayed there for sometime; it was then seen again in the afternoon and then placed under lock and key for the evening.

At the same time a second spoon had been brought up from the kitchen. This spoon was in a sugar bowl and no attention was paid by any of us to it. However, when we came to send the sugar bowl out of the office we noticed a 'mangled' spoon in it. I asked my secretary, who said it had been slightly bent but not as badly as how it was being returned. However, as nobody was paying any attention to this spoon no comment can be made on exactly when it became so much more bent.

Both incidents are significant because my secretary was quite a new person on the scene. She had not been subject to any possible collective hallucination or hypnotism on the part of Geller. In fact, she had neither met nor known any of the people present in my office that morning.

Later the same day I met Geller and Puharich again in the same room, and again a spoon was bent in much the same way. One other incident took place while Geller was there which reminded me of the phenomena of poltergeist infestations. A heavy metal knob which was one of a pair screwed onto the tops of the corners of my electric imitation coal fireplace, suddenly clattered to the grate. There was no reason to think that anyone had unscrewed it and left it in an unstable position.

4. In subsequent discussion, some of the T. to T. group were inclined to think that conjuring on the part of Geller was not in question, contrary to the opinion of Robin McKinnon Wood (see below) who was not present. It was however, thought that the possibility of the party as a whole being in a state of collective hallucination during which one of them forcibly manipulated the metal objects was not altogether ruled out. (A case was cited where a person who later showed evidence of mental instability bent spoons into surprising shapes at parties without his own knowledge. It may be that the "maniacal strength" sometimes exhibited by deranged persons should be considered in the light of the Geller phenomena, and vice versa). It is possible that metallurgical examination of the objects would show fractures which could not be so produced, but no such examination has been conducted yet. The possibility that all six of the people who saw the phenomena were in league to produce a fraud was not discussed.

Funds have been procured to set up an investigation of the Geller phenomena at the Stanford Research Institute, California. The investigation will be in charge of Captain Edgar D. Mitchell D.Sc. and will be fully instrumented. A report will be given in *Theoria to Theory*.

A comment on the Report by Ted Bastin and Tim Eiloart

Robin McKinnon Wood

Whilst I believe in, and sympathise with, a number of so called parapsychical phenomena, I believe that, as both Bastin and Eiloart seem prepared to accept what they saw as evidence of Geller's powers, I should deliberately and consciously play the part of Devil's advocate. I therefore confess to a deliberate bias in the following account of what *might* have happened at that meeting, and shall try to explain it in terms of a competent conjurer—possibly assisted by Puharich. No matter how plausible this explanation is, I should like to point out that it only shows how it could have been done, and not how it actually was done.

I will take the first section first (Bastin). There is agreement between both Bastin and Eiloart that the session began with "thought transference" tasks, and that these were not very successful at first. We are told that Geller liked to warm up in this way. The question I must ask is—who was being "warmed up"? The primary consideration of a conjurer is to distract his audience by focussing their attention on something other than the trick he is performing. To enforce strict concentration on the audience by a "thought transference" experiment would seem to me an excellent method of both providing this distraction, and "warming up" the audience so that their powers of observation were weakened. I should also like to point out that of all the human senses that of sight is the most sophisticated and, as Richard Gregory has pointed out, the most easily deceived. The more intelligent and sophisticated the observer, the greater his liability to visual deception. This point should be borne in mind when considering the descriptions of the spoons and watch strap phenomena.

Bastin then goes directly on to the metal experiments, ignoring the "thought transference" which interested Eiloart. The first objects were spoons, one of which was a stainless steel spoon belonging to Puharich, and the rest Electro Plated Nickel Silver (E.P.N.S.) belonging to the hotel. The first experiment appeared to be unsuccessful. A minute or so later, Bastin describes the stainless steel spoon as having "flattened" its handle, and the bowl as bent sideways. We are also told that the spoon continued to deform. I have examined the spoon. When I first saw it I was worried. It looked perfectly normal at first, and then it appeared as though the bowl was deformed. This changes with the angle at which you observe it. I do not trust my

eyes, so I felt it. The fact is, the bowl of that spoon is perfectly normal, but the handle has been bent 5° or so sideways. The bending is consistent with the act of a right handed man, with strong fingers and wrists.

In the next experiment, Geller attempted to move the hands of Bastin's wrist watch. He (Geller presumably—or was it Bastin?) laid the watch face up. Nothing happened. To quote “Geller then tried with the watch turned face down” the hands moved back an hour and a half. The new position was consistent with turning the watch handle. We are not told *who* turned the watch face down. Was it Geller? I have experimented with Bastin's watch. An hour and a half back is equivalent to a forward stroke of the top joint of the thumb (about $\frac{1}{2}$ inches) of a right handed man with the watch face up. If the winder is out, this is a natural and easy thing to do when turning a watch face down. Who picked the watch up after it was face down? Bastin re-set the hands; was the winder knob pulled out? According to Eiloart, Geller did some more “thought transference” experiments between the face up experiment and the face down experiment. The two reports are inconsistent in a material way. Geller could have changed the hands whilst turning the watch over. If it was lying around during “thought transference” experiments, anything could have happened to it.

Shortly after this, Bastin “thought he saw the back of the watch (. . .) begin to go concave”. “In fact this was an illusion . . .” I am reminded of Puharich's stainless steel spoon. In fact, the links of the strap have been twisted, so as to stretch and bend the metal junction pieces which join the links, and to open out the metal cylinders in which the junction pieces fit. I think this bending is also consistent with a right handed man with strong fingers; metal link watch straps can be placed in very strangely contorted positions.

The last phenomenon reported by Bastin was a spoon picked up by Geller in order (so it seemed) to stir his coffee. “He lifted the spoon . . . by the end of the handle” and the bowl fell off. Bastin admits that he saw this only through the corner of his eye, and is not certain whether Geller picked it up to stir his coffee or to put in sugar. In fact, this apparent non-certainty on Bastin's part gives me more confidence in the validity of his observation than if he had been observing it closely. Side vision is less easily deceived than concentrated centre vision. It is a pity that Eiloart was not looking directly, but I believe it did happen. So I now need an explanation on the terms, and with the bias, I set myself at the beginning. I have

examined both the spoon in question, and the one broken by Eiloart. They are of different manufacture, but both of E.P.N.S. alloy. I am not a metallurgist, though I have some engineering experience. I would welcome metallurgical examination of these two spoons. My (unqualified) opinion is that the grain structure of the material enclosed within the electro-plating of the handles of both spoons is the same, and is consistent with a fracture of the material. I do not see either of them as consistent with "the metal becoming momentarily plastic". If this had happened to one spoon (Geller's), but not to the other's (Eiloart's), I would expect to see a considerable difference in the grain structure. One difference is observable. There are strain lines on both sides of the fracture in the case of Eiloart's spoon—consistent with its being bent back and forth several times. The strain lines on Geller's spoon are heavier on the back than the front of the handle, and the bit of handle still attached to the spoon bowl is bent further upwards. ("Up" being with the spoon lying normally, bowl concavity uppermost—"front" being the then uppermost side of the handle). I suggest that what could have happened is that the spoon was bent sharply, the handle coming up and towards the concave side of the bowl. This would account for the bend in the bit of handle still attached to the bowl, and also for the strain lines on the back of the handle. This bending was sharp enough to fracture the base metal and the back side of the plating, but left sufficient metal on the front to keep the bowl attached to the handle. Bending the bowl back into line with the handle will cause fatigue in this "hinge" but leave the spoon apparently normal. If, however, the spoon was then picked up, as Geller did, and held horizontally with the "hinge" down, and the metal forming this "hinge" was sufficiently fatigued, I would expect the bowl to slowly droop, and then fall off. This is consistent with Bastin's observation. I would emphasize that this is only a hypothesis—I have done no practical experiments with E.P.N.S. spoons. I have, however, had similar experience with mild steel and aluminium alloys.

The next section of the report is concerned with a second meeting, with Tony Bloomfield present, and Tim Eiloart absent. Again, the meeting started with a "warming up" period with thought reading". There is very little detail in this section, but the handle of a silver-plated spoon became deformed. I wholly discount the grate knob falling off. Life is full of entirely explainable phenomena—like char-ladies polishing knobs too hard—which are normally ignored and not treated as related to each other. This is no doubt a fault on

our part. But the opposite is also a fault, and one difficulty in assessing people like Geller is that we may try to make false associations between unrelated events. If it hadn't been the knob, there would certainly have been something else which would have caught Bloomfield's attention after the session with Geller.

The possibility of collective hallucination is raised in the report. In the view of the divergence between Bastin's and Eiloart's reports, the word "collective" would not seem to be applicable. That a form of individual minor hallucination was engendered by the "thought transference" "warming up" periods seems very possible. This need not have been more than to give Geller the ability to distract the attention of Bastin and Eiloart, and later, Bloomfield.

The final section reports the observations of Tim Eiloart. Eiloart seems chiefly interested in the telepathy experiments. Eiloart describes some picture guessing experiments, with the pictures drawn in Geller's presence. The question arises of whether Geller could see the person doing the drawing. Even if the drawing could not be seen, nor even the hand, a careful observer could detect something of the type of drawing—e.g. curves, straight lines—from the general movement of that person's body. Geller appears to have got this type of feature right—e.g. circles, parallel lines (but horizontal instead of vertical in the case of the tree).

Eiloart mentions that there were some cases when Geller was blindfolded, and doesn't say which cases. It is not therefore possible to make further comment of this.

Eiloart does in fact help to prove the point that an impression of what is being drawn can be obtained by watching the person drawing it. Geller got a picture of a face with hairs coming out of it from Bastin. Eiloart admits watching Bastin draw this, and got a face also. Was Geller blindfolded at this point?

To make a few final comments on Eiloart's section, Eiloart mentions that the spoon which broke looked as if it had been broken by being bent double first. He doesn't credit this possibility, but it seems consistent with my explanation. I do not agree that it would be necessary to hypnotize Bastin and Eiloart to twist the watch without their noticing. There was ample possibility of distraction. Finally, I agree entirely with what Eiloart says in his final paragraph. It is significant that he mentions that the watch strap appeared to go on twisting *until* he tried to write down the state of the watch—that is, to become an objective observer. The watch then stopped changing.

Making Work Bearable

Tim Eiloart

Other people's work often looks mean and uninteresting. In fact dull or unpleasant jobs do not seem to be soul destroying. None the less many workplaces are characterised by strife and ill will between management and workers. These conditions make an enterprise less productive and less fulfilling than it could be. This article looks at the way new conditions can be introduced.

"It's almost like armed robbery here" confided the managing director of Cammell Laird to me as he showed me round his shipyard five years ago. "If anything is left lying around you can be sure it will be gone by morning. Nothing is safe." When I visited I.C.I., Billingham, in 1959, I was told with evident pride that one man in six was employed setting rates for the other five men. That means he spent his day deciding how quickly jobs could be done and assessing the fair payment for them. The Conservative election-victory in 1970 made hundreds of management consultants obsolete because Mr. Heath immediately scrubbed the notion that pay rises should be linked to productivity rises. These consultants had been busy working out productivity agreements. These are just three snapshots of labour relations in the United Kingdom. Cammell Laird stays in my mind as an illustration of just how bad things can be. I like the case of I.C.I. because what was then orthodox for that company has since been discredited and I.C.I. has changed its approach completely. The value of productivity agreements which were a cornerstone of Wilson's approach to labour relations has since been challenged on the grounds that they were often phony and there are great difficulties about their ethical basis.

There have been half-a-dozen management systems in the history of work roughly as follows:

1. **Classical:** largely slave labour or based on a caste system involving a rigid hierarchy with mutual obligation.
2. **Feudal:** prevalent for centuries until around 1400. A contractual arrangement offering little scope, with strong paternalism.
3. **The medieval system.** Craftsmen paid by their results, largely working at home or in small groups.
4. **The "Hard Nose" system** prevalent in England from the start

of the industrial revolution. Increasingly unskilled work force, tough handling; plenty of labour.

5. The Human Relations approach seen in the 1940's and 1950's. World War II brought more skills, shortage of manpower. Benefits became important. Emphasis was on how to keep people happy. This system can work well and is often advocated as a solution to industrial strife. I will describe it in more detail later.

6. The "Management by pressure" system used in the late 1950's and early 1960's. Pressure by top management for profits, rise of the action oriented manager, hard line in union relations, reliance on systems and procedures, target setting and management by exception (only cases where targets are missed come under scrutiny as exceptional).

In addition to these broad classes of management-style there have been a number of *techniques* that have increased productivity. These have included specialisation with its high point in the production line. On a production line each worker has a small task to perform again and again, which may be repeated every few minutes or even every few seconds. A second earlier innovation of this sort was the serious introduction in 1898 by F. W. Taylor of time-and-motion study. He reasoned that men would work more efficiently if their individual movements were designed for minimum effort and if they were given time to recuperate when exhausted. His first experiment with a gang of men unloading rail trucks must have been stirring to watch. In spite of furious scepticism he paced the work all day and refrained from simply goading the men for more effort every minute. He had carefully worked out the best size of shovel and the best size of sack. With seemingly less effort the gang unloaded half as much again as they usually had, as far as I recall. There is some evidence that Leonardo da Vinci looked at exactly the same shovel-and-sack problem but it is not really clear whether he was optimising or merely calculating throughout.

Unfortunately large labour forces, specialisation, foul working conditions and a very great disparity in standards of living eventually result in alienation. The managers treat the labour force more like machines than people. Management rapidly reaches a point where men are thought to be perverse rather than human. The point has been well expressed by David Simpson . . . "we do not fret about the fact that water flows downhill and not up, nor do we irrationally criticise gases for expanding and not contracting when heated. However, when people respond to managerial decisions in undesired ways,

a typical response is to blame them for their stupidity or their laziness or uncooperative attitude—with no thought for managements' possible failure to select appropriate means of communication and control.”¹

Just how mindless modern work can be is illustrated by an instance where it was hoped that a number of people of very sub-normal intelligence might be able to do repetition tasks that were simple enough. So a series of assembly tasks of increasing difficulty were chosen from local factories. Men whose vocabulary age was often less than five were taught to do what tasks they could. It was found that all the men could do all the tasks with a few trials practice and tuition, even though the more complex tasks, such as assembling a plastic pedal-bin, would be thought quite advanced for production lines. Small wonder that one survey of assembly workers on the Vauxhall production line at Luton discovered that a third of them wanted to save up enough money to start their own small shop. So there is no doubt that such work is very undemanding, but it is frequently supposed that assembly-line workers are much more unhappy than they seem to be. Employees are said to be dissatisfied and hostile. This is supposed to lead to absenteeism and sickness; it has also been said to lead to psychological disorders, mental breakdowns and even to such a softening of the critical faculties that men become easy prey for demagogues. In fact there is little evidence for these supposed effects. They often lie in the mind of the beholder. Most social scientists would feel truly destroyed by repetitious work and all too readily suppose the same of other people. This type of work often alienates men from managers but it is quite unsafe to assume that it alienates men from themselves. A study by John Goldthorpe, also at Vauxhall, Luton, showed that apparently soul-destroying work could lead to high ratings of satisfaction with job, supervisor and employer. If the labour turnover of an establishment is taken as some indication of job satisfaction then Vauxhall does well but other places with dull work can be dreadful.

I heard of a biscuit factory which had a labour turnover of about two months and a cosmetic firm where the long-service medal was awarded after less than a year. In these companies the problem seems to have been that the work was utterly monotonous and the pay was also low. There are many other ways in which a job can be repugnant. It can be repugnant (sewers) dusty and claustrophobic (mining) hot, humid, anxiety provoking (pilots have a very poor life

¹ *Interface* Dec. 1972 (from Cambridge Consultants, Bar Hill, Cambridge).

expectancy) and deafeningly noisy. Even a job that demands the highest judgement such as chick-sexing may be termed very unrewarding. Few would wish to sex fifty chicks a minute for year after year. In manufacturing industries in Britain labour turnover among women workers is around 46% per year. The turnover rate for men and for women in professional work is about half as great as this.

I know of no study which shows just what proportion of the labour force is working in one or more of these undesirable circumstances or working on jobs requiring no judgement of any kind.

One of the reasons that repetition work is less destructive than social scientists often suppose is that humour and horseplay can provide light relief. Men run plastic pipes into other people's electronic assemblies and then blow cigarette smoke down them, tool boxes are painted with rainbow snowstorms, or glued to the floor, heavy things are hollowed out so that they shoot up when lifted, pin-ups or knitting patterns are slipped inside men's newspapers. The more solemn and authoritarian the work-place the greater the delight in accomplishing hoaxes or upsetting systems. A woman once wrote that the one thing she missed about not working was that she never seemed to get a really good belly-laugh as she had in the typing pool. She wasn't sorry about having less company or less to interest her. This sort of respite from tedium is generally not apparent to an earnest field worker or a senior manager, nor in all probability is any time spent shirking. So the aversion that outsiders so often feel for boring work is partly due to the fact that they have only seen it rather than tried it.

I am not trying to whitewash the work on production lines. I am only pointing out that it may not be quite so bad as it has been painted, and its evil effects have certainly been exaggerated. Also I think there is a tendency to suppose that assembly line workers are the only ones suffering from tedious work. They have the worst, but many others have jobs that merely engage the mind without requiring any effort or creativity.

Human Relations Approach

A number of different systematic methods have been used to help make work more pleasant. The oldest of these is perhaps the human relations approach which requires that a manager should think about the needs and feelings of his employees. He should be supportive and warm in his relationship with them. He should encourage them to feel that what they are doing is meaningful and useful, even though

it may be meaningless and useless from the workers' point of view. Also people should be given the chance of forming friends and making a satisfactory social life at work with facilities such as sports clubs. There is some evidence that not all employees want to enter into warm and companionable relationships with their supervisors, nor do they want to attempt the illusion that dull work is meaningful. It is somewhat insulting to expect the man to entertain fantasies about the value of his contribution and it may invade his little remaining autonomy if a supervisor wishes to get close to him. Moreover there is bound to be confusion if a supervisor is to be close enough to know about the farcical or work-dodging relief valves that workers employ. Either the worker keeps that side of things to himself and the relation is strained or the supervisor turns a blind eye and is in a compromised position himself. So human relations are not a panacea and in particular they may prove very weak in establishments where the work force is already in a state of conflict with the management. In some such factories the managers are not allowed to talk directly to the workers and there is no opportunity to improve interpersonal relationships.

There are however some outstandingly successful companies that do use the human relations approach. I.B.M. and Marks and Spencer are two such examples. Such companies are often established in rural areas with no history of unemployment. They are often family firms with a tradition of paternalism in the best sense. Salaries and wages and conditions of employment are above average for the district, there is a well-trained management team which understands the human relations approach, recruitment and supervision are highly personal and responsibility is highly delegated, there are well-developed consultative procedures, and frequent use is made of attitude surveys which lead to remedial action when reasons for dissatisfaction are discovered. Such firms also keep people happy by their very growth and leadership. This has been called the Matthew effect: "to him who hath shall be given. . . ." But it can be seen from the attributes listed here just how difficult it is to change a hostile suspicious company by using the human relations approach.

Management by Objectives

There are several other ways to make a company more productive where the human relations will not succeed. These are Management by Objectives (M.B.O), Job enrichment and, as an extension of this, worker-involvement-in-decision-making. The three are not mutually

exclusive and all of them can draw on the human relations approach.

M.B.O. is a system in which every employee establishes goals in his "key-results-areas" after consultation with his boss.

People have said of Management by Objectives, "Oh, when I was young we used to call it target setting" and thereby dismissed it as old-hat. They miss the point in two ways. Key results are often called for in areas which would never previously have been considered. For example customer complaints, absenteeism, accidents, delays in answering letters are all to be reduced and measured. Other factors might be optimised rather than maximised or cut. Thus for example there can be too many *or* too few applicants for a job. Labour turnover can be too high *or* too low. Very low turnover indicates that the workers are getting too good a bargain compared with other local jobs. One or two of these factors might have been the features of a target-setting enterprise but it is unlikely that many would. In M.B.O. all such factors would be considered and many would be chosen. The second even more important point is that "targets" were generally sent down from the senior management of a company while key-results should be chosen after genuine consultation. In fact this consideration is often forgotten and in many schemes the practice of top-down setting of goals is used. Such schemes are often unsuccessful in their objectives because of the way they have been instituted. With clear cut goals for quality, output, waste and so forth agreed by the shop floor there is no need for a heavy superstructure of control.

George Kent Ltd. (a British company making process plant instrumentation) found that their manufacturing overhead was 50 per cent. higher than that of their American counterparts. British practice employed a lot of extra people to control the labour force. There were time keepers, methods engineers, inspectors, detail planners, time study men and so forth all checking on the efforts of the workers. An M.B.O. scheme was introduced in 1970 to deal with this problem but before the scheme it might have been seen that overcontrol was non-productive. George Kent was composed of about 40 companies, many of whom were highly organised and well disciplined, who could always say exactly why they lost money last year. Other companies were disorganised and poorly controlled and they could never say how they managed to make a huge profit every year.

Hewlett Packard is one of the world's most outstanding companies, where M.B.O. is the core of the founders' philosophy. It is the world's

largest electronic instrument company and has a record of rapid and profitable growth. It has a score of factories, one of which is at Queensferry in Scotland. Each product there is made by a team of people who are responsible for all aspects of manufacture and whose leaders have been involved with that product since early in its development. The entire company is arranged in open plan with the managing director working in a small enclosure right at the centre of the working area. There are no locks on the stores and people serve themselves, there are no inspectors, there are almost no draftsmen since all the electronic assemblers and wiring girls work to models rather than drawings, only the R & D unit is out of bounds to visitors (who are shown in detail all the production techniques which the company has evolved). There is one canteen in which everyone eats. There is also an understanding that the individuals there are expected to pull their weight. A worker who seems unwilling to keep this contract is not made welcome, unless there are extenuating circumstances.

Just how successful Hewlett Packard is in making work attractive is illustrated by the company's turnover of women wirers and assemblers which is around ten per cent each year. In the electronic industry turnover rates for this type of worker are reaching levels of up to 80 per cent—the average rate is above 50 per cent.

Hewlett Packard's feeling for M.B.O. has been well expressed by David Simpson who built up the Queensferry plant. "It goes beyond a set of rules, a series of procedures, or even a method of managing. It is a way of life; it provided for the systematic growth of the organisation by means of statements of what is expected for everyone involved. Leaders are judged by their ability to achieve goals to which they are committed. Companies who use M.B.O. show tangible results—in improved profits, flexibility, growth; intangibles include high morale, quality consciousness, better people. It is above all a system that appeals to common sense and to a modern concept of social justice, where no manager can regard himself as omnipotent."

Job Enrichment

Job enrichment is perhaps one of the most persuasive of the new management approaches. It originates with the work of Herzberg, who made some very interesting discoveries about what makes work attractive. Herzberg claimed that certain factors such as pay, working conditions, supervision, personal relations, working hours and fringe benefits could make work unpleasant. However it would not

be found that if all these factors were right then work would be attractive. Quite a different set of conditions had to be right for a job to be satisfying. The job needs intrinsic interest, it needs to offer the chance of personal achievement, a worker will need recognition and responsibility (i.e., to be trusted) and there needs to be the opportunity for advancement, whether in terms of new responsibilities or of subordinates. Herzberg's claims have been found to be much oversimplified. None-the-less his contribution is most important since it drew attention to the motivating factors which had frequently been neglected before, and it led to deliberate attempts to enrich men's work which might well not have occurred otherwise.

I.C.I. is the most notable British company to have adopted job enrichment, and indeed one of the only major companies anywhere to have done so. Only instances can show what is meant by the term and the two cases which follow are drawn from a number of I.C.I. situations.

In each case an experimental group was compared with a control group of a similar type. Salesmen were given responsibility for choosing their own itineraries, for deciding whether to offer a special discount of up to 10 per cent., for writing reports as they wished and submitting them at their own discretion. They were given authority to deal with material for which the customer had no use or to rectify mistakes costing up to £100. This was a complete break from the orthodox pattern in which sales representatives are programmed in great detail, have little authority and have to report everything that they do. During the trial sales of the experimental group rose 18 per cent. while sales of the control group fell by 5 per cent.

In the case of experimental officers there was low morale to start with. These non-graduate research workers felt their capabilities were not being fully used. They lacked any career prospects other than a more responsible role in the laboratory. They were therefore given the job of reporting on the experiments they performed for the graduate staff, they were given the task of helping with recruitment of new experimental officers and assessing the progress of recruits, they had to devise and implement a training programme, they were given the power to order materials and they were invited to contribute at the planning stage of new experiments.

The same type of systematic enhancement has been used successfully with many groups of workers such as draftsmen, toolsetters, fitters, switchboard operators, keypunch operators, engineers and

complaints departments. The procedure is essentially to give more authority and less supervision to each type of worker, with training schemes where needed. These arrangements are generally liked by the workers though they may lead to difficulties with supervisors whose role is reduced. There is likely to be an improvement in the quality of output but the chance of an improvement in productivity is not so great. One early survey showed that productivity rose in around half the trials reported in the literature. If each person is given rather wider terms of reference, there will be fewer delays while waiting for experts to come and put things right, or to do their section of the job. On the other hand the experts are probably rather faster and this can compensate for the delay while they were fetched.

Worker Participation in Decision Making

By worker participation I mean the involvement of workers in all decisions which will affect them. This is perhaps the most radical method of bringing peace into a conflict ridden company, and obtaining real benefits in productivity. The method is really valuable when the whole system needs revision from top to bottom. In cases when payment by results schemes and other differential schemes have become hopelessly emeshed, where completely new methods of working need to be introduced, where demarcation lines between unions and deliberate restriction of productivity are widely prevalent and there is deep suspicion on all sides.

It is necessary to have joint working parties from management and unions to work out in detail both the principles and the details of what is to be done. It is likely that the management will expect considerable increases in productivity. The unions will then ask for no redundancy and for a share of the extra profit generated. The whole improvement only becomes possible because of natural wastage in the labour force. Oddly enough one of the outcomes of this sort of scheme is that disputes about who does what and so forth are often resolved in a creative way rather than by a negotiated compromise between two set positions. This may sound a natural outcome in most walks of life but many enterprises in which things have always been resolved by resort to power politics find the idea of a third solution unexpected.

One of the key features of the British industrial relations system is the widespread acceptance of separate procedures for negotiation and consultation. The works council is elected to consult with management, mainly about very unimportant matters and it tends to

become involved with trivia. A separate body of representatives negotiates important matters through union officials, such as pay. But in fact this draws a meaningless distinction where there should be none. In order that worker-participation should succeed the two tier system needs to be replaced by a single body to negotiate and discuss all matters. Since the unions will not relinquish their powers as pay negotiators it follows that all workers should belong to the union if they wish to be represented. A conclusion which is repugnant to many who have hardened views about the evils of trade unionism.

Other countries, especially Israel and Yugoslavia, have found systems of very high worker participation to be most effective. In Britain now early trials seem to give similar promise. However a word of caution. In any system the innovators enjoy a favoured position. If everyone becomes involved in the management decisions then this will no longer seem a privilege. It may well be that a great narrowing of pay differentials would be the next step towards ensuring harmony (already taken for granted in many egalitarian societies). After that only distinctions of capital, as opposed to income, would remain to be eroded. This could be regarded as a strictly socialist viewpoint and it may be wrong. It is possible that distinctions of power are more divisive than distinctions of capital. Or at least that if capital were equally shared as it is in Russia there would remain great opportunities for abuse of power. There are very considerable problems about sharing all varieties of power. It is all very well for workers to have a truly democratic say in how they do their jobs, but just what jobs should be done is another matter. A transport policy seems beyond the wit of any western government right now. How much more difficult would it become if railway men, lorry drivers and airline pilots had to contribute fairly to formulating the policy. One is still actually in the realm of industrial relations but seems to be straying very far afield at the same time. It is probably a subject which government, unions and managers will have to look at more and more.

Nature Sequence

John Allison

I

THE BLADE SINGS

Green blade in sun or shade is bent,
Swayed by the caressing wind,
By raindrops softly slapped,
Not shattered, rent.
Though passing feet of casual cattle flatten,
Some unsuspected inner strength,
Incredible in so weak a reed,
Lifts, straightens,
Fits to the perfected pattern.
Caressed again and unresisting
To the air's full flow
The blade sings.

II

A SWALLOW SWOOPS

A swallow swoops in the scented air
above the laburnum blossoms.
I could believe, if I did not care,
that this was merely carnal,
a food flight :
The scent attracts the insects so
the insects attract the bird—Voila!
But I do care
and I do not believe.
The flick-flight, glide and reprise,
back of thunder-blue and twitch
of needle tail tell otherwise,
A plangent joy that touches me at sight
of tangent wings.
If this is self-deception
I will choose to self-deceive,
Share in the creature's deep glad knowing.

III

OH GOD! WHY MUST WE FIGHT?

Watch the miracle of a thin twig,
Needle thin,
Pliable as twine.
Pinhead bud bursts,
Smoothly discloses grave green leaf,
Veined, perfect.

IV

CINQUEFOIL

Gold stars in the green earth-sky
of grass, gorse,
bracken,
shine while the lark sings,
beckon the wanderer to pause,
reflect on this gay day-gold reflection
of the silvered night,
ubiquitous in the sun as the bright
flung consorts of moon and purple pall.
Here
and here
the twinkling scatters of coin,
silver and gold,
hint a largesse beyond our inkling,
no end to the made
or the making
in this imperial Mint.

John Allison

How far can we trust the Electron Microscope?

Richard Warn

The discoveries made with the electron microscope immediately after the Second World War produced a profound revolution in cell biology. Prior to that time the cell was seen as containing a compact mass called protoplasm (proto—first or fundamental, plasm—substance). The only major distinguishable feature in it was the nucleus. Otherwise the ground substance was seen as unstructured, homogeneous and hyaline with no subdivisions. A number of structures which had been seen at the limits of resolution of the ordinary light microscope had been dismissed as artefacts. Suddenly they were observable in considerable detail. More importantly some new features became visible and it was possible to build up for the first time a model of the constituent pieces of a cell. As time went by other pieces of information were added and some ingenious experiments assigned a function to all the major organelles.

However, after some twenty-five years the model is becoming increasingly unsatisfactory in many respects. Electron micrographs are surprisingly chaotic when one looks carefully, as though everything had been shaken hard. Lack of organisation is not a characteristic of other natural systems and there is no reason to believe that this is so for the organisation of cells.

An electron microscope picture is of course a static one. The animal is always dead, as are the tissues when one visualises them. However, it is very disappointing how little can be gleaned of how the cell works. It might be hoped to find a fixed number of constituent organelles such as mitochondria (responsible for energy production) or Golgi Bodies (believed to be the cell's membrane "factory") for each cell type and then to be able to assign functions to other cells on the basis of the constituents. This has proved very difficult and few simple rules exist. So is it to see a structural mechanism for determining the division of mitochondria (for example) between two daughter cells.

When a cell divides (this is particularly evident during the earliest stages of embryo formation) the plane of cleavage occurs in a precisely defined position and rules of symmetry can be drawn up

about the orientation. It would be reasonable to predict that the structures necessary for the division process must be pre-localized and that there must be considerable specificity as to positioning. And yet until very recently no hint was given of any kind of ordering for one region of cytoplasm prior to cell division. There are many other gross examples such as the movement of amoebae and the migration of cells during embryo formation. If these dynamic processes which we can see by eye are not represented at all by morphological structures within cells, it can be inferred that many more subtle and transient processes are likely to be completely missed.

The reasons for the loss of fine structural detail and for the distortion of relationships between cell organelles are likely to be found in the technique of preparing sections for visualization.

In the electron microscope a powerful beam of electrons is sent through the section. Some regions are less opaque than others and allow more "electron light" through thus forming a picture. As electrons are harmful to the eyes, a plate is then exposed to the beam and the image is seen as a photograph. Electrons penetrate matter rather poorly, and for this reason ultra-thin sections of the material under examination must be cut. The section thickness varies according to need but cannot exceed a few hundred millemicrons (10^{-7} cm.). To obtain this figure it is necessary to change the nature of the cell. In life it exists as a colloidal mixture, having a consistency between a liquid and a solid. It is therefore necessary to reinforce this structure tremendously prior to sectioning. First of all the protein components must be strengthened by a process of precipitation not dissimilar to that which happens on boiling an egg. Afterwards all surplus water is removed by dehydration. The specimen is still not in a state to withstand the cutting process. It must then be reinforced by mounting it in an epoxy resin similar to "Araldite" glue. Only after all this can it be cut with a glass or diamond knife. To increase scattering of the electron beam, the specimen is usually treated with a heavy metal salt, for example one of lead or uranium. These ions attach to acceptor molecules and increased contrast results.

Many changes must therefore occur during each stage of the preparation. These are most likely to be contractions sufficient to break or alter all fine connections. As a result a great deal of the very fine structural detail, of great importance in unravelling the functional relationships of various structures, is lost.

Of all the stages of preparation, that of fixing the cell is the one most likely to cause distortion. In the early days this was carried out

using osmium tetroxide. This not only changed the lipo-protein network but also reacted with it forming areas of high electron density—considerable loss of detail occurred, not only because of the fixation but also because of the staining. Indeed, electron microscopists more or less seriously complained that the micrographs they finally studied represented little more than patterns of osmium deposition.

Just how much information was lost became clear when other fixatives such as glutaraldehyde were employed. A variety of the smaller and more fragile organelles, in particular the so called “microtubules” became apparent. These tubular structures are suspected of playing a role in transport of materials and in many kinds of movement within cells. However these new structures are also fairly disorganised and tell us little about functional morphology. Only a small part of the problem has been resolved. However there are other areas where it is likely that our techniques will improve. In particular, changing the staining procedures is likely to chart formerly blank regions on the cell map. The most obvious one is the ultrastructure of the nucleus. Up to very recently chromosomes have not been localised at all in the electron microscope. This was because no reaction occurred with the heavy metal stains. New techniques have elegantly circumnavigated the problem. The trick is to break open the nucleus and catch its DNA on special filters, and it is now seen as incredibly long thin fibres, a totally new picture. After twenty years the chromosomes as represented by their DNA chains have come out of hiding and the electron microscope has caught them.

There are also some seemingly simple problems which have yet to be solved. A part of the disorganisation effect is due to the fact that an electron micrograph represents a 2D representation of a three dimensional object. This could be got over by serial electron microscopy but it is not so easy as for ordinary microscopy. The reasons are partly due to the large number of sections required (over 200 for a tiny cell) and partly because of the difficulty in handling, and keeping in the right order such minute thin sections without losing a certain fraction. Various attempts to reconstruct a 3D picture of a whole cell have been undertaken but not much information has resulted.

The basic model of how cells are organised according to the EM (electron microscope) picture has gained a wide acceptance from biologists. However the limitations due to the apparatus are not nearly so widely appreciated. It is curiously like the state of affairs

before 1940 when the old ideas based on a homogeneous protoplasm held sway. Constant exposure to an apparently realistic picture may well lead to mental laziness, to believe a certain pattern and not to try and relate it to other pieces of evidence. Only when it is attempted to fit the jigsaw together can the parts be seen not to fit.

Do the limitations of electron microscopy have any more generalised implications? I believe they do. The development of electron microscopy is a not untypical example of how scientific investigation proceeds. A "model" is first built up and established, eventually becoming accepted almost without thought for its defects. Our ideas about subcellular architecture have already undergone one radical transformation, and there is evidence, as I have tried to show, that another one is needed. However, it is likely that a durable model will eventually be built up, as techniques are improved to their limits. It is never possible to answer the question "After the electron microscope what?" until another revolutionary new method comes along. In its absence it is too easy to draw lines. Cell Biology is in a state similar to Physics at let us say the time of Maxwell: primitive but changing rapidly. A difference between the so called "mature" sciences and the more newly established ones is the rapidity with which new techniques are developed. It seems fallacious to regard the knowledge within older disciplines as more correct simply because they have stood the test of time. Rather it has become more difficult to deepen our knowledge by testing the validity of the concepts in these disciplines in other ways.

With time it becomes easy to forget that long established ideas were merely models at the beginning. When new ideas become hard to formulate it becomes increasingly difficult to feel sceptical of the established body of fact. Such concepts as atoms or electrostatic forces, which are considered as part of the fundamentals of science, may well disappear completely in the course of time as the colloidal gel model of cytoplasm has done. All that would be needed is a new experimental approach.

I would like to finish this article with a kind of "horror" story. The frog's egg can be imagined as a resting cell ready to break into a massive burst of activity upon fertilization. During the formation of the embryo large amounts of protein must be made and for this synthesis huge numbers of ribosomes are involved. Biochemical measurements suggest that the ribosomes are stored in the egg. Observations in the electron microscope showed large numbers of free bodies about the size of ribosomes. This was surprising, as

often ribosomes are found tightly attached to sheets of membrane rather like buttons sewn on a blanket. However, as little protein synthesis is going on in the egg, it was assumed that these ribosomes were in an inactive state. The membranes were believed to be synthesized later, when required. So a picture was built up of a frog's egg as a kind of sack filled with loose ribosomes.

Then an investigator decided to look for glycogen granules, (bodies similar to the starch granules of a potato) in the egg. To do this he treated one series of eggs with an enzyme which destroyed the granules, and compared them with the controls. Lo and behold! In the electron microscope the particles which looked like ribosomes and were labelled as such in the controls disappeared in the enzyme treated specimens. Seeing is not always believing and this is particularly true for the electron microscope!

Review:

JOURNEYS OUT OF THE BODY, ROBERT A. MONROE, pp. 279, Doubleday, Garden City, N.Y., 1971, \$6.95. London Souvenir Press £2.50.

Robert Monroe has performed an enormous task of careful empirical observation upon an activity, Astral Projection, whose validity our society rejects without even considering it. The experience he describes is ageless—its acceptance by the dominant mind set non-existent. Powers such as he describes have always been the province of the few, highly protected by an impenetrable jargon and a secretiveness whose violation often meant the threat of death, both from the existing society and the internal practitioners of the action. Careful reading of extant ancient religious texts will provide an easy verification of this statement.

Today, the care of these powers is in the hands of an underground (a name given to those who gather together to discuss, experience and propagate the knowledge of astral projection and other powers considered to be beyond normal ken). The underground is a bubbling brew of truth, misinformation, jargon and fantasy. The problem of selecting out truth from falsehood is a task that can be performed only by those skilled in empirical observation and unhampered by the current theoretical metaphysic which says that 'x' (astral projection, telepathy, etc.) by definition cannot be possible.

So much of science is deeply involved with status; thus often the name rather than the evidence becomes the means of determining whether full attention is to be given to an unusual concept. This response is even more obvious in 1972 when most observers would admit that the old paradigms are not working, yet no adequate new theories seem available.

This situation has produced a bewildering array of speculation that overwhelms the practitioners of normal science, forcing all but the very few into a position of stabilizing regression.

Journeys out of the body is a record of a process that Robert Monroe experienced during the course of 12 years, a process that began with a shocking experience—Astral Projection—an experience that all of his previous life did not prepare him for.

This shock overwhelmed him, forcing him into an interpretative situation that was negative, for the range of explanation available to

him did not provide any other means for structuring his experience :

“The most difficult mental process of all is to consider objectively any concept which, if accepted as fact, will toss into discard a lifetime of training and experience.” (p.20)*

The cool response of a doctor friend saved him from madness, for he told Monroe to be calm, trust himself, and carefully observe what is happening to him. This enabled him to collect evidential experience that was self-verifiable within the context of his culture, even if it did not provide him with any security, for he was totally lacking in a community of reference: “It was very lonely in those early days” (33)

Eastern religion provided some confirmation for his experience, but no solution, for: “If this were true, what or who was I? Certainly too old to start life anew in a Tibetan Monastery. The loneliness became acute. Evidently, there were no answers. Not in our culture.” (34)

At this point he found the underground: “The psychic underground provided me with many new friends, but few specific answers to such questions as, what do I do now? To my surprise, they looked to *me* for answers.” (44)

From then on he travelled alone, using the aid of the few professionals, such as Dr. Charles Tart (who has written an excellent introduction to this book) who were able to clarify his quest.

The evidence for Astral Projection presented in *Journeys Out of the Body* is overwhelming, for it is difficult not to trust Robert Monroe; yet there is little in the book that a scientist would accept as being strictly ‘evidential’.

Herein, we have the crux of the problem of the paranormal: evidence that is both repeatable and verifiable; for without it, a paradigm can’t be created that is acceptable to the scientific community, and the creation of a critical experiment, so necessary to the validation of a paradigm, is impossible.

The heart of the book is the presentation of his own recall of his experiences and the speculations and conclusions they lead to. Familiar words occur: Anti-Gravity, Anti-Matter, Psychedelics, indicating once again that a true understanding of these phenomena requires an integration of facts which exist at the edge of many contemporary fields of study—an integration that is the task of those now working in this most exciting of disciplines: ‘New Physics’.

His own overriding construct found in chapter 20 under the rubric :

* All numbers refer to *Journeys Out of the Body*.

'Inconclusive', is a highly imaginative, carefully reasoned, unprovable attempt to fit his experience into a context that transcends our present awareness. Its validity is enhanced by the similarity it has to certain of John Lilly's speculations in his recent *The Center of the Cyclone*.

Monroe's book had a strange effect upon me. Up to that time, I had three conscious experiences of being-out-of-my-body. All short. All heavily overladen with the fear that Monroe experienced in his early flights.

The affects that often accompany the experience—the rays of light, the flow of great warmth, the pulsation of energy through the body, and the hissing sound—have been constant companions during the last 4 years.

I also have seen blue lights hovering about quite often—an experience that Oliver Fox describes so well in his book on astral projection.

None of these experiences prepared me for the week that followed my first reading of Monroe's book. Everytime I lay down, a scenario immediately began: lights, warmth, sound, pulsation with me as star without much say in the matter. I would be out of my body before I knew it. Fear ran high and I finally stopped the situation with deep auto-hypnotic commands. I have astral projected only twice since then.

This type of experience is not a novel one for me: I have practised auto-hypnosis for years; participated in a number of pre-natal (mine) regressive experiences; experimented with psychedelics of all types, for the last 14 years, during the course of which, I have occupied many unusual spatio-temporal dimensions. Yet the constant floating out-of-body was difficult to handle. A way of saying that I have much admiration for Robert Monroe.

Journeys Out of the Body is an adumbration of things to come—an indication that a whole new mode of structuring reality is upon us. A mode which will understand that, "thought is action . . ." (77), realize that mind controls matter, explain the relationship between the two and assume the responsibility for the future of man without having to suffer the agony of a psychic hiroshima.



BEYOND BODY
(FOR ROBERT MONROE)

The singing of nerves
strands
of connection
liquid helium
an arc
of tomorrow
present
in the world
the torch of fire
a glowing plasma of promise
forces
struggling
the rendering
in this tongue
so difficult
body bending
under strain
mind
an epileptic cuneiform
readable
only
in braille
touch
the wizard
of the senses
transmitting
the need of past
code a new
being forged
as future
flows
toward us
bearing
in its astral flight
a cosmos
of unknown
proportions

ASTRAL CALL

Locked here
planetside
in
 physical body
swirls
eddies
the helical
 whirl
of energy
 my constant
invisible
 mental surround
i softly
 touch the body
of my being
a blue-violet
 glow
eternal
 as the light
 of the soul
winter comes
in snow light
 white
sun moving north again
the pineal opening
the fire
 growing
the serpent
 flowing
upward
 toward
 lotus harp
petals
 moving
 in the
 blue wind
of magnetised
solar surface

Ira Einhorn

Comment

Brain Research in the Soviet Union

I was particularly interested in the article on "The Neural Basis of Conscious Decision" by the late Professor John Griffith in the July number of *Theoria to Theory*. He introduces "... a very brief word about what I consider to be the correct philosophy of a scientific approach to the study of the brain". He goes on to suggest that the conviction we have of the existence of other people's minds may be based on "plausible but logically unconvincing arguments". But he then says that there is no reason to suppose that this paradox presents a *scientific* difficulty. "The Scientist's basic hypothesis is the existence of an objective world...". Thus his picture of the brain is inevitably a mechanistic one... without having to introduce any independent undefined entity as "mind". Here I am in complete agreement with Professor Griffith; some years ago I urged that the word "Mind" be relegated to poetic or romantic contexts and that the gerund "Thinking" be adopted in its place. What a pity that this article did not include reference to comparable Soviet excursions in this domain. They are long-ranging and exhilarating.

In 1963 I participated in the Centenary in Moscow of the Russian physiologist Sechenov, who discovered that Reflex Action could be influenced by the higher centres. When I started neurophysiological research in Cambridge in 1931, my problem was to extend the studies of another Russian physiologist, Samojlov. Then, a few years later I was engaged in systematic applications of the procedure discovered and perfected by the great Russian I. P. Pavlov. The work was done with a Russian from Pavlov's laboratory in Lenigrad, Rosenthal, and later I had the privilege of meeting Pavlov himself in London.

Of course the Revolution disturbed science as well as politics and Pavlov's dogs suffered terrible experiences. He noticed that the dogs' response to the stress varied a great deal; some became aggressive, some withdrew, some went into a profound depression and a few overcame the hazard with great balance. He ascribed these differences to "types" of nervous system, and conservatively used the ancient Hippocratic terms: "choleric", "phlegmatic", "melancholic" and "sanguine". When I started with the same procedure in Cambridge my colleague told me of this and asserted that it was an essential part of the system. As an academic novice neurophysiologist I was sceptical. But he turned out to be right; his simple tests

of the dogs did disclose “personalities”, and from the results he predicted their particular types of response in the conditioning situation.

After a few months of continuous work (each dog must be “conditioned” regularly every day), my colleague went back to Lenin-grad for a holiday, particularly to gather mushrooms, and I was left alone to continue the routine.

To follow the prescribed schedule alone was very tedious, and I decided to “automate” the presentation of stimuli and recording of the responses. In those days this was a purely mechanical program run by an old-fashioned smoked-drum instrument. It worked quite well so I was able to leave the room for nearly an hour to do other work. But occasionally the mechanism went wrong, and I found I had presented the trained dogs with the stress of uncertainty, ambiguity and equivocation. The “sanguine” survived almost happily, the “phlegmatic” lost weight and interest, the “choleric” became bad-tempered and the “melancholic” had to be destroyed. As a result the records were chaotic and were useless as a part of our survey. Of course I besought the forgiveness of my Russian colleague when he returned—but I did keep the protocols of my unintentional stress because, as predicted by Rosenthal, the dogs did react differently to the uncertainty as to whether a light did or did not “mean” food and food appearing sometimes without warning.

Well, this was a combination of youthful pride in participating in a classical procedure and childish enthusiasm for innovation and leisure. But about fifteen years later it had a profound effect on my thinking about brains. In the meantime I had moved to London to study what was then called “The Berger Rhythm”, that is the human electroencephalogram (EEG). Again I was disconcerted to observe that everybody from whom I recorded had a “personal” pattern of brain activity. One could not specify a “normal” EEG, only a range of observed variation. In the course of this work I did discover other electric brain waves to which I assigned appropriate Greek letters, and during the war I had little opportunity for recording from “normal” (non-clinical) subjects. However I did a survey of friends and local students and found what looked like “types” of pattern, which seemed to relate to the way the person thought, the modality of his habitual imagery.

In the years just after the War I started human conditioning and introduced features of uncertainty from time to time. Then I turned up the protocols of the experiments done *à la Russe* long before and

worked out the odds for and against reward and punishment which I had inadvertently introduced. This showed that the dogs had been put into something like a “real-life” situation—in which there is only one certainty which humans alone can imagine—and being accustomed to organised certainty, they had displayed their “typical” personalities most vividly under stress.

From this experience and some reflexion emerged a hypothesis of learning in which brains are considered as *betting-machines-gamblers*, and this scheme was embodied in working models from which in turn emerged better experiments and fresh discoveries about brain function.

It may seem fanciful to trace a major part of my thinking way back to my introduction to Pavlov’s system, but so it was, and many times since 1958 I have visited Moscow and Leningrad and obtained first-hand evidence of the great vigour and wide diversity of their researches on Brain-functions. At this time, particularly in Leningrad, at the Institute of Experimental Medicine, there are literally hundreds of scientists studying every aspect of human brain function. Their equipment includes powerful computers and dozens of multi-channel recorders. Their computer programs are elaborate and refined and their subject-material ranges from the highest level of normal human thinking to the treatment of chronic, otherwise intractable ailments of the nervous system with dozens of long-term (several years) implanted electrodes. The Director of that Institute, Professor Natalya Petrovna Bechtereva, learned the procedure and validity of electrode implantation in patients at our Institute in Bristol, so the interaction is reciprocal, so doubly fertile. Natasha bears a famous name; her grandfather was one of the boldest and most imaginative experimenters of his era, and she has inherited, I suppose, his Strength, Balance and Versatility—the three dimensions of temperament suggested by Pavlov. In all parts of the Soviet Union there are centres of original research, with increasing communication with the Western World. One feature of excellence is that women have the same opportunities and eminence as men in the Soviet Union, so that, in effect, the academic catchment-area is double that in most other countries. Only last July there was a Symposium in Leningrad on “The Relation between Neurophysiological Mechanisms and Mental Activity in Man”. There were about 300 participants with perfect simultaneous translation in Russian and English. With a Canadian colleague I presented a film and paper which lasted one hour on “Emitted Events and Slow Waves Follow-

ing Feedback in 17 Normal Subjects". The Symposium was in the "Palace of Culture" (where Rasputin was done away with!) and was followed by visits to the several hospitals and research centres in that beautiful City.

Another Russian professor I know well is Alexander Ramanovich Luria in Moscow. He is a psychologist who has developed unique methods of study, and he is applying these not only to normal subjects but to complex problems in re-educating people with aphasia. I have seen him at work in the University Hospital in Moscow, assisted by five women scientists, patiently and tenderly re-establishing the ability of a school teacher to speak. This patient had been struck on the head, and for two years had been almost speechless, but Luria and his colleagues had succeeded in re-forming his verbal skills. This is a special example of clinical application in a society whose resources are limited by great distances and diverse centres of research and development.

When we try to relate the contributions of the Soviet Union (or, rather Russia, since the publication date of Sechenov's book "The Nervous System" was 1866) to those of the Western World we must accept the barrier of language. Very few of us can manage more than a few polite phrases in Russian, and the differences between that language and those of Romance and Teutonic origin are profound. A simple discrepancy is the absence of an article—one cannot distinguish readily between a definite and an indefinite statement. There is also the administrative difficulty of personal visits; for most people there are the tiresome formalities involved in obtaining a visa, the impossibility of purchasing Russian rubles outside Russia and the necessity to book accommodation in advance with Intourist. I have been favoured with official invitations to Congresses and Symposia by Academicians and members of the Supreme Soviet, possibly because I was acquainted with I. P. Pavlov and also the great Anarchist, Peter Kropotkin, whose name is assigned to a street in Moscow, several towns and a range of mountains he explored in Siberia.

Another aspect of Soviet Brain Science is, of course, that it does conform, to some extent, with the principle of Dialectic Materialism, and also that any scientist who expresses mildly liberal views is notoriously liable to persecution. Actually, I was astonished and embarrassed at a general public meeting in Moscow where I was on a sort of Brains Trust with Russian colleagues and other visitors, to find that nearly half of the questions submitted by the public con-

cerned *Telepathy*. I had met a distinguished elderly physiologist in Leningrad who had spent years in this field, and it was evident that the general public accepted it as a natural phenomenon and were anxious to understand its physiological basis. We all had to hedge in order to avoid offence and I replied that "On the available evidence, if the effect exists it is a very *weak* 'force', but so is gravity—one could not demonstrate gravitational attraction on a space-ship the size of this Hall, so perhaps our mental faculties are too small for telepathy to manifest itself consistently. However weak it is, *if* it exists at all, it is the most important force in the Cosmos". This experience illustrates that in spite of Marxist egalitarianism and materialism, taken with Pavlov's discovery of personal differences, the Russians are still capable of conjecture and imagination. At a Conference in Oxford in August there were invited a score of Soviet Scientists to present papers on "Mathematical & Physical Modelling of the Bioelectric Rhythm", "The Receptive Fields & Perceived Forms", "Mosaic Patterns of Probabilistic Ensembles of Neurons & Brain Functioning", "Intelligent Behaviour Systems based on Semantic Nets", "The Statistical Principle Explaining the Machinery of Nervous Regulation", "Analysis and Synthesis of Speech", "A Cybernetical Model of Personality & Social Behaviour". Owing to some hitch with exit permits, none of these Soviet delegates were present, but the topics showed rich interaction with Western thinking—including my own.

When it comes to the concept of other people's thinking and personality I would refer to "Pirandellismo"; in his play "Sei personaggi in Cerca d'Autore", four levels of personal "reality" seem to be imagined and Pirandello conceives that a "personality" may be the multiple reflections of what that person supposes other people think of him.¹ This is only a part of the truth but it does at least introduce the subtlety of social influences in the generation of a person.

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Simone de Beauvoir on Old Age.

We sent the July number of T. to T. and the original French version of Madame Vinay's review article of the book "Old Age" (*La viel-*

¹ Also in "Enrico Quarto" Pirandello illustrates aspects of psychosis which are not far from the Russian approaches to this problem.

lesse) to Madame de Beauvoir, inviting her to comment on it, and we received the following reply:

“J’ai lu avec beaucoup d’interet l’article de Madame Vinay et je vous remercie de m’en avoir envoy e la traduction. Mais le temps me manque pour y r epondre.

Avec mes meilleurs sentiments,
S. de Beauvoir

Cosmic Emotion

I have sometimes wondered if it might be possible to establish criteria with regard to the emotion which human beings feel about the cosmos. Some will read no further than this sentence, being convinced that it rates no emotion at all, or that any emotion is misplaced. Presumably the child, from the moment of conception, is tuned in to the structure of the universe, and gradually through growth becomes more aware of this, though in few cases an expert on it. Birds and other creatures are said to reach to patterns of stars, and poets have suggested, not necessarily insanely, that the rhythms of living things may be linked to wider pulsations. A psychologist might make an experiment in which people’s reactions were gauged to different words and forms—‘Aldebaran’, ‘The Plough (or Dipper)’. These might differ according to age, sex, race, status. ‘The Galaxy’ must often have a powerful impact on informed persons, even if they know little of its construction. It could be that we have built-in responses to parts of the cosmos, that our nervous systems are in some sense radio telescopes. Sight alone may not be sufficient to account for our wonder at creation. We live in a world as we live in a house, with some degree of comfort. We acclimatise ourselves to new phenomena, such as bulldozers or supernovae. The near and the far are not entirely distinct in consciousness. ‘America’ is a strong symbol, but so is ‘Mars’. The weak but persistent force of gravitation might have its counterpart in neural energies. A relationship might be detected and isolated with any particular astrophysical event. The sun’s position in relation to other stars on the H. R. diagram is as follows:

Larger hotter		Larger cooler
	SUN	
Smaller hotter		Smaller cooler

It would be surprising if a being in the solar area had no ordered response to this situation, other than through astronomical textbooks. A child's comprehension of it might be better than an adult's, a primitive man's better than a civilised one's. Above all, we might share cosmic emotion(s) with beings from other parts of space-time, as participants in some universal consensus of warmth or coldness of apprehension. Perhaps your readers could help me to elucidate this problem further.

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Sentences

*From "Aids to Reflection" by Samuel Taylor Coleridge.
Aphorism XIV*

In our present state, it is a little less than impossible that the affections should be kept constant to an object which gives no employment to the understanding, and yet cannot be made manifest to the senses. The exercise of the reasoning and reflecting powers, increasing in sight, and enlarging views, are requisite to keep alive the substantial faith in the heart.

APHORISM LXII

*Worthy to be Framed and Hung up in the Library of every
Theological Student.*

When there is a great deal of smoke, and no clear flame, it argues much moisture in the matter, yet it witnesseth certainly that there is fire there; and therefore dubious questioning is a much better evidence, than that senseless deadness which most take for believing. Men that know nothing in sciences, have no doubts. He never truly believed, who was not made first sensible and convinced of unbelief

APHORISM LXIII.

He, who begins by loving Christianity better than Truth, will proceed by loving his own Sect or Church better than Christianity, and end in loving himself better than all.

APHORISM LXIV.

*The Absence of Disputes, and a General Aversion to Religious
Controversies, no Proof of True Unanimity.*

The boasted Peaceableness about questions of Faith too often proceeds from a superficial Temper, and not seldom from a supercilious Disdain of whatever has no marketable use or value, and from indifference to Religion itself. Toleration is a herb of spontaneous growth in the Soil of Indifference; but the Weed has none of the Virtues of the Medicinal Plant, reared by Humility in the Garden of

Zeal. Those, who regard Religions as matters of Taste, may consistently include all religious differences in the old Adage, De gustibus non est disputandum [There is no disputing about tastes]. And many there be among these of Gallio's temper, who care for none of these things, and who account all questions in religion, as he did, but matter of words and names. And by this all religions may agree together. But that were not a natural union produced by the active heat of the spirit, but a confusion rather, arising from the want of it; not a knitting together, but a freezing together, as cold congregates all bodies, how heterogeneous soever, sticks, stones, and water; but heat makes first a separation of different things, and then unites those that are of the same nature.

RUTH PLANT

Journey Into Light

AN ACCOUNT OF FORTY YEARS' COMMUNICATION WITH A BROTHER IN AFTER LIFE

A remarkable chronicle and record
which adds a whole personal
dimension to our knowledge of this
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NOTES ON CONTRIBUTORS

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THEORIA to theory

Volume 7 Second Quarter April 1973

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Periodical
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**DISCUSSION; APPROACHING OTHER
PEOPLE'S BELIEFS**

**"PSEUDO-SCIENCES" and "PSEUDO-
MEDICINES"**

THEORIA to theory

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THEORIA

to theory

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Editorial

A discussion on the Roman Catholic philosophical theologians, Karl Rahner and Bernard Lonergan, was announced in the last editorial (January 1973). The editor has been working on this, and it became clear that to discuss them at all adequately would need more space, and would have to be more detailed than would be suitable for just editorial comment. She has therefore written an article on these philosophers: and this present editorial is being written by Arthur Bell, who has been a subscriber from the beginning of *Theoria to Theory*, most of the time living among the Cree Indians of northern Alberta. He is now back in England, helping both in the editorial group and in the background life of what is growing into the Theoria Association. So this editorial is an opportunity for him to say how all this appears to him, coming in from abroad.

* * * *

There is a notable feature about *Theoria to Theory* which I realised while I was living in the wild bush country of the north: it is that besides being a stimulating journal, it was bringing me into a spontaneous kind of fellowship or association of readers and writers. This notion comes from the general attitude expressed within it, and in particular from the letter sent to subscribers when the journal was two years old, in 1968, asking for comments, ideas etc. The answer to a comment I sent led to a visit to the centre in Cambridge when I was back for a month in 1969, and through subsequent mutual concern, to another visit on my return late in 1972.

Great was my interest, then, when Dorothy phoned me in December inviting me to "the Mill" in Norfolk over the Epiphany. I replied that I would be delighted to visit that inn, wherever it might be: and this interest was undiminished on being told that it was a windmill. I arrived to find the sixth floor, at the top, being used as a chapel (it could be used for various faiths), the large bottom floor was for meals, and in the middle there were discussions on philosophy, religion, and science, etc; we were refreshed by the good sea air.

The subsequent course of events quickly took their turn. Ted

Bastin was needed for a month in the U.S.A., so I arrived here. And it seems appropriate here to give the impressions of a reader from far away, when he comes and finds what does exist here in Cambridge.

First, I discovered there were two centres of work, 20 Millington Road and 9 Marion Close. The Millington Road site concentrates on study, writing, thinking, office work, *Theoria to Theory*, etc. besides being the centre of the Cambridge Language Research Unit: and Marion Close is the centre for silence, retreats, with a more spiritual focus. Both, of course, overlap. So the premises here give scope for considerable deep study. There is the solid thought and research reflected, for instance, in seminars, which by their nature must only include about a dozen people. One such seminar was held at the end of January, exploring the foundations and mutual interdependence of the various disciplines, and seeing the need for a revision, a new insight into the basic premises of philosophy, science and metaphysics. It is hoped that a book will be compiled from these papers and discussions, namely: —

Margaret Masterman Revisionary metaphysics and revisionary science.

Dunstan McKee Physicalism, Monism and Theism.

Christopher Clarke Revision in Physics and the Concept of Time.

Ted Bastin A concept of Time to incorporate ESP and its relevance to deep decisions.

Derek Wright Wider views in experimental psychology.

Joan Miller Transforming Activity in Personality development.

Elisabeth Dupre Psycho-biological healing.

Dorothy Emmet A critique of some presuppositions in social anthropology.

At the same time there is a consciousness of the importance of the spiritual life. 9, Marion Close is our retreat house, where people are welcome for quietness and solitude. It is hoped that much more will develop in time to come. At the time of writing, the beginning of the Christian season of Lent, we have started a period when this centre is open for this purpose in particular in its Christian perspective. There are periods, too, when retreatants from other spiritual

disciplines use it for a corporate retreat. For instance, the Cambridge University Buddhist Society uses the house at certain times. In this way, we both try to be more fully aware of each other's gifts, and this means a thorough research into the life of prayer, the science of the soul, a research made lively by doing it. Here the question is how to go forward.

9, Marion Close, which was built by the Epiphany Philosophers themselves, is admirably situated for such activity. The visitor comes through a door in a wall into an orchard, with a long house before him. The upper floor, under the eaves, is the place for the chapel; this occupies one half; the other end contains a fair number of mattresses. Below there is a large conference room at one end, and the sitting room, kitchen, W.C. and shower at the other. If the comfortable bed is wanted, one goes into the hut in the garden. Many visitors sleep on the mattresses in the main house. You are welcome.

Another discovery about T. to T. was the wide range of readers from many parts of the world, people from great cities and isolated areas, people from various research laboratories and schools, from religious communities and from the counter culture. This wide range is notable, but it has the disadvantage that the subscription list cannot be enlarged by advertising with just one public: by the nature of the case, subscribers must introduce themselves one by one. This means, of course, that we shall always need more subscribers; and anything you can suggest on this topic is welcome.

Thus T. to T. as a journal is to an exceptional extent a means of communication between various people and groups of people with many varying gifts. This was especially clear to me when I was in the wilderness.

* * * *

This line of thought has brought a further point to mind. There appears to be an important thread through life which could give vivid and valuable help in the search towards truth in the fundamental meaning of *Theoria to Theory* as expressed in Vol. I, No. 1: it is the vision through art. Art, I mean, not in the sense of "arts" as used for certain fields of study; but expressing in that one word, if it were possible, the great creations of the artist in many possible forms. The artist tries, and to varying degrees he succeeds in transmitting a vision, an insight or impression, even a message, in his almost inscrutable search for truth: and sometimes his message

may be impossible to find through scientific research, although there could be said to be a science of art, as well as an art of science. Sometimes the creation of the artist may be closely related or complementary to the work of the philosopher. The creation of the artist expresses in a different form what is sought through the thorough analysis of philosopher or scientist, so that there can be an added appreciation and stimulus for further growth when both are seen together.

Here the vision of the artist comes close to the meditative vision: indeed the fundamental generative experience behind a work of art can scarcely fail to come out of the real life of the individual responsible for it. This leads to the conclusion that art comes out of the religion of the artist (using 'religion' here in a fundamental sense as some kind of illuminating way of life.)

From this standpoint it is possible to see the relevance of various art-forms to many scientific disciplines. They are connected right from their roots. If some kind of inspiration comes to either of them, from whatever illuminating way of life, it might be said that they differ only in the way they use this fundamental insight or experience.

Further, science and art are not so far apart in their validity through life, one reaching the other for mutual benefit. This is evident both in real life and in good biography.

If we were to attempt a thorough study covering the influence of some great artist on all the facets of life affecting and affected by him in his art, that research would of necessity involve many branches of thought. Certainly musicians like Beethoven and writers like D. H. Lawrence have far-reaching effects beyond their own time. And the real life of today might be more clearly seen through such an appreciation of contemporary artists who are concerned about truth; Solzhenitzen comes immediately to mind. Somehow writers with this integrity can pierce the shell of their environment: they show us what people are like, and what life is like in a labour camp or cancer ward: and they do this in a way that deepens our understanding of human nature.

Maybe such a complete study is out of reach: nevertheless it would turn us towards the works which have such an impact on the world, and beyond them to the artist, and through him, to his vision, his insight, his "theoria".

There is, however, one step more, the step to the source of this

vision and its appearance: how it may be necessary to go through excruciating pains for a creation to be born; it may be that long days, months, or even years of attentive waiting must be endured before the moment suddenly comes, opening the doors of creation. Are artists, scientists, mystics and philosophers together here?

It is highly probable that meditation cannot be understood without bearing in mind this theoretic, visionary condition found in the artist and through his works; and here we may be near the heart of the matter. For however this original impulse comes, (and there seem to be no words sufficient to describe it; I am just feeling for them in such words as 'generative', 'illuminating', 'fundamental', 'inspiring', 'vision'.) it could have a scientific explanation in terms given by brain experts. But the brain expert is himself searching with clear scientific thought; and whatever his theory, he does not take away the actual experience found by the individual in the illuminating experience of vision: and as he himself feels towards the truth, he needs enough elasticity to be able to apply his illuminating experience, through an approach which may be radically original, to the creation of his new theory. So this, too, reaches back into a kind of meditative experience.

Compare this briefly with the work of meditative prayer and the work of the artist. In meditative prayer, the mind dwells on something, considering it in many aspects and waits attentively: the generative moment which brings illumination grows into what is sometimes called a kind of unitive state. The work of the artist is a physical expression born of a similar meditative condition and vision. However, there is the difference in result. If there is a sensed result from the meditation, it is primarily in the personality of the individual concerned and then in surrounding society. The work of art is more obvious, and it is generally there for others to appreciate. The scientist, then, may meditate through the works of artists who have in various forms passed on expressions arising from their reaction to an illuminating vision.

The place of the scientist is somehow there, too, right in this root. The generative, inspired moment or experience or impulse is presumably an integral part of his intuition and search for truth.

A.J.B.

The Double Conversion of Karl Rahner and Bernard Lonergan

Dorothy Emmet

In our last number we said that we should be commenting on the Catholic philosophical theologians, Bernard Lonergan and Karl Rahner—theologians whose work has been widely discussed on the Continent and in Catholic journals, but hardly noticed by most Anglo-American philosophers of religion and in the journals in which they write. This may be partly due to intimidating scale. Bibliographies of Rahner are said to list 800 items, and the “Lonergan phenomenon” as Hugo Meynell has called it includes books like *Insight* of 700 pages.

There is, however, an article on Lonergan by Professor Ronald Hepburn of the University of Edinburgh announced for the April number of *Philosophy*. Ronald Hepburn, who has been a contributor to T. to T., will be sending us some comments for our July number.

Insight (Longman) is mainly a book on the theory of knowledge. Lonergan has written specifically on how he sees the nature of theology in *Method in Theology*; and his *Grace and Freedom* is an exposition of St. Thomas’ view of efficacious grace. Other papers have been edited under the title *Collection*. (These three are published by Darton, Longman and Todd). There are also the reports of an International Lonergan Conference, ed. McShane (Gill and MacMillan).

Rahner’s main book *Spirit in the World* (Sheed and Ward) is unfortunately a bad translation. He has written a vast number of papers in the series *Theological Investigations* (Darton, Longman and Todd) in which one can follow one’s interests in what he has to say, mainly on particular points of the Catholic magisterium. *The Achievement of Karl Rahner* by Louis Roberts is a useful introduction. So too is Eric Mascall’s *The Openness of Being* (Darton, Longman and Todd), which gives the setting of both these theologians in the context of a survey of recent Natural Theology.

Both Lonergan and Rahner arouse hope, in that they are dis-

Discussing the questions that we in T. to T. believe ought to be discussed; they are working within a mystical tradition and asking how philosophy done in relation to this tradition can enlarge our knowledge. Also, unlike most Catholic philosophers who hold tight to St. Thomas, they know that you cannot by-pass Kant. This means that they are aware that philosophy and theology must now be done in a world of scientific knowledge, and that this is very different from the world of classical and literary learning in which these subjects have grown up. But one is then faced with what to do about the mass of relevant scientific disciplines which ought to be mastered. Rahner calls the desperate need to know more about all this “gnoseological concupiscence”. He thinks that the problem cannot be solved by team work, because writing philosophy must be an individual effort. So he calls his own approach “pre-scientific”, and then in fact develops a theory of knowledge into which the sciences hardly enter. Lonergan is more systematic. He wants to show what understanding—“insight”—means in the sciences and philosophy; to do this would need “organized research in many different fields”, and this he seems to see as a difficult but not impossible enterprise.

Both Rahner and Lonergan start out from a theory of knowledge which they call “Transcendental”. This sees our efforts to know as involving an active intellect which is always reaching out to more than is contained in what they grasp at any time. Every question produces further questions; and the active subject who is seeking to know brings imaginative and theoretical constructions to the interpretation of what is given in his experience (here we catch echoes of Kant). Rahner sees the pursuit of knowledge as open-ended enquiry directed towards an infinite about which we become increasingly apophatic (i.e. every positive remark made has to be qualified by negatives). The dynamic of the spirit, in continually transcending itself in reaching out towards this unknown infinite, is called “the Spirit in the world”, and this is where we find God—not as an object of knowledge but as the motive power of this continual self-transcendence.

Lonergan is concerned in a more systematic, and perhaps more purely philosophical, way with what it is to be an active thinking subject who can come to understand something. In his long book *Insight* he takes us through “commonsense”, a limited kind of intelligibility concerned with a limited world, namely that with

which we have to deal for practical purposes in a social context. “Commonsense is not a list of certainties but a collaboratively created structure into which with appropriate adjustments people can fit their particular experiences” (*Insight*, p. 299). He is very good on commonsense (the kind of knowledge for which “ordinary language” philosophers are prepared to settle), and on the ways in which we resist restructuring our interpretations of experience to meet unfamiliar and awkward happenings. He then goes on to mathematical and scientific knowledge—knowledge in each particular case being attained when something is grasped as intelligible and affirmed in a judgment that it is so. What is so grasped is called “proportionate Being” i.e. Being (reality) as accommodated to the conditions of our experience and the structures of our intellect. This sounds like what Kant would have called our knowledge of the phenomenal world, but Lonergan is trying to go beyond Kant in holding that what we have insight into in this way is not just “appearance” but the real as it appears to a subject who is making a dynamic and orientated act of awareness. But I am not sure whether we ought to talk of making acts of awareness or of consciousness, or whether we ought not rather to say that we are conscious or aware—sometimes indeed more intensely than at other times—and that the “acts” consist in using symbolisms and thoughts in trying to understand what we are conscious of, and that these may be of different kinds. However Lonergan prefers to call the different kinds of thinking and imagining different states of consciousness, and here he is close to the phenomenologists who hold that by analysing states of consciousness we get to know about the things that are their “correlates”. Analysing a conscious state can indeed tell us about the conscious state. Lonergan however talks of the things we are thinking about as internal to our thinking, so that a particular kind of reality becomes what we intellectually grasp and affirm in a particular state of consciousness. What we know, in any particular state of consciousness is always an object of “intelligent grasp and reasonable affirmation”.

A difficulty I have about this is that what can be intelligently grasped and reasonably affirmed at any time is what the evidence obliges us to believe. It is possible that new evidence may turn up later which could not have been available at the time, but this does not mean that the judgment made at the time was not one of intelligible grasp and reasonable affirmation. Nevertheless it was

mistaken. But I would not want to have to say that Being or reality changes with the new evidence—only that our means of understanding it does. For we are enquiring and experimenting about something other than our state of consciousness. I get the impression that for all his dynamic view of the process of knowledge, Lonergan is giving us a picture of it in which one piece of securely achieved insight (which can be intelligently grasped and reasonably affirmed) is completed and added to another, rather than of a process in which there are times of radical re-assessment and re-interpretation even of things which were thought to be secure in the past. His transcendental method needs to be even more open-ended, and his active intellect more active in imagination, more venturesome in constructing theories and in being prepared to abandon them if wrong. In other words, thinking both has a greater range and is more open to risk than he represents it, and for that very reason it is all the more necessary to have means of testing it. It is significant that Lonergan thinks that it is possible to formulate what is scientific method and then apply it in the different sciences whereas philosophical method he says is continually being worked out in doing philosophy (*Insight*, p. 426). I should want to say the same of scientific method. Lonergan is surely being more formal than the spirit of his enterprise warrants.

The spirit of his enterprise is defined by looking beyond the different structures of “proportionate being” in an orientation directed towards pure being. This orientation, when it is dynamically operative, entails that knowledge is sought in an open-ended process in which further questions can always be asked. But it is directed not only to what can be caught in this way, but by man’s natural orientation towards the transcendent, a transcendent defined as Pure Being. Both Lonergan and Rahner seem to think that anyone who is committed to the existence of an active element in the intellect is also going to end by seeing its most general orientation like this.

It is here that jumps begin. For if Pure Being is not something with characteristics which can be explored and in part discovered in our growing knowledge, it is either something about which we must be completely agnostic, or it becomes a formal general notion. Lonergan speaks of it as “the correlate of the pure desire to know.” But if it is as abstract as this, then Hegel was surely right in seeing Pure Being as the lowest and not the highest of the categories.

The metaphysical problem is how you bridge the gap between this general uncharacterized notion of Being and what we find the world to be like in the pursuit of knowledge based on experience and experiment. Lonergan in effect jumps over the gap. First, as we have seen, proportionate being is defined as being correlated with particular states of consciousness, all of which have their limitations, and all of which contain unexplained residues in what they can grasp. Then it is said that an unrestricted desire to know would not be so limited and would have an object which was unrestrictedly intelligible. And here come more jumps. For it looks at this stage as though the idea of being is still quite general, and we are being told that if an unrestricted desire to understand it were fulfilled it would be intelligible, which looks like a tautology. But he goes on:—

“If the real is completely intelligible, then complete intelligibility exists. If complete intelligibility exists, the idea of being exists. If the idea of being exists, then God exists. Therefore if the real is completely intelligible, God exists.” (*Insight* p. 673.)

I think (though I am not sure) that Lonergan makes this string of propositions carry theistic weight because his correlation of objects of understanding with acts of understanding leads him also to say that if being is intelligible, then “an unrestricted act of understanding exists,” and this he takes to be not only what Kant would have called a regulative ideal towards which our always limited thinking aspires, but something already existing in its own right which can be called God. The drive towards this is a principle constitutive of our thinking, as it also is in Rahner’s “Spirit in the World,” and this point I find impressive. But here a second round of jumps begin, when both Lonergan and Rahner supplement their transcendental philosophy with Catholic revealed theology. So at the end of *Insight* Lonergan’s Pure Being suddenly becomes a personal God who sends his Son and thereby solves the problem of evil. In both writers we have an approach to philosophy which ends in extreme abstraction conjoined with a body of theological teaching of extreme concreteness, the transition from one to the other being made by faith, or as Lonergan says in *Method in Theology* by “conversion.” This latter body of teaching is interpreted not through the kind of open-ended enquiry set out in the transcendental method, but by methods more akin to those used in interpreting a legal system.

This is demanding another conversion from that which underlies the pursuit of the transcendental method. This method commits one to a way of seeking truth in which one must be self-transcending, in not holding onto personal desires and ambitions or the securities of ways of thinking to which one is accustomed, and in being prepared always to go on to face further questions. The drive and the possibility of doing this come from the power of the active intellect, but to do it, and particularly in the sphere of religion, is to make an act of faith. Lonergan also speaks of this whole-hearted orientation as a way of love. It is an enterprise not unlike what we have called in *Theoria to Theory* an "open trans-humanism," with the emphasis on the *trans*. It is a scientific as well as a philosophical enterprise when it submits itself to the possibility of revisions arising out of experiential tests as well as out internal incoherences.

While this method involves a conversion, in a leap of faith away from customary securities, both Lonergan and Rahner speak of also another conversion, to an attitude of obedient acceptance of the Church's magisterium.¹ There is thus a shift of authority in what is to be affirmed as true. On the former basis, truth is wrung out of a method of enquiry, and its authority is that of the criteria of the method. On the latter basis, it is received from a teaching body which claims its authority not from what it can discover through a philosophico-scientific method, but from what it claims has been laid down in revelation in the past. This shift of the basis of authority is still there in spite of the extent to which both Lonergan and Rahner believe that the manner of the exposition and interpretation of doctrines must change with changes in intellectual and social climate in different periods, the climate of our period being scientific rather than classical.

But if one has a primary conversion to the kind of faith involved in the "self-transcending orientation towards being," and if this method of enquiry is to be carried right through, then instead of calling for another step of conversion to accepting the authority of the magisterium, it may well call for a contrary conversion away from this. There can be a call to carry the method of enquiry right

¹ Lonergan speaks of conversion as able to be intellectual, moral, religious and Christian. The first two of these are the qualities of conversion within the philosophical method. Religious conversion is described in terms of his view of Christian Grace, and Christian conversion seems to go from ecumenical openness to final Catholicism.

through into the exploration of the mystical tradition of the Church and the alleged happenings within this tradition; seeing what analogies they may have in actual and possible experience, and what view of the world they suggest if taken seriously.

To press this method of enquiry will mean that the creativity of the active intellect will have to be stressed at every stage. Its theoretical constructions would be freer than Lonergan and Rahner present them; it would also be freer in imagining possibilities of what the world is like beyond the views of naive realism, and it would be the more subject to falling into error on both counts. This would be especially so in interpreting religious experiences and the visionary and unusual happenings which have led to the belief in revelation, since these are concerned with facts (if they are facts) not assimilable to the commonsense ways of thinking. The greater the creativity of the active intellect, therefore, the greater the need to test its constructions in a common world. The trouble with the theories of knowledge of Lonergan and Rahner is that they leave us discovering reality from the analysis of states of consciousness (what is called in the jargon the method of Intentionality) rather than saying that we construct theories, interpretations, symbolic systems which we can then use to explore a world which is not an expanded state of our consciousness, but our actual environment.

Lonergan does indeed think that there is an increasing richness in the development of our knowledge of "proportionate being" as it is oriented towards "Pure Being", though he does not show how in fact this helps us to think and speak about Pure Being: Rahner seems to think that the further we go the more apophatic we become. Both take their open-ended transcendental method a very long way. Yet they desert us just where the questions most need pressing because they believe there are two kinds of truth with two different methods of procedure. They see that there is a mystical drive at the heart of the sustained desire to understand through the sciences, and they are working within the tradition of a church which takes mystical drives seriously. But instead of using all the resources suggested by their theory of knowledge to come to self-knowledge of this mystical tradition, they fill out the picture by drawing on the teachings of the Church's magisterium. Here tight deductions are drawn within a world of imagery, stories, traditions, canonical and legal pronouncements, all being taken as

authoritative data. And we are left wondering why, if anyone had not accepted the authority which put him inside this system, he should ever want to argue like this.

Certainly both Rahner and Lonergan are theologians who interpret the Catholic magisterium in ways that are more generous to “separated brethren” than was general before Vatican II (and we should note that they both did a great deal of their work before Vatican II). So the exclusiveness of “*extra ecclesiam nulla salus*” is challenged by Rahner saying that this means that the Church is the sacrament of the salvation of the world (an ambiguity here in the meaning of *extra* and of “without”?). And pagans are said to be anonymous Christians, open to grace without recognizing it. But here is still a begging of the question as to the status of non-Christian religions. Nevertheless Lonergan and Rahner have brought hope and a sense of release to a number of people (especially, we gather, Catholics), who have been caught in a more restricting kind of religious philosophy. And the methods of most academic philosophers in secular universities hardly allow these questions to be discussed.

Discussion: *Approaching other People's Beliefs*

Penelope Eckersley, Peter Fry, Marian Cleg;, Arthur Bell.

Penelope. There seem to be four ways in which people's religious beliefs are generally approached. (i) All are false. (ii) Our's true and other's false. (iii) Our's the fulfilment of other's, and (iv) No comparison possible because each carries its own standard within itself, in that it embodies the form of spiritual life appropriate to a particular culture.

Shall we start by defining our own positions? I find none of these attitudes really satisfies me. I approach other people's beliefs as a Christian, interested in comparative religion and philosophy of religion, who believes that we have knowledge of the absolute but not absolute knowledge. Other religions will have discovered in their own development other aspects of truth, and to understand their beliefs one doesn't have to deny the value of one's own. But how can any of us, culture bound as we are, understand the beliefs of others? The relativistic position seems to demand as much detachment as possible—we are observers. Many of the people observed in this way have resented it. They have felt that no one can understand their belief system who has not lived enough with them to have shared in the way in which they are made spiritually and morally aware. To be able to do this, which I have not done myself, is to put oneself in the position of a participant rather than of an observer. It may well be an advantage when doing this sort of thing to have some beliefs of one's own. Belief can itself be a way into other beliefs. So, having certain convictions of my own, I want to hold as part of those convictions the possibility of truth within other belief systems. For this kind of conviction seems to me to bring with it the obligation to look at other beliefs not just as finding fulfilment in one's own, but one's own and the others as having a possibility of *mutual* fulfilment, beyond their present structures and in ways of thinking that none of us have yet got.

Arthur. I think of where each of us is in the world as one speck in the vastness of existence, in time and place. One tries to have an awareness of all kinds of things, and possibilities—what is conscious and unconscious and subconscious and visible and invisible. We approach each other and even each thing with a great respect

for what it is in itself—each animal, each thing, and most vividly human beings. I can't see that much value is going to come out of human contacts that are not based on a mutual respect. There needs to be an entering into all these spheres of existence as much as possible if there is to be a growth of harmony and understanding.

Peter. Mine is an empirical approach, in the category of those who study another culture from the premise that what seems to be irrational can always be understood. Having taken that as a basic premise one can then afford to look for differences and try and understand them. I never had any doubts about the intellectual honesty of people who go in for spirit possession, for instance, and I think this may be because I was sharing the social experience of the people I was trying to understand. I was white in a country where white signifies dominance, and I could not pretend not to be white, but I could make the effort to share food, happiness and unhappiness, drink, ritual and so on, and through this, and through simply being a person, it was possible to empathize with their beliefs.

Marian. I find it difficult to express what I think about different beliefs; they are so many and so varied, they alter partly because of contact with each other. My position is that of an observer. I am just there as a sympathetic listener, to whom all sorts of different kinds of individuals can describe what they believe in, and know that I am interested.

Penelope. Now we have sketched our approaches, let's say how mainly we get our information about other people's beliefs. I myself get it from contacts with all sorts of religious groups, mostly but not entirely Christian. I also live in a cosmopolitan part of London where all sorts of people come to the house—West Indians for instance, whose trans-cultural experiences make them question their own belief systems, or who are trying to find their roots somewhere. And I read books.

Marian. I get my information in a very personal way from individual communications, people talking to me in a relaxed sort of way.

Peter. I get mine as an anthropologist who has found that he has to let himself get involved in people's social experience. Especially in Africa, less so in Brazil.

Arthur. For nearly five years I lived among the bush Cree Indians of Northern Alberta. I was priest of a mission parish covering about 150 square miles, in country where the dominant mode of life had been hunting and trapping, and for many people still was. I tried to live with the people and share their various experiences, as well as reading the anthropological publications and belonging as an associate to the Alberta Native Communications Society (an Indian Society) and reading the papers, which they produced. I also talked to people who had lived most of their lives in Alberta.

But understanding is a way of growing into a way of life which can only be done by degrees over many years.

Penelope. Do you think you can participate in the beliefs of people so different from yourself?

Peter. It's interesting to realize that we today are the first people who really began to think there was a possibility of participating in other people's beliefs, and it is since the world began to become one big village. In my African experience people's own belief system was true and all others false. Each little group called itself "the people". But one thing that tends to happen is that people who are invaded often retain some mystical power over the people who invade—this applies in Rhodesia, the Ndebeli invaded and established dominance over the local Karanga, and took up the Karanga religion, which controlled the earth fertility and rain. When the whites came in, they did the same thing—not all of them, but many whites now consult the spirit mediums for rain, fertility and so on. So this aspect doesn't seem to have been just culture dependent. But the situation we are discussing now is one in which people are open to other beliefs—the chips are down.

Penelope. Why should people who are dominated be attributed with mystical powers?

Peter. Here I should have to plagiarise from Victor Turner. He sees an opposition between "structure" and "anti-structure". He says people not associated with the power structure, who float as it were, are attributed with mystical powers. The people who were invaded were excluded from the power structure and were, temporarily at any rate, marginal men. This may have something to do with our current interest in the religions of underdogs.

Penelope. I agree that at present a lot of the people who are interested in religion think they must look to the non-establishment world—whether to Indian gurus or Yaqui sorcerers. Does this fit in?

Peter. It does. And the very people who are so looking are people who have escaped from the establishment. But people tend to approach other cultures, especially exotic cultures, on the model of Rousseau's noble savage. There is a certain romantic, misguided notion of tribal life as having no structure, no kind of hierarchy, all completely free and loving, which is just what the drop-out people are looking for.

Arthur. In places like Edmonton there is a sort of revival of the old religions among young people. There are some people who are stepping out of what has been imposed on them—a man called Chief Smallboy, for instance, who went out into the unfrequented bush with about two hundred people; and some of the young from Edmonton go to him to join in a kind of retreat.

Penelope. It seems to me that there are two things here. Peter talks of the romantic Rousseau model which the drop-out is looking for in the other cultures and beliefs. He may have dropped out of his own because he has found them too structured, but he can feel freer in his adopted system because he is not really inside it. For someone inside, it is probably just as structured and hierarchical as the one he left, though one must bear in mind here that many of the Eastern sects now popular in the West are themselves drop-out groups from their own systems.

The second thing is that the Crees from Edmonton are doing something different. When they join Chief Smallboy in the bush they hope they are going back to their own roots; like all people making this kind of retreat returning to their sources. They share here the need of the contemplatives of all religions to withdraw, and their experiences when they do this may have much more in common than we yet realize. This is where a more participatory kind of comparative religion may teach us something. All belief systems seem to have another characteristic which has a bearing on this, in that their most triumphalist period is also their most structured, and at this period the contemplative experience which they share with other belief systems is most neglected. This period seems to have come to an end now in the West. People in Edmonton

may go into the bush for retreats for some of the same reasons as a drop-out from Western culture may go to find an Indian guru.

Marian. But for a Cree Indian to go to his own background makes sense, whereas for a drop-out to go to an Indian guru is running away from the pilgrimage from birth to death which each of us has to follow himself. The Cree Indian is much nearer to going back to the earth gods or whatever.

Arthur. The Cree aren't agricultural so they don't look primarily to the land and so to earth gods, though they do look to a particular nomadic area.

Marian. But they have the forest, and they know what to do with it. The city is all wrong; and they are more likely to find what they are looking for in their right environment.

Arthur. There is a very great sense of reverence for nature, of seeing through nature. A tree isn't just a tree (forestry service rangers get exasperated because they say an Indian will spend half an hour looking at a log before he saws it up). The tents are vividly painted because all surrounding existence is represented.

Penelope. Did you participate in actual Cree rituals?

Arthur. Yes. Living in Wabasca, I found I was taken and called an "*ayamihwehno*" (prayer-man). The Cree are definite: they mean one to be a "prayer-man". This, from the start, begins to cut across many of the barriers we are apt to invent. As time went on, I saw the way of the native *ayamihwehno*, and as I gradually saw more and more into his way, I thought that there was much in it that was enriching for a wider sphere, and refreshing. One goes to a native *ayamihwehno*, joins him in prayer, and in time as we are mutually sympathetic, we find our work very close together. I think westerners are too eager to put things into compartments, and we easily make divisions as a result.

The focal points of our life together were, as a result, the great pow-wows, which happened twice a year, in October (when we ate moose) and in May or June, (when we ate duck, or beaver). They were religious feasts lasting all night long.

As one thinks of this, first one needs to think of the great reverence for nature, a kind of sacramental attitude towards existence. So the ceremonial tent has vivid paintings—not in the glamorous way

of the Plains Cree, but in our make-shift way of the Woodland Cree. We have a special long migwap (wigwam) for this purpose: it's like two wigwams joined together by horizontal poles, forming one long tent inside.

We enter one end, and see at the other the focus of activity. There, by the furthest of the row of five fires, is the totem pole, a straight 15 ft. post, peeled clean, and painted in the middle with three rings: similar rings are also round the closest two side-poles.

Marian. What does the totem-pole represent?

Arthur. Well, I asked that question this June: an Indian friend had arrived, and he said "God-Jesus-Holy Spirit": so I thought "Anyway, the Almighty One, Kisi-manito".

At the top of the totem-pole there are many ribbons, golden ribbons: they flutter around above the rest of the tent, through the long gap down the middle, open to the air; ribbons are associated with *manitoken*, sacred objects. The rings, the rainbow: and around on the walls, many kinds of existence are symbolised in the pictures, odd signs for water, earth, a C.N.D. sign, and the word "Love" and many others. In the alcove sit L . . . (the native *ayamiwehno*) and the elders. L . . . has his medicine bag, the contents a secret to others—they are instruments of healing. There are the two-sided hand-drums, sacred because each face has a picture painted from the owner's dreams, and distinct from the ordinary one-sided drum (both are about the size and shape of a tambourine). There, too, are the doll-like objects containing bits of ancestors and things: and there are the special peeled sticks, used by about four assistants who feed the fires and keep order.

We sit down as near the ceremonial end as we can, on the mattress of spruce covered with blankets. L . . . raises the peace-pipe from its place by the fire: he slowly revolves it low down, and then high up, He smokes, and then passes it round. All are brought together in this symbol of reconciliation and peace, in a cosmic sense. The pipe goes round and round until it is out.

L . . . rises with a dish, and takes a spoonful of food out of each of the dozen or so pots. He raises the plate high, with a prayer and silence: and he drops the food into the fire, a burnt-offering. The assistants come forward and take the pots round to the people: we have all brought plates and mugs, and he fills them. We drink tea, but the pots have various things. Last June I found my plate

filled with a stew of beaver-paws (a local delicacy): this is followed by sweet rice or fruit; we eat our fill.

Now the drums start again: and the elders sing, one by one, each in his own peculiar way, having his own song based somehow on his own mystical experience. Each sings as long as he wants, beating his drum; then he rests while another takes his turn. After a while, two or three men rise, and pick up the objects containing the relics of the ancestors: they dance round with a slow kind of hopping step, round all the fires several times. This finished, others rise, and, bit by bit, more and more, until there is a continuous circle, people getting up and sitting down as they wish. It is said that in this dance Kisi-manito and the spirit-world are joined with us. In fact in the old days it was said that anyone who did not join in was with the evil spirits.

So, with the dance, and drum and song, dancing, sitting and pondering, the night passes with the stars shining down through the open top. It is informal, yet with a great dignity.

After some hours, there is another feast: in the feast we share the many things that have been brought. This time there is usually pounded meat (a powdered kind of pemmican) and large lumps of lard, and bannock. The peace-pipe is passed round again, and then the men at the end all rise. L . . . in the centre, other drummers behind and around him. Standing, he alone begins the final prayer, beginning from the depths, rising bit by bit, the others coming in for the climax.

It is a new day and we go in peace. We have shared in something.

Marian. May I mention an occasion at the School of Music in Cambridge at the end of the war when a Sioux Indian from the American Army with a borrowed tympanum was persuaded to give us a song and drum recital. With his quiet voice accompanied by the drum, he had everybody absolutely gripped, and of course we did not know what it was about. He wanted to sing to us so that we could get to know something about his people.

Arthur. Sometimes the words don't matter.

Penelope. Presumably when you take part in the Cree rituals, Arthur, you are thinking Christian thoughts in them, and if the Cree went to the Christian rituals they could do the reverse of what you were doing.

Arthur. Certainly one thinks in the mode into which one has grown, unconsciously, but if one is consciously thinking about it, one would be dwelling on another kind of meditative experience, and would miss what this ritual could be saying to one.

Peter. What about someone who isn't looking for a religious conviction—myself for instance when I first started my field work? I had two distinct experiences; one was African where there were mediums, trances, dancing and music which I never found the least bit difficult to understand or to enjoy and participate in as a sceptic. Then when I went to Brazil I got sucked into spirit possession and trance among the poor in Sau Paolo and there I found I couldn't empathize, though I convinced myself that the people themselves believed in what they were doing.

Penelope. Could you say more about what it is to empathize?

Peter. I think it comes down to coming to grips emotionally and intellectually with what might be some of the fundamental related factors in the religious beliefs. When I had been in Africa for some time my entire sympathies politically were with African Nationalists. I could see the system through their eyes, and when I saw that their religion was intimately linked to this, I had less difficulty in understanding so that I could empathize with it.

Penelope. You had something which was a shared value with them. Is it necessary to have some shared value or belief of some sort before you can empathize?

Peter. Precisely. If I had had religious convictions of my own I could have got in through another door as it were. But I didn't. I got in through a bit of sharing of the social experience. In Brazil I haven't done that. I started off in the university and my friends there are comfortably off intellectuals, and so when I meet people who are extremely poor, I come to them from outside.

I think that people who are so fortunate as to be sufficiently free from their structure have a better chance to be able to plug in than other people. What you, Penelope, called "the triumphalist period" of Christians was one when this was almost out of the question. Their ethnocentricity was impregnable. It would have been very difficult for anyone to think as you do, Arthur, sixty or seventy years ago. I suspect that people get this openness not from reading but from having gone through the social experience that loosens

them. I sometimes feel quite loose, and I get the impression that anthropologists are people who for some reason or another are not *anti-* but *a-* establishment. This is partly their training of course, and it may account for why some anthropologists are attracted to exotic cultures and want to incorporate them in a wider understanding of social experience.

When I started my field work I thought participant observation meant arriving as an outsider and going through the motions of eating, hoeing, hunting and so on, but always as an outsider, the emphasis being on the “observation”, and “participating” was done very mechanically, not emotionally as a person. But this was absolutely impossible. How anthropologists manage it I don’t know, but some of them do.

Arthur. Yes, I remember the way people came up from Edmonton and universities like that, and how the locals said “They’ve come to look at our problems”, and rather despised them.

Peter. I arrived as a white person, eating what for a white person was poor food and living in what they considered poor conditions, and they thought that all this suffering must be intended to have a pay-off—deliberate suffering always had. They were, in a sense, quite right. Through what seemed hardship to them (in fact it was not to me) I was able to learn about social experience and find a way towards understanding religion and ritual, but not of course a total explanation.

I think that social life and all that goes on in social life provides you with a necessary grammar and you have got to acquire a competence in this before you can begin to understand anything. All the famous anthropologists began with social and political life and kinship before they went on to religion in order to work out this basic grammar. Once you have this grammar, then you can go one step further. You, Arthur, want to start from what is universal, what you have in common with everyone. And you, Penelope, I think start from the belief that there is a universal truth.

Penelope. Yes. Arthur, if I understood him right, wasn’t *starting* from, but was very much aware of the common factor of some sort of “religious experience”.

Arthur. No. I don’t think it is just based on religious experience. I think it is based on an awareness of the whole greatness of exis-

tence, and so all that is in it, with the person in this cosmic context. And secondly, the realization of the need for harmony in this total context; an “agapeistic” way of life.

Penelope. This sounds like the things contemplatives are going on about, which may in fact be something much more basic than we are aware of. I think they speak of the unmediated awareness, then of your interpretation of this to yourself, and then of your attempt to communicate it to other people. The second and particularly the third are highly culture bound, but they are the things of which you, Peter, think you have got to understand the grammar, and won't this make the communication of this experience something quite different by the time you have done this? Yet the experience may in fact be one of the unifying things.

Arthur. Experientially, for instance in the hunting people, you find when they get outside the half-European village their real character comes out in some common task one has with them. It's so very hard to get beaver in the winter and in hunting it, it's as though one enters into the being of the beaver. In the spring one sits on the bank above the beaver house and waits for him to come out of his hole. A Pentecostal Cree who had sat like this for about two hours said to me later “It is strange we've got to shoot this beaver, but that this is what he is for”. He was not being cruel, but he was quite prepared both to think like beaver and to kill beaver—quite unlike the English blood sports people who probably couldn't do either. I myself have found myself nearest to thinking with the Cree when we have been out hunting together, and we have been trying to think Moose.

Peter. That is interesting. The charge against the first anthropologists like Frazer was that they used the “If I were a horse” argument. They sat in their armchairs and they thought “Now, if I were a Melanesian . . .”. The classic example was Frazer's totemism argument. He thought “Now, if I were a pregnant woman in the primaeval sludge what would I be thinking?” But the way he worked this out was on the basis of his own knowledge of pregnant women—that they have fantasies, they have strawberry lusts and so on—and so a pregnant woman who, he thought, wouldn't know anything about conception, would automatically have thought the animal near her when she discovered she was pregnant would have had something to do with it; hence the origin of totemism. So

anthropologists tried to become “horses” by *thinking* themselves into other cultures. The problem is that one thinks on the basis of the concepts one has; and how far can one free oneself of one’s own concepts and interests? The people who are freest, who are most open—and this is something you don’t *think* yourself, but *experience* yourself into—are the people who are most likely to get nearest to being a “horse” or a “beaver” or whatever. It’s a problem one can never solve, I think.

Penelope. You are saying, aren’t you, that the people who can be most free with regard to the structured preconceptions of their own society and systems are the most likely to be able to do this?

Peter. Yes; the people who are being loosened from their own society and systems are the people who are looking towards meditation, towards other forms of ritual and belief, and they think they perceive other cultures,—Indian, for instance, or Asian or African—as cultures in which structure is a minimum (they appear to have an idealized Rousseau-like view of them) so this is where they look for religious commitment.

Marian. I think you can learn a good deal from lending an ear to people of other beliefs in a country alien to them. The American Sioux who came along and gave his song recital was someone who was delighted to have listeners. A great many people have attempted to convert me—to Islam for instance. A Hindu naval officer whenever he was on leave used to come to Cambridge to go to King’s College Chapel, where he said he could feel himself nearer to God—his God—than anywhere else in this country. I suppose he found me easy to talk to because he could tolerate my ignorance, and because I had a suitable pair of ears.

Peter. As an anthropologist, one tends to get into the feeling after a time that things, customs, beliefs, etc. only have a value for those who understand the grammar. So a Shona medium only has significance for Shona people or a person who for one reason or another has got hold of a bit of the grammar. Take him out of this context and put him in another, and he will lose his significance. This I didn’t find to be true, because I met one man whom I felt had something I couldn’t put my finger on that transcended the cultural context. I invited him to the University in Salisbury where he went into a trance in a bungalow on the campus—quite different

from his own dark séance house. None of the lecturers and their families present was embarrassed; on the contrary, within seconds they were in his thrall. Although both he and they shared certain political ideals in the context of Rhodesian politics, I am sure that this alone couldn't account for this response. He had transcended his culture and at the same time the people listening to him had transcended theirs. They were people with an open mind.

Marian. Fundamental personal sincerity. And personal confidence has a great deal to do with it. People need to be sufficiently confident not to think what other people are thinking of them.

Peter. Yes, indeed; but I think there are two things here. On the one hand, with the loosening of structure people are more capable of understanding the universal in life, at the same time there are people, found especially I think, in religion, who touch something which is as yet undetected, scientifically anyway. Which is why, I suppose, beliefs are called beliefs.

On Feeling Poorly*

Graham Bennette

I am not going to develop much in the way of a definite theme in giving this talk. Instead I shall run around the subject in a discursive way, hoping that some ideas will be produced for further discourse. I use this word “discourse” instead of the more usual one, discussion, to indicate that my approach will be one in which no particular stress is put on the *logical* development of ideas. I hope the result will not be actually incoherent. Discourse and discursive derive from *discurrere*, meaning to run to and fro, whereas discussion comes from *discutere*, meaning to dash to pieces, the reductive and fragmenting process that is used in analytical reasoning guided by logic. I shall include some references to Jung, Polanyi and Sartre, all of whom have tried in various ways to find a framework of knowledge in which non-logical aspects of experience can be fitted, and I want to try to do this in a language which is as familiar and idiomatic as possible—hence the title which refers, in the everyday vernacular, to a vague unspecifiable condition which is nevertheless well known to everyone. I shall not attempt to put “feeling poorly” into a scientific setting—that is, I will not try to specify it, though I will try to interpret it by referring to some of the concepts that are being developed amongst a few scientists and doctors who realise that rigid scientific reductive reasoning is unsuitable for *understanding* in biology and medicine.

First, I may disappoint some who may have come thinking that the title conceals some particular allusion to a poorly developed feeling function and the consequences of this in the origin of illness. I shall not pursue this thought very far, although it may turn out to be one we should keep firmly in mind. In fact, it might be a good starting point to lead into the ideas I want to explore. It is a platitude, but one which has to be repeated, that we do undervalue the psychic attribute of feeling in our everyday lives and our obsession with thinking (which we tend to equate mistakenly with logic) and our fascination with technology—an expression of a

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highly developed sensation function in Jung's terminology—leaves little room for the proper flowering of the other two functions which Jung described as irreducible features of human psychic activity, feeling and intuition. In our sort of community people in general probably do not have enough chances to express feeling and act on intuition. They can be so “safe” and “successful” by relying on the use of their thinking and sensation functions as their dominant means of manipulating the world. Thinking and sensation are the functions especially demanded by technology, and it is the addition of intuition and feeling that turns technology into science. But even in the freest kind of science feeling values will always contribute in a subsidiary way. It is “unthinkable” to postulate a science in which feeling and intuition are the dominant functions being used. These are more properly at home in the worlds of art and religion. And in both these aspects of human life one can detect an unmistakable diminution in vitality in Western countries. These are sweeping generalisations but the gist of it is obvious and has received comment enough, as such. I refer to it because, I believe that this imbalance is one powerful source of stress contributing to the state of chronic emergency in which we all live. It is the nature of this chronic emergency that I want to consider now. We are accustomed to think of an emergency more in terms of an acute crisis. The idea of chronic crisis sounds rather peculiar, and indeed, perhaps we should find other words to express the situation of tension and stress that is created by the contemporary historical situation in which Western Man is confronted by an extended and intensifying crisis of belief. This is what I shall be talking about. We feel poorly because we live in this continuing crisis of belief—at least those of us who cannot adequately cope with the anxiety it induces. This is what it means for me, anyway, and I confess that the preparation of this talk has generated so much painful tension that it has made me, personally, feel proper poorly. We can be comforted, but not complacent, at the thought that something may be expected to emerge from an emergency of belief.

I do not mean belief in anything particular. I do not mean belief *in*, but simply belief—full stop. Faith—full stop. Believing belongs to that area just beyond our explicit knowledge, or so it would seem. It would appear to be pointless to say that I believe in something I know. My belief is to do with things I do not know, which is to say, with things I doubt. There is a TV series of religious

talks and discussions with the title “Doubts and Certainties”—suggesting that these are linked as opposites. They are not, of course. Doubt goes hand in hand with belief and from the time of Kierkegaard it has been realised that faith and belief cannot be equated with certainties. He used his ironic gifts to great effect to demolish the complacency of those who teach that our *starting point* on the road to grace and salvation must be faith. He asserts, more realistically, I believe, that our starting point is at best an incomplete and faltering belief which sometimes reveals itself as a challenge to the doubt that is all around us and within us. To strengthen belief is the Pilgrim’s Progress taught by Kierkegaard—towards an attitude of unwavering faith and surrender that can never be fully realised. Perhaps the struggle to strengthen belief is made harder in our particular period of history because of the prevalence of scepticism and doubt fostered by distorted scientific attitudes, or perhaps we make the struggle more difficult by the confusion and multiplicity of our beliefs. Both, more likely.

According to the mechanistic tradition of the last few decades (at least) in which science has been “pushing forward the frontiers of knowledge” by the processes of reasoning based on logic, we are continually nibbling at the edge of the area of belief and assimilating it into our treasure house of explicit knowledge—that is, the sort of knowledge that can be written down in words, mathematical formulae and so on. The effect of this, in the minds of most scientists and many other people besides, is that we are steadily increasing the bulk of what is known and thereby reducing the area that is unknown, where belief is considered properly to apply. Thus scepticism increases as the area in which belief is appropriate is eroded by the advances of scientific knowledge. In a few words, the more we know, the less we need to believe.

Fortunately this specious reasoning has been broken by the work of Michael Polanyi who has shown with compelling force that belief is *not* confined to that imagined area beyond the frontier of knowledge—it is necessarily included in *all* our forms of knowledge. Jung also broke the false reasoning which suggests that man’s increasing mastery of the unknown diminishes the need for belief, by his concepts of the unconscious. But these concepts are more difficult to grasp, I think, for many people than the more direct ideas presented in logical and dialectical terms by Polanyi.

Polanyi has revealed himself in his writings as a man of quite

exceptional power because he includes feelings and intuition in his work, against a background of brilliantly polished logic, and thinking and sensation functions developed to a very high level in his earlier work as a physical chemist. Twenty years ago his name struck terror into my heart as a student of chemistry trying to understand his mathematical theories of the kinetics of chemical reactions. Whole chunks of the subject were haunted by the awful dread of his name. Now it is different. His book "Personal Knowledge" is the most important thing I have ever read because for me, as a "thinking type" he has made sense, in thinking terms, of the ways in which the subjective dimensions of feeling, intuition and belief can be, indeed *must* be, fitted into our framework of knowledge.

He has distinguished between explicit knowledge—the kind that can be specified and subjected to logical manipulation in a critical way—and tacit knowledge, the non-logical, non-critical and unspecified component that is included in all skilful human activities, including the activity of acquiring knowledge of the explicit kind. The implications of this confront me with a challenge almost as fearful as that which I faced in his reaction kinetics. In fact, it has to do with reaction kinetics in a way and I will try to make clear what I mean by this later. He compels me to acknowledge that my chief task is to teach myself the beliefs I hold. In this process of self-teaching and self-learning I have to use all the explicit knowledge I can acquire and also I have to affirm my own tacit personal knowledge. This affirmation is an affirmation of belief, and Polanyi's main contribution seems to me to reside in the fact that he has clearly shown not only that belief is admissible evidence in the courts of reason, but that it is crucial—the *sine qua non* of all knowledge. You must read his books. It would take too long to go into the concept of tacit knowledge at any depth, and in any case I have still a lot of work to do in order to grasp the full implications. It is enough to say now that Polanyi has shown with impressive clarity and impeccable logic that the paradoxes which appear when we try to interpret the subjective world with the tools of logical reasoning are the artefacts of a clumsy intellectual approach. They vanish when knowledge is interpreted at the two levels of explicit and tacit knowledge. Taken together, these two embrace another word—understanding—that is, comprehending meaning, making sense. It is an active process, literally a *making* of sense by positive

affirmation of belief—and so he says that his task is to teach himself the beliefs he has by a full acknowledgement of the tacit dimension of experience. This dimension includes the unspecifiable knowledge of skilful action and the meanings contained in feeling, intuition and the passionate side of experience.

On personal understanding, as contrasted with the cold light of reductive reasoning, he has this to say . . . I paraphrase—“I shall dwell for a moment on this term—understanding—for I must not smuggle in unnoticed this apparently harmless, but in fact sharply controversial word. A powerful movement of critical thought has been at work to eliminate any quest for an understanding that carries with it the metaphysical implications of a groping for reality behind a screen of appearances. Modern science disclaims any intention of understanding the hidden nature of things; its philosophy condemns any such endeavour as vague, misleading and altogether unscientific. But I refuse to heed this warning. I agree that the process of understanding leads beyond—indeed far beyond—what a strict empiricism regards as the domain of legitimate knowledge; but I reject such an empiricism. If consistently applied, it would discredit any knowledge whatsoever and it can be upheld only by allowing it to remain inconsistent. It is permitted this inconsistency because its ruthless mutilation of human experience lends it such a high reputation for scientific severity, that its prestige overrides the defectiveness of its own foundations. Our acknowledgement of understanding as a valid form of knowing will go a long way towards liberating our minds from this violent and inefficient despotism.” Here is a man who at the height of his career as a physical scientist finds the stature to question the limitations of the terms of reference of the reasoning he has used and the knowledge he has acquired. It is especially interesting that he sees the supposed detachment of the dispassionate, empirical approach of science as an inefficient sham, and the failure of the scientist to see the real passion of his commitment as the result of an unconscious desire to devalue the tacit dimension of feeling and intuition, thereby excluding the possibility of belief from the scientific reckoning.

Sartre might have said that his chief task is to choose the beliefs he holds and to take responsibility for his choice. Jung might have said that his chief task was to discover the beliefs he had and to accept them. There is not, perhaps, such a great deal of difference between these propositions and if the differences and similarities

of approach could be synthesised, what a powerful philosophical framework we would have. We can have it now on a do-it-yourself basis, at a trifling cost. The kit comprises two paperbacks and one slim volume—and, of course, you will have to take a lot on trust, or else buy the complete bumper pack and settle down beside the fire for a great many winter evenings. The key is the dialectic habit of thinking and for a complete run-down on this, we will have to wait a little longer until Sartre has finished his “Critique of Dialectical Reasoning” and one of his devoted commentators has brought it down to manageable size. The essence of it has already been abstracted very clearly by Laing and Cooper. And so, for a very modest investment we have at our disposal an exceedingly powerful intellectual authentication of belief.

This will seem inadequate, to say the very least, to many—notably the clergy who are committed to teach the way towards faith by prayer. It will probably seem equally unsatisfactory to that majority of analytical psychotherapists, those of feeling and intuition for whom belief may represent no particular problem. For these people this talk may seem to be a rather superficial philosophizing—such as might be expected from one whose emphasis on thinking signifies an ill-developed feeling function. I accept this, but then there are a lot of us like that and it presents our society with a massive difficulty which needs, I think, a pragmatic as well as an idealistic assessment. I am speaking for, and to those who find the feeling and intuitive approach to belief difficult or impossible—and they make up such a large and increasing number of people that we must find ways of reaching them and assuring them, in the face of the pressure of scientific and technological attitudes, that to affirm belief is not only philosophically legitimate but also indispensable. We need, I believe, to provide them through teaching with the means to make their beliefs coherent, so that they can make sense, in fact. We now have the means to make such teaching authoritative from the intellectual point of view. I mean, not only to teach the young men and women in the Universities—though this is extremely important and eminently possible because this generation is so receptive, but at the same time very sceptical. I mean also that we should consider more often the possibility of introducing teaching into our work with those in whom the chronic emergency has produced a distortion of living. So often the distortion springs from the collective bafflement of a culture based too

much on logical habits of thinking and on material motivations. In our counselling or psychotherapy we may often detect a fundamental impoverishment of feeling or intuitive values and we may seek to strengthen these aspects of the life of the other by concentrating attention on the weakness. But the effect of this may easily be that the sense of crisis is deepened by the realisation of feeling or intuitive inferiority, and we find that we have embarked on a process of prolonged psychotherapy or on a course of prolonged, perhaps indefinite tranquillisation. The first—if it can be sustained—is more likely to have a happy outcome than the second, but it is scarcely possible for many but the very privileged few to devote hundreds of hours plumbing the depths of their souls.

In his poem "Healing", D. H. Lawrence sees illness as the result of:—

"wounds to the soul, to the deep emotional self
and the wounds to the soul take a long, long time, only time can
help
and patience, and a certain difficult repentance
long, difficult repentance, realisation of life's mistake, and the
freeing oneself
from the endless repetition of the mistake
which mankind at large has chosen to sanctify."

There is an ideal, poetic wisdom here, to be sure—as there is in *East Coker* where Eliot says to his soul, "be still and wait without hope for hope would be hope for the wrong thing; wait without love for love would be love of the wrong thing; there is yet faith but the faith and the love and the hope are all in the waiting." Poets and writers have expressed these truths in many ways, pointing to the wisdom of the reflective life. But we must also look at another perspective, I believe, and when Eliot goes on to say "Wait without thought, for you are not ready for thought" my response is to say that we have not got the time to wait for the perfection of thought, hope, love and faith. We have not got the time for long, long, difficult repentances. We have not got the means either, except perhaps in the matter of thought, and here, I think, we must *make* ourselves ready.

Depth psychotherapy, I think, is essentially a research activity, not a realistic approach *per se* to the immediate help of tens of thousands of people who are breaking down under crisis. If it is a research activity, the results of this research need to be published

and not only within an esoteric framework of knowledge based on insights shared only by those in the same discipline, but also within a wider framework that would be intelligible to the average University lecturer, or better still, to the man in the street. We now have this wider framework which is increasingly accepted in the Universities as authentic, and we could be released from the position of apologists if we would only work within it. If depth psychotherapy has to be seen as personal research undertaken by the very few, it might seem that group psychotherapy would be a way of meeting the numerical difficulty. I doubt it, the numbers are already too great for this and there are other problems. The value of counselling is undoubted but again we have to face the fact that the average consulting time available to the general practitioner is about four minutes and the same would soon be the case for the counsellor or pastor if this work were expanded to meet the need. We also have to face the fact that while most people like giving advice, few like to accept it.

Teaching, however, is different and we now have at least the beginning of the means to do it, at a simple level or at depth. I believe that two major sources of confusion that exacerbate the chronic emergency of belief into overt crises of feeling poorly could be resolved, in principle at least—and over a period of time—by a non-dogmatic teaching that would introduce the thinking person to the idea that belief can be approached by way of the intellect, and would introduce, by an understanding of the tacit component of knowledge, the feeling person to a greater confidence to develop the thinking faculty, by confiding in him the liberating fact that you do not have to be clever to think effectively. I also believe that the teaching must include the awareness that we are psychobiological creatures with needs to affirm bodily beliefs. But before talking about this, let me run back again to the title.

By “feeling poorly” I mean that state of psychobiological doubt that makes it difficult or temporarily impossible for affirmations of belief, psychobiological belief to be made. Let us concentrate on the unspecifiable elements in the condition of feeling poorly. As I said, the words themselves are vague—poorly, off-colour, not myself, a bit shaky, queer, rather low, upset. Vague, evocative words expressing a personal knowledge that all is not well. The psychobiological approach to medicine has

a lot to do with unspecifiables. The flesh is willing but the spirit is weak. The spirit is willing but the flesh is weak. It is not a question of choosing one or the other and then concentrating on the weak spirit or the weak flesh. We have to find ways of taking them both together. Unfortunately it seems to be necessary to invent a new language and this rather slows up the process. Conventional medicine has always been obsessed with specifying illness. It has to, of course, but the labelling process carries certain dangers, and I would like to explore this by being deliberately provocative. So when I say that the slavish attachment of medicine to science is making the names and labels steadily more impossible, and when I look a little more deeply into this, please do not take the ideas that emerge too literally.

Take “idiopathic steatorrhoea”. It means that he has a funny, greasy sort of diarrhoea—and we don’t know what it is. Diarrhoea means a running through—the runaways, in fact. Dyspepsia is now a word in common parlance. It means, of course, upset tummy. The label, the diagnosis freezes the biographical episode of upset into a static condition of being. Thus, “My belly aches—here and now it aches, and it ached yesterday, and perhaps it will ache again tomorrow” turns into “I am a dyspeptic”. The first step, if you are not very careful, down the road to a subtotal gastrectomy (which means that they will take part, but mercifully not all of your stomach away). You will now be a confirmed “ulcer patient”. This might seem like a betrayal of all I hold most precious in preventive medicine which teaches us to take note of trivial upsets in case they presage something more serious which could be prevented from getting a hold. But I do not mean it in this sense. Obviously we should do something about it if our tummies are upset for any length of time, but let us hope that the investigations will be done in the context of health and not of disease. So often, nothing is found by the tests, but the doing of them in the way they are so often done, in hospitals, results in the acquisition of a new identity. The person with the chronically upset tummy, actually the outcome of his chronic emergency, becomes “an ulcer patient”—a terrible blow to vitality which can so easily pull him, through a veritable bog of antacid preparations, to the point where he does in fact develop an ulcer—thereby fulfilling the negative prophecy made by the radiologist “who couldn’t find the ulcer”.

Professionals are always on the look-out—they are busibodies—the lawyer at the party is looking around for signs of impending divorce, the policeman for signs of suspicious behaviour, the doctor for flat feet, the psychiatrist for the ones who talk too loud, and so on. All are bent upon diagnosis as the prelude to treatment. They are trying to specify the unspecifiable, and having attached a diagnostic label, they feel better placed to offer some sort of specific treatment. Broadly, this is the iatrogenic situation. Iatrogenic illness means illness caused by the physician, or in a wider context, trouble caused by the professional. I have a scientific friend—a very gentle, sympathetic person—but she is so immersed in scientific and technical attitudes that she is quite content with the situation where science and technology are harnessed to solve the evil side-effects of the last technical advance. The side-effects are seen as problems and, of course, you can always expect an advance to be attended by new problems. The new problems are then tackled and cured by techniques which bring further problems—and so on. This she calls progress. To me it closely resembles the state of affairs resulting from the interference of the professional who is using his techniques to try to rectify specific faults. A well-meaning but dangerous impulse shared in various ways by all professionals including priests and psychotherapists. It comes about very largely, I think, because people expect to have their faults rectified by the professionals when these same professionals designate them as faulty. Even the most scrupulously careful Jungian psychotherapists who eschew labels like the plague can be tempted from time to time to designate the person as a “patient with a complex determined by the fact that he is a thinking-sensation type with an inferior feeling function”.

Doctors and medical scientists are forever trying to specify illnesses in order to find ways of curing them. We do not devote much time to specifying wellnesses and, in fact, I think there is a basic difficulty here. It is that therapists expect us to be ill and we expect to be well. We take health for granted and regard it as a sort of passive right. We feel that it should be the normal state to be in. I shall try to show that this is not only a wrong assessment, but actually a dangerous one. For me, feeling poorly is much more normal—and not for me only, judging by the recently published figures which show that working days lost for

nervousness, debility and headache rose by 189% for men and 122% for women between 1955 and 1968—and days lost from sprains and strains increased by 267% and 131%. The Director of the Office of Health Economics (which compiled these figures) said that many diseases might occur perhaps because the individual needed an escape path and subconsciously felt illness was socially acceptable and now economically feasible. It is important, he says, to emphasise that in these circumstances there was no question of malingering. It is interesting that in some industries illness is not socially acceptable, but absenteeism is, while in other industries the opposite is true.

In the old days doctors would regard feeling poorly as a disturbance of what was called “the constitution” and would prescribe a tonic or a sea-change according to the circumstances. Non-specific remedies for unspecifiable ailments. The tonic has all but disappeared and as the scientific impulse to specify illness intensifies there is an accompanying production of proprietary medicines with supposedly specific curative properties. Let us put aside for a time the idea of specified illness, equated with a definite malfunction or a characteristic abnormality, and given a name. Let us start with wellness, health, feeling fine, acknowledge that these too are indefinable, unspecifiable states of being, and then move to examine the state of affairs when vitality is diminished and feeling poorly takes over—always trying to see the psychic and bodily aspects together. What we need here is a tonic, a change of air, new surroundings. The tonic will contain non-specific stimulants, the change of air and change of scene provide challenges from a new atmosphere, a different pattern producing experience with more vivid contrasts than the habitual ones. All are designed to break the set of habits that have led to a diminution of vitality. These are the habits of passivity that are so especially cultivated in our society. Activity is the main feature of vitality and inactivity of illness. The stimulating properties of the tonic and the challenge of a new environment—these two go together. A challenge stimulates the body as well as the imagination. The opposite is threat, and threat is separated from challenge by a hair’s breadth. Threatening situations give rise to inhibition. A threat can turn into a challenge if we can mobilise the right resources, and a challenge will become threatening if we cannot. I believe that this subtle system of reversible responses

is crucial in determining the biography of a person.

Looking at it now from the standpoint of severe illness, there is substantial evidence from studies of the cancer process that all of us are potentially cancerous all the time. It is the exercise of powerful vital controls that prevents the latent abnormalities of growth and function from developing into overt disease. We know very little about these controls and we should be studying them far more intensively. What I have said means that the cancers we see are the ones that have been allowed to get away from the control systems that normally sustain our identities. It might equally be true to say that we are all potentially mad, but that most of us have control resources to prevent this kind of retrogression of identity. From this viewpoint the integrity of our beings depends on the sustained activity of controlling systems. It is the balance of these systems that is affected by challenge or threat, and the systems are said to be more or less competent. It is interesting, in passing, to note that the tonic traditionally contained strychnine which in very small doses is stimulating, while in bigger doses it is extremely threatening.

In cancer it is certain that the balance of the systems concerned with self-recognition are disturbed and operating poorly—this is called homeostatic incompetence. In psychoses there is cognitive incompetence at another level. Perhaps, as has been suggested, the two diseases processes are related as alternative modes of expression of proneness to regressive illness. Both are destructive of the self through failures of recognitional competence, leading to disorganisation. That failure of control should lead to disorganisation seems obvious enough, but it does imply that the controls *actively* sustain healthy functioning in the face of a tendency to slide from the harmonious to the discordant, from the dynamic and orderly attributes of life to the static and chaotic condition of death. It implies that vitality *has to be* an active process and it also implies the danger of passivity. We are all illness-prone, some relatively more so than others. We are all ultimately 100% death-prone, and since this is the direction in which we are moving it is small wonder if we feel poorly when the struggles of life turn from the invigorating challenge to the destructive threat.

Let me now run back to the beginning again where I talked about the chronic emergency of belief. This may be taken either

as a challenge or suffered as a threat. For me, to teach myself the beliefs I hold—whether philosophically or through the process of analysis—has its threatening side, but also a stimulating and challenging one. I am in doubt, and the doubt makes me anxious. It makes me feel poorly—aches and pains and fears and moods shared with my analyst and my long-suffering wife—and unconsciously I expect with my succession of secretaries who leave on one pretext or another.

Where have we got to? The tacit, unspecifiable components of health and illness, the challenge and the threat, the doubt and anxiety aspect of feeling poorly, the need to teach the affirmation of belief to the poorly, doubting ones. Before considering the question, how to teach, let me go off on another tack. I think we should consider the place of training in our contact with people in breakdown and see ourselves more as teachers and trainers than as therapists. The idea of training suggests that we must now look at what we mean by bodily beliefs and doubts. Try as we may we have to fall back on the division of the human being into the categories of mind and body—and indeed, our definition of ourselves as psychotherapists indicates our acceptance of this division clearly enough. We are self-acknowledged mind-treatment specialists but most of us prefer to use the words “working with the person” rather than “treating the patient”. The “work we do is almost wholly psychic work and the person has to be very patient, physically, sitting on the chair or lying on the couch. We pay, I think, too little attention to the possibilities of psychobiological training to help people to affirm bodily belief.

What do I mean by psychobiological belief and doubt? I do not really know, and so this might be the place to try and bring together the seemingly unconnected parts of this discourse by summarising them. Perhaps in the process some meanings will be derived. I have suggested that the affirmation of belief—that is, personal knowledge and meaning, is to be equated with the promotion of activity, stimulation, challenge and expression of life. The opposite is negation, that is to say, positive denial of belief—disbelief—and this can be associated with suppression of activity, inhibition, threat depression and meaninglessness. Between these poles there is the area of doubt which is associated with anxiety. There is where a lot of us live. If the need to assert belief is not fulfilled adequately a passive drift away from vitality towards the

area of doubt and anxiety will follow, causing, I believe, the painful states of feeling poorly. The movement will lead further downwards towards the area of negation if, as Tillich puts it, the 'courage to be' cannot be harnessed to cope with the painful anxiety of doubt. Thus, the self-teaching of belief is a constant struggle of affirmation of meaning in the face of doubt, and the greatest danger is passivity. Making one's own sense is an active, energetic process and I have to work for it. If I do not work hard enough to develop wellneses, I will develop illnesses—at first the vague miseries that should act as warnings that passivity is allowing the vitality to slip away, and then, if the warning is not heeded, I will slither towards the more serious sickness of meaninglessness—what Kierkegaard called the sickness unto death.

We are all familiar with psychic doubt and anxiety, but what is bodily doubt? It is, I think, contained in these vague and various syndromes of feeling poorly; the passivity giving rise to fatigue, the loss of skilful co-ordination giving rise to clumsiness, hesitancy of movement producing tremor, uncertainty of posture associated with dizziness, irregularity of heart, respiration and bowel actions producing palpitation, sighing breathing and constipation or diarrhoea, and of course, all the attendant secondary consequences of disordered function—the tension, spasm, pains, insomnia and so on. The affirmation of bodily beliefs towards the resolution of bodily doubt is taught by the Alexander Foundation, a movement that has been much despised by the medical profession but one in which I have the greatest confidence. I felt better than I could remember feeling for years after a few months of Alexander training. I believe that this has a very important part to play in the design of psychobiological training and we should pay more attention to it, I think. It is not altogether too late to do so although the headquarters of the Foundation had to close, there are several Alexander teachers still practising. We should also take very seriously the work being done by some of the "body awareness" movements in the States. We should note that there is very little to encourage a full psychobiological training in self-affirmation between the couch and the health club or the dance hall. I think that the emphasis on the primacy of the psyche may have consequences as dangerous as those resulting from the specialisation on the mechanisms of the body in the

average hospital. Much of the practise of modern medicine has the unhappy effect of reducing the person's psychic capacity to mobilise the resources needed to turn the threat of illness into a challenge. Perhaps we should consider whether analytical psychotherapy may carry a similar danger of reducing the person's bodily resources. Again, of course, I am making the unsatisfactory division into psyche and body instead of finding a way of expressing the overall psychobiological balances.

The stress that Polanyi puts on the importance of acquiring and cultivating skill is perhaps the crucial way in which his work complements that of Jung. It reminds us that we live in a world of action, a dangerous world in which we must be more than merely competent—we must be skilful if we are to meet the collective and personal crises of anxiety as challenges. I think it takes skill, acquired through training and practise, as well as through insights, to enjoy all the wellnesses, the expressions of vitality in action. It is an art to live skilfully in a dangerous world, to establish the habits of need and fulfilments that alone can provide the vivid and vital contrasts, the necessary dramatic element in the satisfaction of appetite and drive. This is what I meant when I said that Polanyi is still talking about reaction kinetics, so far as I am concerned.

Let me take a personal example, emphasising—alas—the doubt, anxiety and passivity from my own experience. My reaction to a situation that is seen as threatening is one of fear, inhibition and inaction. My latest secretary having left, I see it on my desk every morning. The threatening pile of unanswered letters weighs down my spirit, presses down, *depresses* me. I sit for a time in a sort of apathetic stupor. Then I pull myself together—that is, I mobilise my resources, and with the help of a tonic (a cup of coffee), the situation is met. The problem, as always, is *starting* and this is the time when the threat is being faced and the reaction of challenge is being adopted. As the letters are answered—slowly at first—the activity begins to accelerate until I get so stimulated that it is a problem to stop. Very clumsy, this stop-go pattern, and attended by aches and pains, anxiety and the rest. Obviously there is a need for some more skills here, and for me this can be encouraged by the insights of analysis. Clearly I do not teach myself the beliefs I hold very effectively and the example does not serve to uphold the universal efficacy of self-taught philosophy.

For that matter it does not seem especially to exemplify the efficacy of the insights gained in analysis either. My personal reaction kinetics leave a lot to be desired.

But there is a fundamental difference between teaching oneself one's own convictions—either by philosophical exploration or by the exploration of analysis—and *being taught* with the authority of the doctors and pastors of earlier, more assured generations. The prescription and dispensing of the tonic carried this authority and its most essential stimulant ingredient was the trust. To recapture this relationship of trust between the one who feels poorly and who knows in his heart that what he needs is encouragement to gather his strength to face the threat as a challenge—and the other, the doctor, therapist or minister, seems to me to depend very much on the recovery of that authority. This may be very difficult to achieve in the face of the authority that is wielded by the mechanistic scientist and the computerised doctor. To teach with authority depends nowadays on having a coherent and rationally consistent body of knowledge which can be readily communicated at every level, from the elementary and popular to the level of research and scholarship. I think we are in reach of this position and that we should work towards it, to discover and strengthen the authority of the educator, the trainer in psychobiological skills.

Speaking in the context of the Adlerian school “with its educational intent”, Jung remarks that it is obviously not enough to know how and why we fall ill, “for to understand the causes of an evil does very little towards curing it. We must never forget that the crooked paths of a neurosis lead to as many obstinate habits, and that, despite any amount of understanding, these do not disappear until they are replaced by other habits. But habits are only won by exercise, and appropriate education is the sole means to this end”. Perhaps I am something of an Adlerian without realising it. And perhaps my wife is right when she tries to educate me to adopt the simple new habit of early retiring and early rising—a radical example of psychobiological action-teaching, to improve the quality of my reaction kinetics.

“Pseudo-sciences” and “Pseudo-medicines”

Jonathan Green

Health is ‘natural’ and thus unnoticed: illness is ‘unnatural’ and often a traumatic experience. The primitive feeling of being possessed by a devil is no mere superstition; it is the expression of a real experience. The illness is an alien intrusion which nevertheless shares a person’s uniqueness, but it is uncontrollable and holds finally the promise of death. In illness many of the connexions with normal experiences are severed, in societal terms the ill person has a place, but one which often lies on the very fringes of society; the sick are deviants—and like all deviants embody many of normal society’s fears. In these terms, the function of medicine and specifically the doctor is, by *recognition*, to ‘reaffirm the social content of the invalid’s aggravated self-consciousness’; and, by *cure*, to reintegrate the patient into normal society—the needs of the individual are met and the equilibrium of the society is supported.

Given this function, this arbitration in matters of life and death—normality and abnormality—it is not surprising that the medical system of any culture reflects that culture’s deepest beliefs regarding the nature of man, the position of man in relationship to nature, the state of society—as the saying goes “we get the medicine we deserve”

So in medicine, science of nature and philosophy of nature are closely intertwined. And, importantly, it is also an area in which knowledge and thought are expressed and tested in *action*—an area in which ideas can attempt to change the realities of experience and likewise experience can feed back to modify ideas.

In his intermediate role, the doctor is vested with the particular analytical tools of his culture: in a society centered in philosophical knowledge, he is a philosopher; in a magical society, a magician; in a scientific society, a scientist; in a machine age perhaps a computer. He mediates between this knowledge that he has (it is general and objective), and the patient’s subjective experience of the loss of health.

His perception must be in continual oscillation between these two categories of knowledge, as a basis for his action they must

almost be fused into one. This is the ideal situation. Does the knowledge that we have make it realisable? Our categories are on the one hand a scientific conception of the world and on the other experiences and needs of the individual. This would suggest not that “we get the medicine we deserve . . .” but that “we get the medicine we need . . .” Is there a difference?

These are two questions I want to bear in mind. Society is not of course as homogeneous as my scheme suggests—there are alternatives. When the needs of patients conflict with the model of treatment which they are offered they have various choices:

- 1) to reject any treatment, accept their position and experience the illness unaided.
- 2) to suppress their needs, to offer themselves up as faithful reflections of the medical model—they will give the answers which they know the doctor to expect. (The ‘awkward patient’—that common complaint—can be at an uneasy position in between).
- 3) to search for other medicines.

From the orthodox viewpoint, these last ‘fringe’ medicines are considered to be based on ‘pseudo’-sciences. They are ostracised forms of medicine precisely because they are based on rejected or ignored knowledge. But they satisfy certain needs. It is aspects of these pseudo-sciences and their associated fringe medicines that I want to consider: not because I necessarily favour or trust rejected knowledge (although there is always the potential of its ‘rediscovery’) but because I think it is significant to try and define the special needs that they supply.

The line of demarcation between science and pseudo-science—like that between science and metaphysics—has always been problematical. And it becomes more so as the history of science becomes a richer discipline, as it becomes concerned with wider and deeper issues than merely plotting the advancing ‘edge of objectivity.’ But if this is true of history—a discipline which always tends to harden the vague outlines of experience—how much more true must it be in the minds of scientists themselves? We find flowing throughout the main stream of analytical scientific progress a continuing undercurrent of impatient leaping imaginations, the attraction to the miraculous and spiritual and (most important) the synthesising will, striving for unification—these not only existing together within society but jostling away within single minds. The Victorians with their analytic and atomistic methodology but

their vitalist vision of matter; Newton, working more on alchemy and theology than on the Optics (separating his papers so that the 'scientific' ones are in Trinity and the 'non- or pre-scientific' are in King's), can only give the illusion of a coherent order of things. Like the lazy scientist, the historian can use the principles of teleonomy as a short cut to order: the meaning and purpose of the past always lay in its progression to the present—it is as jaunty and facile as the alliteration.

Goethe's scientific writings are rarely included in Histories of Science (time will almost certainly rectify this). It is a wonderful imagination wandering through the scientific world; he shows clearly the attempt to synthesise subjective and objective knowledge, rational and irrational, general and particular. This attempt I take to be the motivational force behind most 'pseudo-sciences' and one which is maybe relevant to the first of the two questions I asked earlier.

An intellectual and social snobbishness underlies Goethe's opinion of the scientific 'guild' (his word). They did not have the culture, the imagination to perceive the world in its true Platonic reality and organic unity. They analysed and reduced indiscriminately. Goethe synthesised, yes, but most importantly he wished to perceive every object, every fact, in its true richness in its relation in time and space to the whole.

"The highest boon would be to understand that all facts are already theory. The blue of the sky reveals to us the basic chromatic laws. If we would only stop looking for things behind the phenomena; they themselves are the theory." (*Jubilaums xxxix*).

The key point in Goethe's science is that this wedding of experience and idea can only be accomplished by a most refined intuitive contemplation: "There exists a most delicate empiricism which aims for the most intimate identity with the object and thus becomes the actual and proper theory A special slant of mind is required to grasp the shapeless reality in its own terms and this is to be distinguished from brain-spun phantoms which to be sure, importune us with a certain reality of their own." (*ibid.*)

Experimentation and analysis is certainly not rejected, but it must be at the service of this intuition. In his discovery of the intermaxillary bone in man Goethe demonstrates his method: it was, literally, a bone of contention since contemporary scientists

denied its existence in man and took this as evidence of man's essential distinctness and divinity. Seeing its presence right through the vertebrates (although expressed in a different shape and form between species), Goethe felt the bone as an 'idea' and searched for the inevitable corresponding reality in man. And he found it.

In his introspective consideration of the processes of science and his attempt to relate analytic knowledge to a wider intuition which includes subjective experience, Goethe on the one hand harks back to many 'pre-scientific' cosmologies such as those of China, but on the other hand anticipates many problems that we have to-day (the dangers of abstract and closed theoretical systems, the alienation from our sensible world): many scientists—Heisenberg or the biologist Ann Arber for instance—have written in praise of his methods. Perhaps, then, there is some cyclical movement which is on the verge of being completed; Joseph Needham certainly thinks so—"the gigantic historical paradox remains that although Chinese civilisation could not spontaneously produce 'modern' natural science, natural science could not perfect itself without the characteristic philosophy of Chinese civilisation."

There are problems of course. Such a science as Goethe's can fail the test of authenticity that seems now to be the guide rope for science—that is *falsifiability*. Freudian psychology is not dissimilar. We look to both for *insights* rather than *facts*—but then insights may contain facts, although somehow they penetrate through and get behind them, and because of this I would maintain that they are particularly valuable in portraying the dynamic structures and relationships within reality.

Goethe's is a methodology which is analytical and experimental but directed by intuition. He is like those birds who hover way up over the sea searching for fish and then, when seeing one, curl up and drop like a stone into the water, grab the fish and ascend again to digest it at a height—they are extremely accurate and almost always get a fish. Goethe likewise.

If we then accept this as a way of knowledge can we (going back to my earlier remarks) conceive of a medicine based upon it?

Some of its characteristics can be inferred. It will be opposed to any purely mechanistic model of disease processes. The striving to see any element or fact in the context of an intuition of the whole will lead to the search for dynamic processes and the treat-

ment of the patient wherever possible as a totality. Questions of the content of a medical system (the specific explanations for diseases, the details of cures) are not here as important as the methodology used—the way in which the patient and the disease are approached. The Chinese medical system as it grew out of Taoism is one example. I outlined the central tenets of this medicine in my last article (*Theoria to Theory* Oct. 1972) and although to talk about it would be relevant at this point, what I would say would largely be a repetition of what I said then.

Until Joseph Needham has completed the Volume of his *Science and Civilisation in China* devoted to medicine, there is not really enough information to compile more than a sketchy account of their system. Besides, there would perhaps be a greater sense of immediacy and relevance if some medical ideas of the last few hundred years in the West are considered. And in an exploratory way I would like briefly to hint at a tradition that can be found in this area.

A figure whose scientific ideas paralleled Goethe's, and, as he admits, one on whom he drew as a model for his 'Faust'—was Paracelsus (1492—1541). Like his contemporary, Luther, he was a great iconoclast. He was, intellectually and socially a rebel and an outcast; leaving his medical training uncompleted he wandered around Europe searching for a knowledge that would satisfy him. His social ostracism was quite possibly an important factor in the stimulation of his radical theories: living on the 'fringe' of society, he was constantly in close contact, physically and emotionally, with those other fringe inhabitants—the sick. His teaching is, in its positive aspects, a new empiricism, the attempt to break away from the traditional philosophy of the day—which was the formalised mechanistic theory of humours and their purgative antidotes (the doctor attempted to describe disease by the dominance of one humour over the others and then prescribed the appropriate antidote; thus for a melancholic — cold and dry — disorder, a salty — hot and moist — purgative would be given). Paracelsus was an empiricist—not only in our usage, but also in the contemporary sense, which used the word derogatively as describing doctors without academic standing who picked up knowledge from outside the colleges, and who experimented with new drugs. Paracelsus was proud to do both these

things. Continually surrounded by the mentally and physically ill he developed the passion for observation and restless exploration which his descendants inherited: "He conceived of Nature as a self-consistent self-constituted whole, governed by all-pervading laws which apply to the human body as they apply to inanimate nature. . . . No creature occupies a hierarchic place in the universe". He was led to what was, relative to his times, a materialist view of the psyche: "Not content with attributing a manic-depressive cycle to the ebb and flood in the melancholic humour, he described the incidence of mania upon a melancholic, upon a choleric person, etc. Each according to his or her predisposition may produce a different syndrome; the physician's task is to find the centre of the disease. Not possession by a demon or deficiency of some humor, but disturbance of the whole personality produces the morbid state of the patient. The doctors must therefore build up the personality". And in his analysis of the human metabolism "All his categories were dynamic rather than static, and functional rather than structural. He studied the human body as a living whole, its physiology rather than its anatomy, its working growth and decay rather than its several member"s.(i)

What should be emphasised, and what I cannot convey here, is the mystical, Cabbalistic language in which these ideas are conveyed—and which, coupled with the stories of his wandering and drunkenness, led to his categorisation as a 'pseudo-scientist'. But without this brief glimpse of Paracelsus it is impossible to see the work and importance of Franz Anton Mesmer in perspective.

Mesmer's theories, also, came to be seen as subversive and pseudoscientific by the Paris of the French enlightenment. His theoretical system derives largely from Paracelsian ideas, and it has a similar relationship as Paracelsus' to the orthodoxy of the day. His importance, however, lies in the nature of the therapeutics whose use he began to explore.

Soon after qualifying as a doctor in 1766 Mesmer was introduced to the currently popular therapeutic use of magnets. The phenomenon satisfied his predilections, for his doctoral thesis had been on the 'influence of planets upon disease'—and where did magnets originate but from meteors, and weren't these planets? He went around magnetising everything from women to trees. The

(i) The quotations are from Henry Pachter's study of Paracelsus, 1951.

turning point in Mesmer's career came with his discovery that a similar therapy was possible *without* using the magnet, that merely by passing his hands over the patient he could produce the same effect. "Of all the bodies in nature" he was led to say, "none is so potent in its influence upon man as the body of man himself". He postulated the influence of a general principle, — and using the analogy of the magnet, he named it "animal magnetism". So, discarding any physical intermediary, he dedicated himself to refining this capacity of influencing the patient directly. Rather like the Chinese, he saw illness as a disturbance of the harmonious balance of fluidic ebb and flow of the body and his treatment as developing the patient's 'will to health' which could aid his mesmeric 'passes' in restoring the balance. When one considers the traditional medicine of the time—based on the use of purgatives and copious blood letting—one sees how original his approach was.

There is no doubt that this method achieved remarkable results. The father of a blind girl, with a blindness of clearly psychogenic origin, writes a detailed report of her recovery of sight under Mesmer's treatment. His description of her reactions and of the initial aberrations in her sight, are so in line with modern clinical knowledge that it is hard to believe that he could have made them up.

The girl's condition regressed however when she left his care: Mesmer was forced by his colleagues to leave Vienna and he travelled to Paris. It had been a misunderstanding to accuse him of charlotry: "(Mesmerism) is a scientific fact" he said, "whose causes and effects can be studied. I admit that so far I have not been able to unravel the mystery . . . I do not need judges but pupils".⁽ⁱ⁾ In Paris—Mecca of the miraculous—he found more pupils than he could handle. Mesmer was by nature an observer rather than a builder of systems but the French went overboard—they saw him as "an explorer who had embarked on uncharted seas of fluid and returned with the elixir of life".⁽ⁱⁱ⁾ Almost without realising it his explorations had touched upon a dark continent (that of the mind); but the French were mainly interested in the elixir. They proclaimed the 'new Paracelsus', the initiator of a new romantic vitalist science of nature. Mesmerism filled a vacuum. "It cut to the core contemporary attitudes, exposing the need for authority in the vague speculative area where science and religion

(i) Stefan Zweig, *Mental Healers*.

(ii) Robert Darnton—*Mesmerism and The French Enlightenment*.

met . . . it appears as an affair of conscience, a challenge to the imperfect arrangement of the thoughtful man's beliefs. Seen in the polemical literature which brought it before the public, it appears as a challenge to authority . . ."⁽¹⁾ For Mesmer's doctrine was combined with elements of Rousseau—such new conceptions of health and disease and the shifted demarcation between them, demanded a new society of which they took Rousseau to be the prophet.

As for his therapeutic work, Mesmer set up a salon which is one of the most interesting aspects of his work. Among his followers there was a continual debate as to whether the animal magnetic effect was due to a fluidic substance which flowed between doctor and patient, or whether it was the result of the mere presence of another mind. The first possibility guided Mesmer's own method. His famous 'Baquet' was a bath filled with iron filings and water; participants at a session sat around the tub holding metal rods dipping in the water and also holding each other's hands around the rim. There were dim lights and soft music emanating from elaborately decorated walls. For an hour the patients would sit, receiving fluidic emanations from the Baquet. Then Mesmer would enter, dressed in a long purple robe and holding a wand. He went round the circle, asking the patients about their complaint and passing his hands over each of them. Quite soon the incredible tension would be broken by a 'crisis'—a patient would begin to tremble and cry, often collapsing onto the floor from where he or she would be carried to the 'crisis room'. This would of course set off other crises—until each patient had had the experience. The crisis was of great importance, Mesmer claimed, for it signified the 'will to health' finally coming to the surface expelling the disease.

This form of treatment is not, of course, unique; it seems similar to Reichian therapy to name but one. Although a detailed theory of telepathy—if one is ever produced—could support Mesmer's 'fluidic' interpretation, we would be inclined today to see it in terms of group therapy, mass suggestion, and individual hypnosis: and in fact it was an 'animist' follower of Mesmer, James Braid who in 1850 coined the term Hypnotism, and Berheim, Charcot and lastly Freud successively studied the same phenomenon.

Mesmer's success was remarkable—Mesmerism was patently

(1) Darton *op. cit.* p.61.

more important than just a passing fashion. For an explanation of this we should examine the way in which it answered the particular needs of the society it ministered to. There is perhaps a significant parallel here with the late Nineteenth Century Viennese society in which Freud conducted his similar explorations. Both periods (Mesmer flourished in the 1880's and 90's) were in the decades preceding major upheavals; both were dominated by a 'fin de siècle' mood and by a wealthy, leisured, but neurotic and uneasy aristocracy. Both were perhaps particularly alienated societies. On their own admission, both Mesmer and Freud only dealt with complaints of psychogenic origin. An important aspect of both, it seems to me, was the way in which they could meet the needs of the society they served.

The precise object of psychoanalysis as developed by Freud is to integrate or bridge the gap between the external symptomatic disease state and subjective personal experience. Thus the symptoms of, say, hysteria are the external expression of an internal disorder,—and it is this disorder which must be treated. Like Mesmer, Freud used hypnosis as a method of getting at this internal imbalance (in talking of the mind it seems often that we still use the language of Paracelsus). Freud is mediating between external and internal experience in a way analogous to that which I described earlier in talking of the doctor's role. Although Mesmer never developed anything like psychoanalysis it is arguable that he is dealing with largely the same needs in his patients. One thing which I think can be learnt from the success of 'pseudo' medicines is that this need is widespread, and is not confined merely to neurotic disorders. And I have a feeling that this need, in a transmuted form, is the driving force behind the creation of many forms of pseudo-science. It has been argued, of course, that to talk of Mesmerism in Freudian terms is merely to replace one pseudo-science by another. I would not necessarily disagree. But we are concerned here with medicine and not science. In the kind of 'knowledge' on which medicine is based, the criterion of truth cannot be that of falsifiability. The pragmatic criterion is more useful; in the words appropriately enough of Goethe "the fruitful that alone is true". So the measure of relevance (and it is only a measure) that we can find in Mesmerism is in the methodology of the doctor (perhaps I should substitute 'medical institutions' here) and in his relationship to the patient.

With the progressive rise of 'rational science' has come the rise of a complementary medical system. With the accompanying progression of 'metaphysical sciences'⁽ⁱ⁾ has come a succession of 'fringe' medicines. (I would actually like to put these contrasted pairs in different positions on the same spectrum). A characteristic of many of the latter has been an aversion to the Cartesian Mind-Body Dualism, and for this reason these sciences are often reminiscent of other sciences. For this reason too the medicines have tended to emphasise the role of subjective experience in disease states and cures (Mary Baker Eddy, founder of the Christian Scientists, went so far as to pronounce that all disease states—including death—were illusions, since disease was bad and the God who made us was capable only of Good. The patient, to be cured, had only to be helped to overcome the illusion. I think she must have eventually found out her mistake but she never let on).

Why the success of these pseudo-medicines, with what is usually their vague mixture of religion, metaphysic, and science, a mixture that often seems so unsatisfactory, even when, in hindsight it is seen (as it often is) as an anticipation of some of the deepest discoveries? The search for instant cure, or the inherited need for the primitive native doctor? People are not quite so reactionary. Perhaps an answer can be most closely approached by seeing that illness is frequently a form of self-expression rather than a surrender to natural hazards. Faced with a medicine that recognises and treats only behavioural and symptomatic phenomena, such a patient has no choice but to capitulate and relinquish this form of expression in favour of becoming the doctor's 'case', becoming, as it were, coded (quite literally so as hospitals become computerised) into a private knowledge of science which is the doctor's alone and only translatable on sufferance. Thus the methodology of the doctor in approaching the patient has a deep effect on their relationship and also, of course, on the kind of cure that results from it. This point, the confrontation of doctor and patient, is a focal one for the nexus of strands that make up medical practice: its effect is on the doctor as well as the patient—it is, for instance around this point that the often deleterious hierarchical structure of the hospital or health centre is built up. This point, also, is where types of

(i) There is a value judgement to be made here between 'metaphysical' and 'pseudoscience'.

medicine that have not become so alienating exert their appeal. The essential thing seems to be recognition: not only recognition on the physical, material level—as a body among other bodies and in a material universe; but also on the level of the self—as a self among other selves and in a universe of self (i.e. a metaphysical universe).

The doctor, says John Berger, “should recognise his patient with the certainty of an ideal brother. The function of fraternity is recognition . . . the whole process as it includes doctor and patient is a dialectical one. The doctor in order to recognise the illness fully—I say fully because the recognition must be such as to indicate the specific treatment—must first recognise the patient as a person: but for the patient—provided that he trusts the doctor and that trust finally depends upon the efficacy of the treatment—the doctor’s recognition of his illness is a help because it separates and depersonalises that illness”. He writes this while describing the practice of a doctor in a remote country practice,—and the implication is that *this* doctor succeeds in his brotherly function. But remote country practices are dying out. The doctor himself comments “I sometimes wonder how much of me is the last of the old traditional country doctor and how much of me is the doctor of the future. Can you be both?” It is clearly vital that he should be both.⁽ⁱ⁾

Following the argument developed earlier,—a medicine extended (it is now a question of extension since one cannot regress) to cover these needs—needs which pseudo-medicines seem always to have striven to meet, albeit unconsciously—must be based on an extended knowledge, an extended science if you like. In hindsight some of the metaphysical sciences I have mentioned may be seen to have anticipated such a science. More specifically, I postulate a broader, more sophisticated dynamic psychology, as dwell as a deeper knowledge of the aetiology of disease, and a restructured hospital system. But the changes may be still wider: I hope I have shown that medicine, composed as it is of *human* biology and its philosophy, is a most subtle fusion (in action) of both *Theoria* and *Theory* — and the title of this journal, *Theoria to Theory* (perhaps more appropriately even *Theory to Theoria*) underlies all I’ve been trying to say.

(i) *A Fortunate Man* (Penguin).

Prototypic Organisms IX: *The Cat*

Priscilla Edwards

The origins of the cat, in keeping with its popular image, are rather mysterious. Of the several wild species that belong, like the domestic cat, to the genus *Felis*, two are strikingly like it in appearance. Both bear the familiar tabby markings on a sandy-rufous background, and are much the same size as the domestic cat. The more familiar is the European Wildcat, *Felis silvestris*, formerly found across Europe from Britain to the Caucasus and Asia Minor, but now rare almost everywhere except Scotland. The second species, the African Wildcat, *Felis libyca*, is found throughout Africa, Arabia and India, and in Africa at least is still plentiful. Both of these species appear somewhat larger than the domestic cat, but this impression is mainly due, in *Silvestris*, to its longer coat, and in *Libyca* to its longer legs. The domestic cat is generally supposed to have resulted from a crossing of these two species. It has been shown that in zoos the European and African wildcats can and do hybridise; in addition, forms intermediate between the two are found on some Mediterranean islands where their ranges meet. An indication of the domestic cat's close relationship to these species is the fact that it will hybridise with both of them. Unfortunately, records are scanty, but there is at least one authenticated case of fertile *libyca* hybrids. Historical and linguistic evidence, moreover, suggests that the domestic cat originated in North Africa or the Near East, and hence that its main progenitor was probably the African Wildcat; although it is likely that it crossed with the European Wildcat at a later date. The linguistic evidence involves the words 'puss', 'tabby', and 'cat' itself. Latin 'Catus', first used by Palladius in the fourth century A.D., can be traced back to the Arabic 'qitt' (pronounced quttáh) and to various related forms in the Berber languages. 'Tabby' is thought to derive from the Arabic 'attabi', the name of the quarter of Bagdad famous for its watered silk. 'Puss' and the colloquial Arabic 'bis' are possibly corruptions of Pasht or Bast, the Egyptian cat-headed goddess of fertility.

Much of the charm cats exert as pets is due to the unique relationship they have with man. The fact that they so easily revert to

the feral or wild state, and that they have never been cut off from the wild species and bred in isolation, means that they cannot be regarded as truly domesticated. The cat shows very few of the marked physical changes associated with domestication, such as reduction in body and tooth size, and shortening of the face; this makes it very difficult to decide whether cat remains are those of wild or domesticated animals; and in addition, most cat finds near very ancient human habitation have been associated with the remains of wild species like foxes and otters, which makes it highly likely that the cats too were wild. Because of these difficulties, the first clear record of domestication comes not from archaeology, but from art. In Egypt, during the sixteenth century B.C., cats were depicted as helping men to hunt birds, and as sacred to the goddess Bast. However, this is thousands of years after the domestication of dogs, goats and cattle, and the true date of the cat's domestication may, in fact, have been earlier than this.

Cats were worshipped and jealously guarded in Egypt; their spread would doubtless have been more rapid had the Egyptians not placed an embargo on the export of a sacred animal. However, cats were known, but scarce, in pre-Christian Greece and Palestine, and rapidly became more common with the spread of Christianity. The appeal of so graceful a species, and of its delightfully playful young, led almost immediately to its being kept as a pet as well as a pest-destroyer in place of the ferret or polecat. The Romans were responsible for introducing the cat into central and western Europe and Britain, where it probably lived in a feral or semi-feral state as much as in a domesticated one, and could have crossed any number of times with the European wildcat. In Europe during the Middle ages it suffered a reversal of fortunes. As in China and parts of Africa the cat had become associated with witchcraft, and black cats especially were regarded as embodiments of Satan; as agents of the devil, cats were buried, burnt or roasted alive, especially during Lent, in ceremonies of exorcism.

Today the cat's position in society has become more complex. Although deprived of our religious attentions, it has gained the devotion of the Cat Fancy, that large force of breeders who are differentiating the cat into fancy breeds and who no doubt will be largely responsible for bringing about all the usual physical characteristics of domestication in the future. It has also gained the attention of scientists. This had begun by the end of the nineteenth

century, when Mivart* published his well known treatise on the cat. In it he praised the species for its perfection of form and efficiency, and went on to claim that by studying it we would gain “useful lessons in anatomy, psychology and zoology, and others referring to the past, the present and even the future history of this planet”. Although this final claim does seem a bit ambitious, the cat’s value in anatomy and physiology laboratories has been recognised for decades. It has proved so useful for several reasons. First, the structure and functioning of most of the cat’s vital systems are basically very similar to man’s. In addition it is both large enough to allow the use of modern surgical techniques and small enough to be easily manageable; it is also tractable, tough, plentiful, and relatively cheap to buy. For these reasons cats have played a vital part in almost all the major work on mammalian brain function, including those areas like memory and dreaming, which are generally regarded as typically human activities. They have also been used in drug work, to test the effects on growth, weight gain, perception—the list would fill pages. Although cats have traditionally been part of the psychology laboratory, work with them there has often proved unsatisfactory because of the common difficulty in getting them to work well in experimental situations. An exception to this was Thorndike’s work on the performance of cats in puzzle boxes. The learning theories which these experiments gave rise to have been important ones in the history of the subject, forming the basis for the American School of comparative psychology. The question of colour vision is a good illustration of the difficulty often experienced with cats. Granit won the Nobel prize for his work showing that the cat retina possesses the necessary structures for colour vision; and yet later workers could not get the animals to demonstrate behaviourally that they were able to discriminate colours. Because of this ‘perverseness’ cats have usually been placed rather low on psychologists’ rankings of animal ‘intelligence’; and psychologists were not the first to form this opinion. Common usage defines ‘cat-witted’ as being obstinate and unteachable (and also conceited—for presuming to do without human tuition?). And yet for centuries cats have been popularly regarded as one of the cleverest and most cunning of predators. These two conflicting assessments should serve as a reminder that it is misleading to rank the

*“The Cat. An introduction to the study of backboned animals especially mammals.” St. G. Mivart. John Murray, London, 1881.

intelligence of a species by its performance in a situation for which its evolution has not adapted it.

In contrast with the years of laboratory work, the natural behaviour of cats had received almost no attention until quite recently, as a result it is not surprising that many interesting areas of behaviour have not been investigated at all. (Purring is just one example. It is thought to be produced by the vibration of "false" vocal chords in the larynx, but its significance in the social context is still entirely open to conjecture.) From the little we do know it appears that cats are semi-solitary animals, nocturnal and crepuscular (active in half-light) forming groups only in the mating and litter situations, hunting alone, and generally modifying their behaviour to avoid contact with others. Observations suggest that they have fairly extensive ranges containing several regularly visited loci; these ranges are traversed along fixed routes, and marked by toms with sprayed urine. The ranges are shared by other individuals who, it is thought, avoid contact with the sprayer by gauging the freshness of his urine. (A similar system of dispersal through spraying has been postulated for cheetah groups.) It has also been suggested that the tree clawing of the European wild cat is a form of territorial marking, and if this is shown to be correct, clawing could serve the same function in the domestic cat. Work at present in progress is revealing a far more complex system than one of urine spraying alone. The cat is regarded as crepuscular rather than purely nocturnal because it is active in twilight, and because, unlike the truly nocturnal animals, its pupil is adapted to cope with a range of light conditions rather than one. The tapetum lucidum is the shiny layer at the rear of the cat's eye which reflects light back on to the retina, thereby increasing the amount of light striking it. It is this reflection that causes the cat's eyes to shine in the dark—a ghostly feature and one of the qualities which has always made the cat seem such a likely link with the supernatural.

The nocturnal habits, shining eyes and variable pupils probably explain the cat's connection with the moon, a connection which was present in ancient Egypt and is with us still. The moon, of course, is also an age-old symbol of love and stealth: the nineteenth century 'moonlighter' for harlot combines these qualities. The cat's cosy intimate character before the hearth is another quality with unexpectedly sinister implications; for it has made the cat a comforting companion for lonely old women, the traditional

targets in accusations of witchcraft. They were generally accused of suckling a cat, becoming infected with its evil spirit, and then sending it forth at night, bent on mischief. It is not surprising that the owl and the pussycat were thinking of marriage. They have always been linked together in witchcraft and regarded with fear and superstition for the anomalous character they have in common. Both are active when they should be asleep, can see in the dark, and produce weird and frightening cries in the dead of night. Both are also silent and sudden killers. In many ways the transformation of gentle pet into efficient killer is one which still exerts fascination today, embodied in the verbal concepts of 'catty' for treacherous, 'catlike' and 'cat-footed' for stealthy and nimble (and hence, cat-burglar).

The cat's hunting technique is probably familiar to most people. Once its attention has been caught by a movement, the cat will crouch and can remain motionlessly oriented in one direction for long periods. While the prey is visible the cat runs forward quickly with head and belly close to the ground, slowing up as it nears the prey, and pausing often to watch from behind cover. If the prey animal down with its forepaws while biting the nape of the neck. runs the cat gallops after it, giving a final bound and pinning the The corpse is usually carried to cover and there plucked before being eaten from head to tail, if small; large animals are begun at the belly. Chunks are bitten off and swallowed whole. Small mammals form the basic diet: in the analysis of the stomach contents of feral cats in Australia, rabbits and mice made up seventy percent of the total, and birds only four percent. Cats respond to suitable prey objects whether or not they are hungry. It is not the initial stages of the hunting sequence that are affected by hunger, but the final stages. Playing with prey is common among cats and arises after the stalk and capture, when, due to some factor like a full belly, the cat fails to respond to the proximity of the prey with a final bite. In spite of the cat's great fame as a hunter, there are limits to its power over rats. Studies on the effect of cats on farm rat populations have shown that the presence of several cats serves to keep the numbers down in and around farm buildings, as long as the initial infestation is not too heavy. But the introduction of cats onto very heavily infested farms had no effect at all until the numbers had been reduced to manageable proportions by man.

The onset of predatory behaviour is strongly influenced by early

experience and begins when the kittens first investigate and sample the kills brought back by the mother. During the fifth week of life all the predatory motor patterns make their appearance in play, and about this time too, the kittens begin to follow the mother when she leaves the nest, and to witness her hunting. As a result they become excited in the presence of her usual prey and begin to stalk it on their own. This has been demonstrated in experiments where kittens were reared by killer-mothers and then tested alone, with several prey species; the kittens killed the species generally hunted by their mother. Another significant finding of this experiment was that 86% of the kittens killed, compared with 50% of kittens reared without exposure to the hunting of an adult. However this second group of kittens killed more frequently after some experience with a killer-female; this illustrates the point that early experience is extremely important for the development of the behaviour, and of course it is important that the kittens should rapidly become capable hunters as they may be weaned by the mother as early as five weeks of age.

The newborn kitten is blind, weak, and entirely dependent on its mother's licking to stimulate its urination and defecation; but it can right itself, cry, crawl to its mother's nipples and attach almost immediately after birth. Kittens begin jostling each other for nipples from the first day, and by the third day 35% of kittens are spending most of their time on the same pair of nipples. They retain these preferences throughout the nursing period and can locate the same pair whether the mother is lying, sitting or standing. Olfaction plays an important part in keeping the young kitten in the nest. If it is put down a few feet away it will find its way back to the nest by pivoting with its head close to the ground and then crawling forward; but if a clean surface is laid between it and the nest the kitten remains where it is, crying.

Cats reach sexual maturity between seven and twelve months, usually earlier in females than in males. In the temperate zone the female is seasonally polyoestrus and comes into heat at 14 day intervals, from spring to autumn, (or all the year round in the laboratory if the light conditions approximate those of spring). The oestrus period lasts from three to six days. For the first couple of days, the pro-oestrus phase, the female becomes more active and vocal, rolls and rubs against objects more, and begins to attract males; though unlike an oestrous female she fights off any attempts

at mounting with strikes and hisses. When in full oestrus she calls loudly in the absence of a male; in his presence she utters soft, throaty vocalisations, and adopts a characteristic presentation posture; she crouches, facing away from him with a hollow back, elevated hindquarters and tail deflected to one side. The male, who has usually been waiting for hours, seizes this opportunity with a characteristic chirp call, and approaching her from behind, (if he is experienced), straddles her, taking hold of her neck skin with his teeth. This neck grip is maintained throughout mating. The male steps repeatedly on the female's hindquarters, which causes her to elevate them and to tread rapidly with her hind feet. (If oestrous females are kept together apart from males, they will present to each other in the same way, and also mount each other showing all the male patterns except the chirp.) A second or two after the male has achieved intromission the female turns on him with an explosive yell, striking vigorously and forcing him to jump clear. While the male keeps his distance, alternately watching her and grooming himself, the female flings herself down, rolling and rubbing furiously along the ground. After a time she quiets down, and grooms also. This frenetic postcopulatory reaction often frightens owners, who hear the loud cry and see their cat come rushing into the house flinging herself about and apparently having a fit. However, by the time the vet is reached the female is usually back to her husky, oestrous self. Ten to twenty minutes after the reaction she becomes receptive again, and will accept several males in succession with ever-increasing intervals between them. In the last day or two, the met-oestrous phase, the female is still attractive to males but will no longer allow them to mount.

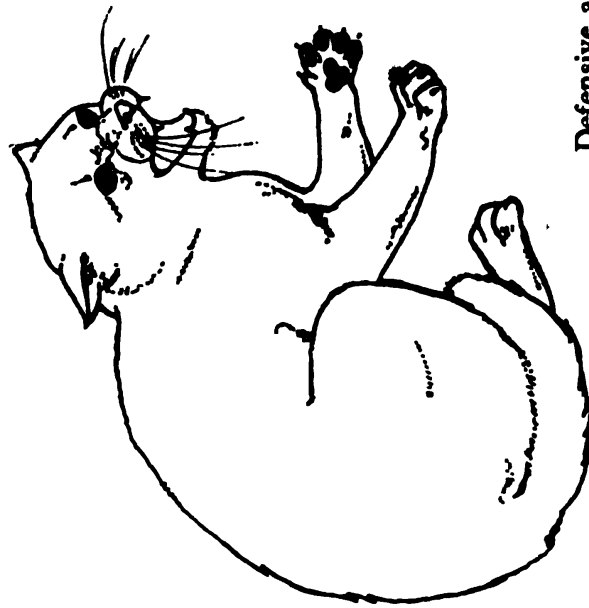
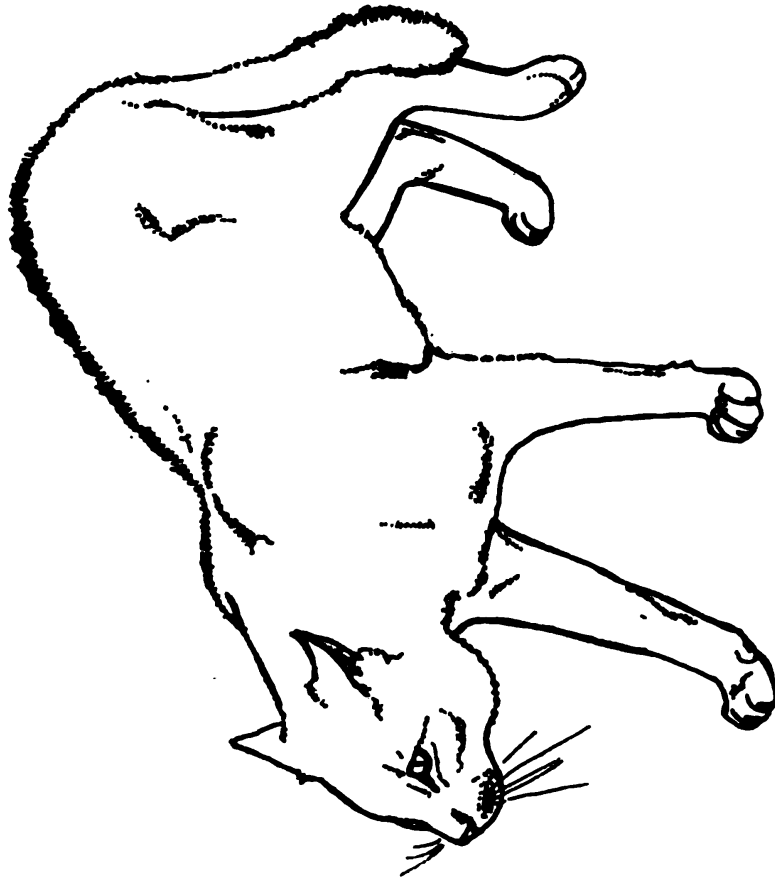
A good deal of work has been done on the sex behaviour of cats, especially on the role of hormones in the development and maintenance of the behaviour. It has been found that in females receptivity is directly dependent on the presence of ovarian hormone; or oestrogen; ovariectomy results in the disappearance of this hormone from the blood stream within 24 hours, and injections of it years after spaying induces a state of receptivity again. The situation is more complex in the male. If a male is castrated at or before puberty it is unlikely that he will show mounting, but if he is castrated after puberty his sex behaviour will depend on the experience gained before castration. Although many males are quite rapidly affected by castration, some may continue to mount for

more than two years after the operation. The situation is similar in the case of urine spraying. This indicates that hormones and experience act jointly to bring about the onset of the behaviour, and that, once begun, it is only in part dependent on the continued presence of hormones in the blood stream. Males are much more affected by the immediate environment than are females. If a male is introduced into a new situation he will probably not mount there, but spend his time sniffing the surroundings, scratching uprights and urine spraying; he will take even longer to settle if the odours of a previous male are still present, and may ignore a receptive female for days.

The cat's association with love, fertility, and the female sex is world-wide and as old as the first record of domestication itself. Among the deities these qualities were embodied in the cat-headed Bast, and in the more familiar Norse Freya, whose chariot was drawn by cats; and Artemis, who chose to hide as a cat. In Artemis the connection with the moon and magic is particularly strong. As the concept of fertility is so closely linked with rain, it is not surprising that the cat has become part of so many rain-making rituals, from Sumatran ceremonies to the christian St. Agatha or Santo Gato, who appears in cat form, commands hail and thunderstorms and favours forecasts made on her day. The most obvious reason for this lies in the general grace and slinky beauty of the species as a whole, but the conspicuous behaviour of the oestrous female in particular seems a very rich source of this imagery. It is also worth recording that the female cat is the source of modern metaphor, as well as ancient: 'cat' for harlot became obsolete last century; 'cat-house' for brothel became part of American slang in the 1930's. This is one usage that has not yet crossed the Atlantic and Americans visiting British animal behaviour laboratories are often startled by invitations to come and see the cat house. 'Puss' or 'pussy' is another example: traditionally a pet name for a young woman, it now refers to female genitalia. The term 'caterwaul' is generally linked with the mating situation although this is not entirely accurate. It refers to the long, harsh wail of a tom in an aggressive threat, and although this often occurs in the vicinity of an oestrous female it is not directly part of the sexual behaviour. Nevertheless, 'caterwaul', to make love, became established as a sexual metaphor in the sixteenth, and did not become obsolete until the twentieth century.

The cat is an induced ovulator, ovulating only after suitable stimulation. This is generally thought to be intromission. Sixty-three to sixty-five days later the female finds a secluded spot and delivers about four young. The peak birth periods are mid-March to mid-May and July to August, though under conditions of domestication cats often breed three times a year. The female's wanton image is countered somewhat by her centuries-old reputation as a devoted mother. Certainly during the first week of lactation she spends some 70% of her time suckling her kittens, licks them frequently, retrieves them if they wander, and will accept strange kittens, or even the young of another species if introduced early enough. Later on she kills for them, and will even play with them. The tom does nothing to help rear the litter and is generally regarded as being death to young kittens; although this is a widely held view, no work seems to have been done to test it.

The tom however, must take a fair share of the credit for the cat's prominence in the realm of the supernatural. Besides the silent killing, the ability to see in the dark, and the shining eyes common to both sexes, possibly the most eerie and sinister feature of all is the strange, wailing caterwaul of a threatening male, so often heard persistently late at night. This is part of the male's aggressive repertoire and can occur whenever one male threatens another—which is sometimes but by no means always in the vicinity of a receptive female. A tom in the offensive threat posture appears a good deal larger than normal. (See illustration). He stands stiff-legged, facing his adversary with hair erected along his back and tail; the head is twisted slowly from side to side so that the animal looks at his opponent out of the corner of one eye and then the other; the pupils are generally constricted, the whiskers are pulled forward, and the ears tautly adducted and everted. The threatener advances very slowly, emitting the harsh sing-song wail until his nose almost touches his opponent's. If the opponent is behaving in the same way, a wailing 'duet' ensues. After a time, sometimes minutes, one animal begins slowly to retreat and stops caterwauling; the victor turns aside and rubs his head and shoulders against nearby uprights while the loser slinks away. If neither animal retreats a fight will probably ensue. The patterns here are very similar to those employed against large prey; each leaps at the other, claspng his shoulders and biting the neck and cheek region, at the same time raking the opponent's belly with the claws of the



Defensive and aggressive threat between toms.

hind feet. In contrast to the threat phase, the fight is silent except for grunting and puffing as the two roll about, fur flying. Eventually they loosen their grip, one slowly stands up and begins to back off. If he is again threatened, he may adopt the defensive posture: in this the cat turns sideways on to the opponent, crouches very low or may even roll onto its back with all four paws raised; the ears are flattened and drawn back and the pupils dilate. The cat hisses and growls and may scream if struck. After a few moments of this the approaching cat usually turns aside, giving his opponent an opportunity to creep away; but if the threatened animal tries to run for it, he will almost certainly be chased and attacked.

Anyone witnessing an encounter of this kind is forcibly reminded of human threatening and aggressive behaviour. It could be that this superficial likeness reflects a more basic behavioural and physiological homology, and that the detailed investigation of cat aggression might help us towards a better understanding of our own. If this turns out to be the case, it will simply be the latest in a long line of insights into himself that man has gained from reflecting on the cat.

Comment: “*Journeys out of the Body*”

I have read with interest Ira Einhorn's review of Robert A. Monroe's "Journeys out of the Body", and agree that this is an important book. This is not because the kind of experience it describes, 'out-of-the-body' experiences (or O.O.B.E.s), were previously unknown. Two and half centuries ago Swedenborg was describing his experiences in what Mr. Monroe calls *Locale II*. In 1968, Miss Celia Green published a book *Out of the Body Experiences* based on numerous reports received by the Institute of Psychophysical Research at Oxford. But, if the field is not wholly unexplored, the present book certainly contributes something new both because of the objectivity with which the author makes his report and the boldness with which he has explored.

A further reason for expecting considerable general interest in Mr. Monroe's book is that it gives fairly detailed instructions designed to enable the reader to do it himself. These instructions sound reasonable. The first step is to achieve complete muscular relaxation without falling asleep. Then the author describes a state of awareness of rapid vibrations during which projection of the stream of consciousness from the physical body or 'astral projection' can take place.

I have not so far myself succeeded in inducing an O.O.B.E. by this method. For many years I have practised progressive relaxation as a means of going to sleep. Relaxation with the intention of inducing an O.O.B.E. still sends me to sleep. I do not experience the vibrational state which Monroe indicates as an essential step. Perhaps something more is needed than the technique the author describes. It may also be necessary that there should be a predisposition for the separation of the stream of consciousness from the physical body.

Both the author and Dr. Tart who has contributed the introduction mention fear as one of the factors that may limit experimenting in this field. Fear may be a reaction to the fact that the experience resembles death, which may indeed be regarded as an irreversible detachment of the stream of consciousness from the physical body. This would seem to be a natural fear for the young or middle-aged; I do not think I share it. Anyone over 70 knows that the union of his stream of consciousness with his physical body is going to be

broken permanently within a few years. The prospect of an O.O.B.E. in this life should be reassuring, not frightening, to the septuagenarian.

If the technique described by Mr. Monroe proves to be effective for at least some people, one result of his book may be, for better or worse, to increase the number of people having O.O.B.E.s. Whether this will be a good thing or a bad thing would seem to depend on its effect on those having the experience and on what they do with it. One gathers that, in Mr. Monroe's opinion, his O.O.B.E.s have done him no harm; this opinion needs confirmation. Enlargement of experience is now generally agreed to be good in itself. The trouble with many ways of enlarging experience, whether by taking mescaline or over-indulging in alcohol, is that they have side-effects whose harm outweighs any good that comes from their opening of new ranges of consciousness. One may hope that adventuring out of the body will prove to have no such harmful side effects.

As to what one can do with such a power if one has succeeded in developing it. It is perhaps an after-effect of America's involvement in anti-communism that Monroe does not ask how the capacity could be used for the good of mankind but how it might be used to dominate the world. He considers the possibility of developing a method of psychic assassination which could be used against rulers whom it seemed desirable to get rid of. Even if the desire to dominate the world were admitted as a reasonable and mature motive, a new method of assassinating rulers does not seem to be a very promising way of achieving that end. One must consider also that the world might not want to be dominated by its practitioners of O.O.B. and that it might react sharply and effectively against them.

Monroe reports experiences of three worlds in which his O.O.B.E.s appear to have taken place. The first of these is Locale I which is this world. Then there is Locale II which seems to be the same sort of place as that of Swedenborg's experiences. Many would call this "the spiritual world" with occupants of various kinds both pleasant and unpleasant. Finally there is Locale III which is a spatio-temporal world resembling this world but with differences in the way its technology and social life have developed. The author speculates that this may be a world of anti-matter. There does not seem to be much reason for this suggestion; if

Locale III is not merely an unconscious fantasy construction, why should it not be an inhabited planet of some other stellar system?

It seems likely that this book will arouse a new interest in the subject of out of the body travel amongst those whose minds are not closed to this possibility. No doubt a good many people's minds are so closed but perhaps fewer than is usually supposed. Parapsychologists have been undermining some of the thought habits derived from orthodox science for many years now, and this undermining has been furthered from within the physical sciences themselves. Probably a larger number of people are ready to consider seriously the possibility of such projection of the stream of consciousness from the body, and those who are prepared to consider it seriously will find much in Mr. Monroe's book to give substance to their thoughts.

Robert Thouless

**2 Leys Road
Cambridge**

Sentences

These two poems have been put here together because they illustrate two attitudes towards Christian doctrines. The first is a *cri-de-coeur* from one who finds them, as traditionally taught, not only unintelligible but also sometimes repellent. And her questions are still unanswered. The second shows the vivifying power of meditating in a mantra-like way on one of them.

I

HOW DO YOU SEE? *

Stevie Smith

*How do you see the Holy Spirit of God?
I see him as the holy spirit of good,
But I do not think we should talk about spirits, I think
We should call good, good.*

*But it is a beautiful idea, is it not?
And productive of good?*

*Yes, that is the problem, it is productive of good,
As Christianity now is productive of good,
So that a person who does not believe the Christian faith
Feels he must keep silent, in case good suffers,
In case what good there is in the world diminishes.*

*But must we allow good to be hitched to a lie,
A beautiful cruel lie, a beautiful fairy story,
A beautiful idea, made up in a loving moment?*

*Yes, it is a beautiful idea, one of the most
Beautiful ideas Christianity has ever had,
This idea of the Spirit of God, the Holy Ghost,
My heart goes out to this beautiful Holy Ghost,
He is so beautifully inhuman, he is like the fresh air.*

*From "Scorpion and Other Poems" by Stevie Smith © Longman. Printed here by permission.

*They represent him as a bird, I dislike that,
A bird is parochial to our world, rooted as we are
In pain and cruelty. Better the fresh fresh air.*

*But before we take a Christian idea to alter it
We should look what the idea is, we should read in their books
Of holy instruction what the Christians say. What do they say
Of the beautiful Holy Ghost? They say
That the beautiful Holy Ghost brooded on chaos
And chaos gave birth to form. As this we cannot know
It can only be beautiful if told as a fairy story,
Told as a fact it is harmful, for it is not a fact.*

*But it is a beautiful fairy story. I feel so much
The pleasure of the bird on the dark and powerful waters,
And here I like to think of him as a bird, I like to feel
The masterful bird's great pleasure in his breast
Touching the water. Like! Like! What else do they say?
Oh I know we must put away the beautiful fairy stories
And learn to be good in a dull way without enchantment,
Yes, we must. What else do they say? They say*

*That the beautiful Holy Spirit burning intensely,
Alight as never was anything in this world alight,
Inspired the scriptures. But they are wrong,
Often the scriptures are wrong. For I see the Pope
Has forbidden the verse in Mark ever to be discussed again
And I see a doctor of Catholic divinity saying
That some verses in the New Testament are pious forgeries
Interpolated by eager clerks avid for good.*

*Ah good, what is good, is it good
To leave in scripture the spurious verses and not print
A footnote to say they are spurious, an erratum slip?*

*And the penal sentences of Christ: He that believeth
And is baptised shall be saved, he that believeth not
Shall be damned. Depart from me ye cursed into everlasting fire
Prepared for the devil and his angels. And then
Saddest of all the words in scripture, the words,
They went away into everlasting punishment. Is this good?*

*Yes, nowadays certainly it is very necessary before we take
The ideas of Christianity, the words of our Lord,
To make them good, when often they are not very good,
To see what the ideas are and the words; to look at them.*

*Does the beautiful Holy Ghost endorse the doctrine of eternal hell?
Love cruelly, enjoin the sweet comforts of religion?
Oh yes, Christianity, yes, he must do this
For he is your God, and in your books
You say he informs, gives form, gives life, instructs.
Instructs, that is the bitterest part. For what does he instruct
As to the dreadful bargain, that God would take and offer
The death of the Son to buy our faults away,
The faults of the faulty creatures of the Trinity?
Oh Christianity, instructed by the Holy Ghost,
What do you mean? As to Christ, what do you mean?*

*It was a child of Europe who cried this cry,
Oh Holy Ghost what do you mean as to Christ?
I heard him cry. Ah me, the poor child,
Tearing away his heart to be good
Without enchantment. I heard him cry:*

*Oh Christianity, Christianity,
Why do you not answer our difficulties?
If He was God He was not like us
He could not lose.*

*Can Perfection be less than perfection?
Can the creator of the Devil be bested by him?
What can the temptation to possess the earth have meant to Him
Who made and possessed it? What do you mean?*

*And Sin, how could He take our sins upon Him? What does it
mean?
To take sin upon one is not the same
As to have sin inside one and feel guilty.*

*It is horrible to feel guilty,
We feel guilty because we are.
Was He horrible? Did He feel guilty?*

*You say He was born humble—but He was not,
He was born God—
Taking our nature upon Him. But then you say
He was perfect Man. Do you mean
Perfectly Man, meaning wholly? Or Man without sin? Ah
Perfect Man without sin is not what we are.*

*Do you mean. He did not know that He was God,
Did not know He was the Second Person of the Trinity?
(Oh if He knew this and was,
It was a source of strength for Him we do not have)
But this theology of emptying you preach sometimes—
That He emptied Himself of knowing He was God—seems
A theology of false appearances
To mock your facts, as He was God whether He knew it or not.*

*Oh what do you mean, what do you mean?
You never answer our difficulties.*

*You say, Christianity, you say
That the Trinity is unchanging from eternity,
But then you say
At the incarnation He took
Our Manhood into the Godhead
That did not have it before,
So it must have altered it,
Having it.*

*Oh what do you mean, what do you mean?
You never answer our questions.
So I heard the child of Europe cry,
Tearing his heart away
To be good without enchantment,
Going away bleeding.*

*Oh how sad it is to give up the Holy Ghost
He is so beautiful, but not when you look close,
And the consolations of religion are so beautiful,
But not when you look close.
Is it beautiful, for instance, is it productive of good*

*That the Roman Catholic hierarchy should be endlessly discussing
at this moment
Their shifty theology of birth control, the Vatican
Claiming the inspiration of the Holy Spirit? No, it is not good,
Or productive of good. It is productive
Of contempt and disgust. Yet
On the whole Christianity I suppose is kinder than it was,
Helped to it, I fear, by the power of the Civil Arm.*

*Oh Christianity, Christianity,
That has grown kinder now, as in the political world
The colonial system grows kinder before it vanishes, are you
vanishing?
Is it not time for you to vanish?*

*I do not think we shall be able to bear much longer the dishonesty
Of clinging for comfort to beliefs we do not believe in,
For comfort, and to be comfortably free of the fear
Of diminishing good, as if truth were a convenience.
I think if we do not learn quickly, and learn to teach children,
To be good without enchantment, without the help
Of beautiful painted fairy stories pretending to be true,
Then I think it will be too much for us, the dishonesty,
And, armed as we are now, we shall kill everybody,
It will be too much for us, we shall kill everybody.*

II

MANTRIC EXERCISE: EASTER AT THE MILL, 1972

Gladys Keable

*Reverberates—
Reverberates—
Wind round the windmill
Roars in the sails
Drops, sinks, swells into answering sound.
Waves, water, slapping, receding
Flap the yards
Swing the jibs*

*Creak the inflating canvas,
Shift the coiled rising
Channels, swift with increasing
Tide at the sheltered staithe, but
Boom, boom, rolls the swell on the further shore
Muffled. Ominous? Omenous? Numinous?*

*Slip through the channels,
Steal through the gaps
Like the Yaqui sorcerer,
Listen (but oh beware, beware)
To the ocean of sound,
To the edge of that silence
Before the world was,
In which all is void
All is contained
Without rise, without cadence.
Womb? Tomb?
Boom, boom,
Many mansions or empty room?*

*Verbum, aum,
Verbum, aum,
Vortices
In the heaving seas
Of the limitless ocean.
Fohat, Ruach,
Daimon, the trickster spirit.
Sucker, seer; seducer, saviour;
Vast, veering, surging
Between sound and silence.*

Et resurrexit

*Benison, benison.
The man of courage has voided the void;
(Fundament, firmament ringing in unison),
Wingèd the serpent, wounded the dove
Wisdom with power, chorded with love.
Captivity's captived, harrowed hell;
Clarion comfort, where compassion's*

*Triad is dominant; all is well.
Boum, boum,
Trumpet and drum
To the ends of the worlds reverberate.
For what? for whom?
For kingdom come.
But how? but when?*

*Verbum, aum,
Primal sonic,
With discord contained in integral tonic.
Listen with vigilance, inner ear
Alert to hear the trickster note
Of dissonance, division, fission
Wrought to its triune-tuned conclusion,
But how? but when? and in what fashion?
The man of courage, emptied in death
Endured three days the terror of silence,
(Vigilant, finished, alone).*

Thence

*Running full gamut, transmuted, resolved,
He rings the change to power and glory.
Verbum, aum,
His kingdom come,
In whom is the how: now is his when:*

Christ is risen. Alleluya, Amen.

Notes

1. Fohat, ruach, daimon, i.e. in the Sanskrit, Hebrew, and Greek traditions.
2. The 'man of courage' is one kind of Yaqui sorcerer; another kind, 'the man of knowledge' also "realises that death is the irreplaceable partner that sits next to him on the mat. Every bit of knowledge that becomes power has death as its central force."
One of his many techniques is the silent mastery of sound. He goes alone to the hills, and listens for 'holes in the sound', through which his 'Ally' can step out to meet him. See Carlos Castaneda: "The Teachings of Don Juan" (Penguin); also "A separate reality."
3. Homage, by allusion, is offered to four great christian writers, T. S. Eliot, Gerard M. Hopkins, John Donne, and Julian of Norwich.
4. The last line is based on an Orthodox Easter greeting.

NOTES ON CONTRIBUTORS

Penelope Eckersley studied Philosophy and Comparative Religion at London University. She is secretary of the Association for Promoting Retreats.

Peter Fry is an anthropologist who researched in Rhodesia and taught at University College, London. He is now teaching Anthropology and researching in urban spiritualism in Campanas, Brazil.

Marian Clegg is a geographer who has spent many years teaching in the University of Cambridge, where she is a Fellow of Lucy Cavendish College. She has lived in Ceylon and visited Australia and Western Canada. She has four grandchildren.

Arthur Bell read Archaeology and Anthropology and Theology at Christ's College, Cambridge. He is an Anglican priest who has just come back after five years among the bush Cree of Northern Alberta. He contributed "Cree Country Christmas Cards" to T. to T. V, i.

Dorothy Emmet was formerly Professor of Philosophy in the University of Manchester. Author of *The Nature of Metaphysical Thinking; Function Purpose and Powers; Rules, Roles and Relations*. Honorary Fellow of Lady Margaret Hall, Oxford and Fellow of Lucy Cavendish College, Cambridge.

Graham Bennette studied medicine at Cambridge and went into cancer research, becoming founder secretary of the British Association for Cancer Research, and is now secretary of its offshoot the British Cancer Council. He is interested in psychosomatic medicine, especially in the cancer field.

Jonathan Green took a mixture of arts and sciences at A level. He is a medical student at Clare College, Cambridge, at present concerned with the history of science and the history of art. Last year he won the Beatson prize for an essay on "Chinese Medicine: Its thought and influence on the West".

Priscilla Edwards read English and Xhosa at Cape Town and did post-graduate work at Stellenbosch University. After several years teaching in South Africa and Ovamboland she came to Cambridge and followed up her life-long interest in animal behaviour by engaging in research into the role of olfaction in the social behaviour of cats.

Stevie Smith, the poet, who died in 1968, published three collections of poems, *Selected Poems*, *The Frog Prince and Other Poems*, and *Scorpion and Other Poems* (Longman).

Gladys Keable was at Somerville College, Oxford. She combines an interest in environmental questions with the comparative study of religion. Author of *Squares in Circles* and books on Town and Country Planning, and editor of *Such as we are*.

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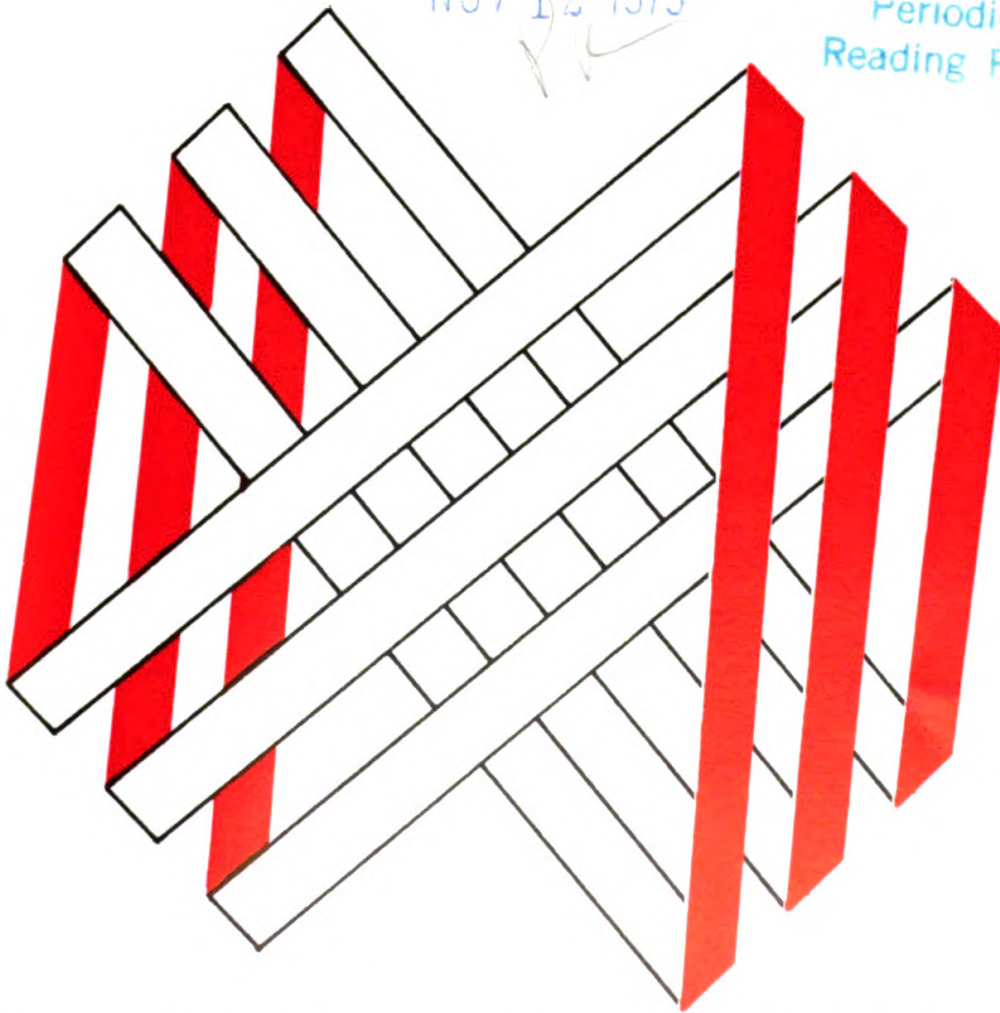
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Editorial

Last year we spoke of our interest in “revisionary science”, and indicated what we meant by this in an editorial discussion in *T to T* VI i (January, 1972). Since then we have tried to go further. In the last editorial (April 1973) mention was made of a week-end symposium at 9 Marion Close, giving a list of the papers, which bore mainly on Physics on the first day and the Social Sciences including Psychology on the second. The symposium was a suggestion of Joan Miller’s, and she invited a small group of people who were known to be working on the questions to be discussed. Then interest surged and more people also involved in this kind of work wanted to come. So there has been a second symposium, with the emphasis on Biology on the first day and Parapsychology on the second. A further symposium on the new combinatorial approach to Physics is being planned. The Cambridge Philosophical Society has given us a small grant towards the expenses. Negotiations are going on over a book to be compiled out of some of the symposium papers, after the tightening and rewriting which always needs to be done for publication. Meanwhile some of the thinking that went into them may show itself in things published in *T to T*. Rupert Sheldrake’s article and the discussion with Derek Wright in this number are instances.

If any of our readers who are working in these regions of science and philosophy would be interested to have more information, would they let us know?

* * *

For our Sentences this time we have some paragraphs from a recent book by Theodore Roszak, “Where the Wasteland Ends: Politics and Transcendence in Post industrial Society”, and a “Dream” by Sandra Billington, dragged out of her by the kind of despair about our civilization which he is describing. Roszak’s book, which is being widely read by the “counter culture”, is a sustained attack on how the “single vision” (Blake’s expression, speaking of Newton) of contemporary science is leading to the inner death of our civilization, losing the visionary power which was embodied in the old mythical traditions. We asked Amy Clarke, a poet and contributor to *T to T*, to give her view of the book, and she writes:

“A long, crowded book, difficult to assess as a whole, but very valuable. It maintains on a wide scale and from many different points of view something desperately needing recognition—the

transcendent importance of the mystical depth and the desiccation of human life when it is ignored. His theme is a vast contrast between modern technological society—tending to dehumanise, and a world-life—the ‘visionary commonwealth’ where spiritual values are recognised and lived by. In making this contrast he piles up, on the one hand, an indictment: on the other, he draws on a magnificent number of sources to show how universal in place and time, and how multiform is man’s experience of a spiritual world.

“Coming near to our own time, it is good to read a book which shows real understanding of the Romantic vision, which pays due honour to Blake and at the same time does justice to Wordsworth’s mystical insight, and which recognises (p.369) the spiritual quality of a contemporary figure, the ‘Yaqui sorcerer’ [see *T to T IV iii*: Ed.].

“His recognition that polytheistic cults have contained a real spiritual awareness and are more than simple idolatry of physical objects is welcome. But he greatly undervalues the strength and persistence of the mystical element in the established world religions, and especially in the Catholic Christianity in which he was brought up; his own experience here seems to have been singularly unfortunate.

“Perhaps, too, he undervalues the spiritual quality of the scientific search for truth which makes it a higher kind of *gnosis* than the magical and mythical”.

We then asked Geoffrey Hawthorn, University Lecturer in Sociology in Cambridge, to comment on the political aspects of the book, which he did as follows:

“I will accept Roszak’s main contention: there almost certainly *are* human potentialities which are not being realised in modern, urban, industrial, technocratic societies, and we *should* be thinking about what they might be and how we might bring them out. But I will not accept the argument that he makes at the end of the book, that ‘drawing up abstract social prescriptions runs the risk of becoming an expert’s game, and then it belongs to the technocracy, not its opposition’. He believes that the ‘single vision’ forced upon us by modern social conditions means that we are prevented, as long as we live within it, of seeing quite where our possibilities lie. He has no Hegelian vision of an unalienated state towards which, once the shackles are removed, we shall all inexorably and exhilaratingly move. On the contrary, all is possible, and to legislate for the future is precisely to vitiate it. But this is too simple.

“Certainly, one should be suspicious of men who point to a certain future, secure in their conviction of perfectibility. In Isaiah Berlin’s memorable phrase, they are likely to sacrifice men on the altar of some abstract ideal. For a slightly different reason, then, a

more straightforwardly liberal reason than he would agree to, we can partly accept Roszak's dislike of abstract prescriptions. But only partly. For if our ideal is of an open and inherently uncertain future about which one only knows (or hopes) that it will in some way be better than the present, we still have a responsibility to ask what has to be done, what technical levers have to be pulled, in order to create the conditions for its realisation. Just as liberal theorists need a liberal party, so the protagonists of the Old Gnosis need a plan and a means of implementing it.

"To his credit, Roszak sees this, and consequently gets himself into a muddle, surreptitiously disregarding his principles. He believes that a decentralisation of the cities, which have turned into a nightmare for most of the people living in them (do we really *know* that?), will enable people to return to a human scale of living, to a situation in which they can live in greater integrity with themselves, with each other, and with nature. Moreover, not content with this 'abstract prescription', he argues that the communal experiments which have sprung up all over the United States are the first, promising signs of this 'visionary commonwealth'. But this really will not do. We have to rope him in with some 'technical' evidence. Not much exists, it is true, but my own interpretation of what does is that although several of these communities may have been very successful in implementing their ideals and in continuing to manage to implement them, the success has been at a price. That price is precisely to inhibit individual liberation and self-determination in the name of communal coherence. I do not wish to imply that this is a necessary contradiction; there can be no grounds for claiming that. But I do think that Roszak should have looked a little more carefully at what is happening in the name of the Old Gnosis in the hills of New Hampshire and New Mexico.

"There is, however, an even more damaging counter-argument. It has long been a commonplace of liberal thought that a precondition of liberty, however conceived, is freedom from want. Roszak is careful to say, although not to argue, that his vision does not entail the material impoverishment of men, but he does *not* say what seems to me at least to be important, namely that the prosperity of the technical Leviathan he so hates has enabled people to carve out for themselves an area of private liberty which is a good deal larger than that enjoyed by most of their ancestors. Again I am nervous of citing evidence gathered within the conventional assumptions, but this is what sociologists and others have found in looking at several groups of industrial workers: men are prepared to tolerate the apparently intolerable for the sake of money to dispense on creating freedoms for themselves out of work.

"Taking the two sets of evidence together, therefore, one is led

to the conclusion that for the moment there appears to be a contradiction: individual liberty is better secured in modern society, communal solidarity and ecological integrity in small alternative societies. The force of this contradiction lies in its implications for political persuasion. How is one to convince people that they can recover their humanity under conditions which have yet to generate such a recovery? They are only going to be persuaded by example, and the examples do not yet exist.

“There is a final point, related to this. I have not said anything about Roszak’s view, shared by others who have argued in similar ways, that the problems of modern society have ‘overspilled the obvious class barriers’, the implication of which is that the old politics of material interest are now irrelevant, merely short-sighted squabbles within the confines of a doomed system. This may be true, but so long as there are some people who are richer than others and to whose standards the less well-off aspire, no-one is surely going to be able to persuade the less well-off that they should abandon their traditional ambitions and consider instead a completely new kind of existence. That is to say, a precondition of making a successful appeal in the name of the Old Gnosis may be to secure the equality that conventional, ‘technocratic’, socialisms have long been seeking.

“I conclude, therefore, that although abstract prescriptions about *ends* are undesirable there will have to be a good deal of meticulous and even ‘technocratic’ prescription of *means*. And once we begin to consider how to prescribe in this way, we come up against some difficulties that a Romantic appeal cannot resolve. Roszak covers himself in saying that ‘for left-wing ideologues, [his vision] is a betrayal of social conscience, if not a sign of downright bourgeois decadence’. But the point is that the traditional political goals may be necessary preconditions of his own.”

Roszak does indeed recognize that it is useless to expect that the poorer countries of the Third World, at any rate, will not be interested in technological development and in raising their standards of living. Nor, he says, is he advocating that “the industrial economy should be scrapped in favour of a palaeolithic primitivism”. And he is surely right that “science-based industrialism must be disciplined if it is to be made spiritually, even physically, livable”. But his book leaves us with the question of what actual political strategies would be like in a revolution which took Blake, not Marx, for its prophet, and what administration would be like if “objectivity” always spells “alienation”. Sir Geoffrey Vickers’ article in this number is concerned with how objective analysis and creative initiative may combine in the actual experience of policy making, and indeed also of administration.

If his principal example, that of sanitation, seems to belong more to the "industrial" than the "post industrial" society, it may be none the worse for that.

* * *

We are sorry that the April number was so late in being distributed. This was due to unforeseen circumstances outside our control.

Note: Uri Geller—The Current Situation

In our last number we reported some phenomena that had taken place in the presence of the Israeli sensitive, Uri Geller, and we promised reports on subsequent developments. We mentioned in particular that a fully instrumented study of Geller was to be made at Stanford Research Institute.

The full report of the Stanford experiments has not been made available to anybody outside S.R.I. yet, but there has been an "official press release" part of which is in the form of a film. The film shows a selection from those experiments which are considered by the S.R.I. investigators, Drs. Hal Puthoff and Russell Targ, to have been established as objective by the instrumented records beyond any doubt. The film shows Geller performing infallibly on several telepathic or clairvoyant tasks such as detecting which of a set of similar aluminium phials contains water, at a distance of several feet.

There are no records in this film of the bending of metal objects by Geller, such as were described in our last issue, but there were two records of psychokinetic effects where material objects were directly influenced. In one of these the deflection on the register of a balance which was produced by a weight on one of the pans was changed with Geller at some distance from it. In the other, Geller held the sensing coil of a magnetometer and caused the instrument to register in a way that could normally only be produced by a magnetic field acting at the point where the sensing coil was.

I brought some more metal objects which I had seen Geller bend or fracture in Philadelphia during a recent trip I made to the U.S.A. partly to pursue investigation into the Geller phenomena. Some of these objects (in particular a set of jeweller's screwdrivers in a plastic case, which appeared to be transported from one room to another and was then found to have all the blades broken off) are being intensively examined in the Cambridge Department of Metallurgy by Dr. Chilton. Again, no full report is available yet, but it seems that Dr. Chilton is extremely puzzled by these deformations of material, because the microscopic structure of the metal fits no obvious pattern of fracture. Summarizing the present tentative state of his conclusions Dr. Chilton says that if he were asked to reproduce the fractures he would not know how to set about doing so.

Further reports will follow as information comes in.

Ted Bastin.

Discussion: *The View from Within*

Derek Wright talks to Martin Richards and Dorothy Emmet

Dorothy. You are a professional psychologist, Derek, Psychology is supposed to be about human beings, but you would hardly think so from looking at the average text book, or hearing what goes on in the average lab. What do you say about this?

Derek. Well, the academic orthodox tradition is not really about people at all. It is about localised functions of the human system such as perceptual mechanisms or short term memory. You see, because of its rules it must exclude something which we all know to be an essential feature of what it is to be a person, namely subjectivity. The experimental psychologist doesn't study people as such, but people playing the role of "subject", and paradoxically this excludes their "subjectivity".

Now this academic orthodoxy has been remarkably fruitful within its limits. But it is my belief, a belief shared by a growing number of people, that it needs urgently to be supplemented by a genuinely anthropomorphic psychology, that is, a psychology which puts the individual's subjective view of himself and his experience at the centre. Of course there have been many attempts already to create such a psychology, but they have been sporadic and often muddled. The main task before psychologists today, in my view, is to work out systematically just what one would be doing in such a psychology, and create confidence in it.

Certainly it will be quite radically different from the current orthodoxy. Its basic data will be individual people's accounts of what things are like from where they are; and the psychologist's own subjective view becomes relevant, for only through reference to this can he understand the subjective reports of others. So the psychologist will have to devise ways in which both his own subjective view and that of the people who collaborate with him in his research can be made more sensitive and accurate.

Dorothy. Yes, but one of the problems psychology faces, as do all the sciences, is that the processes of observing and recording affect the phenomena being studied and surely this will become especially acute when a person is observing himself.

Derek. Obviously you are right and interference will never be ruled out. I don't think the situation is hopeless, though, and the reason is this. As you know, techniques of meditation have been practised in the East for centuries. We would, of course, be adapt-

ing for research purposes a technique which was developed for other reasons, namely to enable the individual to find liberation or enlightenment. But the point about them which is relevant here is that they are said to bring about in the individual an awareness of what is going on which "lets things happen", and does not interfere with them.

I have had a look at one of these forms of meditation in the last few years, and practised it a bit, namely the type of meditation called "insight meditation" in the Theravada Buddhist tradition, as it is currently beginning to be practised in the West. This is a kind of meditation which is a training in the exploration of the view from within. Its (proximate) goal is to make the individual aware of all the things that are going on within the system. It is an awareness which is free from conceptualising and thinking, because it is an awareness of conceptualising and thinking. It is an awareness which is uncoloured by emotion, because it is an awareness of emotion. So it is a kind of meditation which is concerned to strengthen a clear kind of awareness of what is in fact going on within. In practice, this is a difficult thing to do, and it is most effectively induced, certainly at the beginning, when the system is minimally aroused and minimally under the control of external stimulation. You go off into a quiet corner and sit still and shut your eyes, and watch what is going on. For a fortnight for something in the order of ten hours a day I was sitting like this, and also, when not actually sitting, continuing this kind of awareness (it is called mindfulness) when walking, sitting, eating, etc. Now if you do this you will find that you are beginning to become aware of all sorts of things you hadn't noticed before. You find that you can watch fantasies forming and be aware of the associated autonomic response. For instance, you can be aware of the nature of embarrassment, and I can assure you that it is in fact just a sequence of physical sensations located in certain parts of the body. And one can begin to see the distinctive differences between e.g. anger responses and sexual arousal responses. At the end of my first fortnight, I was left with a rather curious alteration in my thinking. Take anger; when you look at it, it is a kind of constriction in the throat and chest. Now in ordinary conversation, you know how one often says, as part excuse, part explanation, "I am sorry I did this to you, but I was angry". Well, it begins to look a little less convincing if you translate it "I am sorry I did this, but I had a constricted feeling in my throat" etc.

In this sort of way, under certain conditions (namely low arousal conditions) one can become very clearly aware of what is in fact going on and one can learn to watch what is in effect happening. What in our normal state of affairs is happening "in here" is now

somehow seen as happening “out there”: So internal occurrences seem as “objective” as external ones.

Dorothy. Can you just clarify what you mean by “out there”, particularly in relation to this example you gave about anger?

Derek. We have a problem here about language. I’m not literally meaning “out there” in a spatial sense. I’m trying to put how an internal event can have the same kind of subjective feeling of “thereness” as a literally external one. If you want to try this for yourself, shut your eyes and think of a word and watch yourself thinking it.

If you do this, you have a curious feeling of a word appearing and disappearing. So when you actually attend to processes like thinking, there is a sense in which what you would normally think of as “here”, and be identified with, becomes something you focus on “out there”.

Dorothy. I don’t see how you can call that “out there” when it is obviously really “in here”.

Derek. I was actually picking up this phrase, using it metaphorically to try and convey a rather subtle distinction. When you practise this kind of awareness, then the awareness I now have, looking out at you, of you being there, is not actually very different from becoming aware of, let us say, the autonomic response of anger, with my eyes shut, and attending to it.

Dorothy. There is a danger in suggesting to the man who is no longer a subject but your friend “Think of a word beginning with ‘S’, and watch the word appear”. For some people the word does appear, with some it does not. But you can always give satisfaction to the experimenter by making it appear. You are in very great danger of taking the prototype of how some people think about themselves walking, or about the action of their liver and so on, as universally applicable.

Derek. I agree; in this kind of psychology you have to trust the subject.

Dorothy. But you have not answered my point. What are you going to do to stop quasi-hypnotic suggestions of what they should look for which people could feed in if this became a psychological technique?

Derek. Yes, there is an important distinction between looking for

something and reporting what happens. In meditation you don't look for things, but just watch what occurs.

Dorothy. When you are talking about "becoming aware of anger", for instance, you used words like "autonomic responses"—here you are, of course, drawing on your physiological knowledge and conceptualising as a psychologist. This may be all right, but it may well be feeding into how you present these things to yourself.

Derek. There are two distinctions here. The first one is this: on the one hand you can be searching, in which case your attention is being directed by a single concept. On the other hand you can be open to what happens. In this case what happens is of course understood in terms of your concepts but is not selected out by them. The second distinction is this. You can in meditation be aware of what is happening without thinking about it, but later on you can remember what you were aware of and give an account of it.

Dorothy. But in so far as you use words like "giving an account of" you are automatically bringing to bear some sort of conceptualisation. I do not think you can escape that. Sceptical colleagues could say "Oh Derek Wright is a poet; and he gets out what he puts in".

Derek. Well, I just don't know whether it is possible to have an awareness of anything which is not coloured by one's concepts to some degree. It seems unlikely.

Martin. Are you hoping that this technique will be of use in research on the classical problems of psychology, or do you see it as a means of building a new psychology? From your earlier remarks I suspect your chief interest is in the latter. If this is so, could you give us a glimpse of what the new psychology would look like?

Derek. I want a new kind of psychology which doesn't yet exist, which will enable us to have more accurate introspective reports, and would look again at the rules of the relation between Experimenter (E) and Subject (S), so that they can have genuinely inter-subjective communication.

The roles are so constraining that real people find it hard to stay within them. E is a disembodied, luminous intelligence; S is a complex machine only a small bit of whose functioning E is interested in at any one time. E uses S for his own purposes which are, basically, to impress other Es; S gains nothing from the transaction (though the person playing S may go off with a pound or two in his pocket). E knows what it is all about, S is entirely ignorant. E dominates and directs proceedings completely; S is

obedient, plastic, docile, content to perform the oddest tasks. Most striking of all, E, though he may record what S says, does not believe a word of it unless like a good detective with a suspect he can find independent corroboration. S must have his alibi, but since he does not know what he is being charged with, is at a considerable disadvantage.

We can go further. Strictly speaking, and it is here that most psychologists find the role almost impossible, E cannot even understand much of what S might say, or has to understand it in a way different from the way S means. The point is crucial, and neglected. When E communicates with other Es, not only do they refuse to believe him unless they have to, but they refuse to understand him unless his key concepts find ultimate anchorage in ostensive or operational definition. By the same token E cannot understand S's communications unless his terms can also be so defined. Now not only is ordinary social intercourse founded on the assumption that people tell the truth unless they have a reason for not doing so, but it is permeated through and through with intersubjectivity. When someone tells me he has a toothache I do not understand what he says in terms of his observed grimace or his rotten tooth but in terms of what it feels like for me to have a toothache. If S says he has a toothache, E cannot understand it in terms of an inner feeling because there is no way of independently establishing that such an inner feeling has occurred (nor indeed what an inner feeling is) but only in terms of grimaces, wincings, groans and the like. S is all that E can know, and S has no inside view of himself because E cannot know his inside view.

Martin. How would you begin work on this new approach?

Derek. In the first place it is most likely to be achieved if we begin from within the scientific camp and move cautiously out, retaining as much as we can of its basic rules and being clearly aware of how and why we introduce change. The changes are mostly going to be related to the fact that intersubjective communication between E and E, and E and S, will be fully accepted, indeed a central feature. It follows that such communication must be studied closely, examining, for example, the roles of paradox and metaphor, and the limitations imposed by personality difference. The gross asymmetry between E and S described above will disappear, for every E will be his own S, every S his own E. We shall really need new labels. The role of the psychologist will be to ask questions, design studies, devise techniques, and so on. But when it comes to the investigation proper his status will be no different from that of his subjects, who will now be taken fully into

his confidence and trusted. Both psychologist and subject are likely to be changed by the study, and this too must be made explicit.

Martin. Have you tried to get people to meditate for psychological reasons?

Derek. Only people who were going to meditate anyhow, and were asked to report, and did so informally. I should like to see more systematic consensual reporting.

Martin. Do you see difficulties in getting a panel of experienced meditators?

Derek. Of course, and there will also be personality differences, as some people are better at it than others. But in the end people might get enthused with the idea. I myself got started off in thinking that this could be a help over the problem of introspection by my own discovery that in meditating there is a cooling down of the system so that you are better able to be aware in an open sort of way, without disturbing what is going on. You watch what goes on in the system with an attention that isn't directly thinking.

Dorothy. You spoke on several occasions of what was going on in the system as though it were a bodily condition you were observing. When you were angry you said it was a constriction in the throat. This reminded me of the old James-Lange theory of the emotions, which *identified* them with physiological states. I don't know whether you meant to go all the way with this (to do so rather leaves out the raw feel), but obviously you hold there is a correlation. So the technique of introspection which you have described ought surely to have a physiological side to it. I don't mean, of course, that you should expect to find a physiological correlate for everything you think, for instance, your example of thinking of the letter S. But in deep meditation you suggest you can be aware of things going on in the system. If this could be *shown* to be so, your techniques could indeed tell us not only more about our "subjectivity" but about the kind of psycho-physiological creatures that we human beings are.

Martin. What do you feel about the research on the more physiological aspects of meditation which are going on in India and in the United States?

Derek. The main thing they show is that the physiological state doesn't fit in with ordinary high arousal. There are features of deep sleep and features of high arousal (alertness), and it looks like a state that hasn't been properly studied.

Martin. During your fortnight of meditation, what did you actually do and what guidance were you given, as to what to be aware of?

Derek. Actually I did what I ought not to have done. Every night for the last half hour I wrote very detailed notes. I went there because I wanted awareness. Some people want to climb mountains because they are there. If there are states of awareness, I want to go there. My instructor simply said "be aware of what's going on".

Dorothy. Bodily things? Other people?

Derek. You sit, you shut your eyes and you are alone; and you attend to what's going on, and very soon you find yourself aware of a fantasy. If you stick with it you cease to identify your awareness with the fantasy and look at the fantasy. And then, maybe, after a while you begin to get restless and impatient, and there is a great urge to get up and walk off; then the trick is to attend to the nature of the impatience, and half an hour later you are still sitting there—there is no problem! It is the same with discomfort, which is more tricky, but when you fully attend to it, there is simply this sensation occurring at the base of the spine, or wherever it might be, and nothing follows from it; you don't get up and walk off. Whatever I brought to the instructor, he simply said I was to let it happen, watch, become aware of it and "look into it", so I ceased taking any problems to him after the second or third day, and the rest of my conversation with him was just laughter.

One of the interesting things about meditation is that the more aware you become of thinking and feeling, the less they occur. Eventually the system can become very quiet. There is then a temptation to surrender to this state of peace and become absorbed in it. If you are to stay alert you must be aware of this state of peace also precisely as a state—if you like as a sensation.

Dorothy. Suppose you find yourself going on doing this kind of thing in your daily life: I can see that if you were feeling jealous and you observed your jealousy in this way, you'd get at a distance from it, and this could cool the jealousy; but can you do this without acquiring a self-consciousness, so that if you meet someone for whom you feel affection, you find yourself at a distance from your affection and observe yourself feeling affectionate to them? Wouldn't this interfere with your response?

Derek. I am not sure. I don't seem to have any problems like that.

Dorothy. You said in the middle of your introductory remarks

some highly interesting things in respect of "I—Thou" and then went off into "knowing yourself". Is there any connection between this technique of "knowing yourself" and having some realisation of your "I—Thou" relationships with other people? Or had the world vanished except for you? Is this examination, this meditation on your own nature, related in any way to your awareness of other people and their natures? Or is one part of your Weltanschauung Buberish—"I—Thou"—and the other part just knowing yourself, and if so is it schizophrenic?

Derek. The question, I think, is what is the effect of this meditation on human relationships?

Dorothy. No, it is rather whether the meditation itself has got any relation to meditations on human relationships. I am quite prepared to believe that it has a good effect, but why shouldn't you be self-conscious about yourself in human relationships as well as being self-conscious about your autonomic system?

Derek. There is getting yourself in order. If you were left alone on a desert island, and practised these meditations, you would probably be able to cope better with the absence of everybody else.

Dorothy. What about a non-desert island? Would it help you to cope with other people?

Derek. With regard to relationships with others in a living situation, I think the effects of meditation tend to be to make you very much better listeners, and to make you very much more sensitive to what in fact you are really being told, not just in terms of words. The instructor I had once said to me that when he meets somebody he sits in front of him and he says "I just see them" with great clarity, with some sort of intuitive "seeing through". I think Father Hugh Bishop of Mirfield was another person who gave me this sort of impression; you were securely exposed in his presence. In human relations we are of course vulnerable and usually try to defend ourself. One of the effects of meditation is that we begin to let ourselves be vulnerable.

Dorothy. A friend of mine has done this same meditation, and has this criticism of it now; that when you come back you are too vulnerable. You have just got into a totally vulnerable state about your relations with other people without getting into a transformed state about them, and so you have got to recover from the retreat; and she now has the feeling that something different is wanted if one is to go on living after the retreat.

Derek. Yes, I think there is truth in that. When the awareness is strong you can be vulnerable with safety. Unfortunately when you come out of meditation the awareness fades.

Martin. What about you as a psychologist? Are you doing different research now, or has it influenced the contents or methods you are using in teaching?

Derek. My present research is into the relations between the three-year-old child and its mother. I now want to build in more of the mother's subjective view of her attachment to her child than I did when I was doing this sort of research before. Now you have brought us back to psychology, perhaps I should say again that I mentioned meditation as a technique which could be adapted for the purposes of research. Of course the purpose for which it is normally practised is the attainment of liberation and enlightenment. I wonder at the end of the day if that is not even more important than research.

Dorothy. But don't lose sight of the research. After all, thousands of people are using these and kindred methods of meditation nowadays in the hope of liberation and enlightenment. And a certain number of people are getting on to their therapeutic value. There is, I believe, a project at the Maudsley looking into this. The originality of your approach, Derek, is that you want to use this meditation technique as a method through which the subject might learn to give precise accounts of his own inner states. We look forward to hearing how you go on with it.

Values, Norms and Policies*

Geoffrey Vickers

1. A Definition of Norms

In his book *Technological Planning and Social Futures* Dr. Erich Jantsch¹ provides a diagram showing the sequence of mental operations which lead from policymaking through planning and decisionmaking to rational creative action. Policies precede strategies; strategies precede tactics. But policies occupy not the top level but the third level of his diagram. Above the policy level come two levels labelled "Values" and "Norms", with mutual interactions shown between values, norms and policies. Unlike some writers in this field, Dr. Jantsch does not take "goals" for granted. Values and norms bombard the policymaker with multiple disparities between the course of events as it is and is likely to be and its course as he would wish it to be. These signals often mutually conflict and their demands always far exceed what he can achieve. It is his job to choose and realize one among the many possible partial solutions of this intrinsically insoluble problem. And if he understands his function as well as he should, he knows that his solution can and should be only temporary, since its successes as well as its failures will set new problems for his successors. On the other hand, his solution must last long enough to realize its own promise and pave the way for what will follow.

Though many—not all—writers on policymaking would agree in general with this statement, few if any have addressed themselves primarily to elucidating the relations between values, norms and policies or even the meanings of these terms. The reasons are obvious but the result is none the less disastrous. Values and norms, as I shall seek to show, are terms of unusable vagueness today not because they cannot be usefully defined, but because they have not yet been sufficiently analyzed, although an abundant store of accessible fact is available for the purpose. This paper is a contribution towards filling this gap.

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¹ Erich Jantsch. *Technological Planning and Social Futures*. (1972). London, Associated Business Programmes Ltd. Cassell, p.16.

Although policymaking is common to public and business affairs, and indeed to the management of all human affairs, it is liable to be oversimplified in the study of business decisions in a way which is impossible in the public sector. So it is convenient to choose an example from the field of social policy.

A century ago most homes in Britain had a well in the garden, a privy in the garden and a tank to catch the rain water. Much of the washing was done with rain water, being soft and (then) clean. The well supplied the rest, including the drinking water. The slops and the excrement went on to the garden, either directly or through the compost heap. The generation, use and disposal of water was contained in an area no larger than the site of a cottage. Human waste was disposed of by a separate system, equally small and self-contained.

Today the universal use of water to dispose of sewage has linked the two systems and each combined system covers an area which in Britain is at least as large as the largest river's catchment area and will soon be much larger. The factual interdependence of people in the matter of water and sewage has hugely proliferated. So have their expectations of the system, of each other and of themselves. It is today regarded as "unacceptable" that even an isolated home should lack indoor sanitation and an indoor water supply. In the debate on social policy and its priorities "bad housing" bulks large; and among its constituents the standards of water supply and sanitation have an important place. Other criteria, such as the ratio of persons to rooms, have similar levels which define the unacceptable. Houses which fail to satisfy current standards of the acceptable are "substandard". Even policymakers who do not respond to pressure to bring houses up to standard seldom venture to deny that such standards exist and are valid today, even though they were different or even absent a century ago.

Standards of this kind provide the structure of social policy; countless other examples suggest themselves. They illustrate a very common form of mental operation. Some state of affairs, actual or hypothetical, is compared with a standard of what ought to be and is found not to "fit". In cybernetic terms a mismatch signal is generated. The agent who makes this judgment may for the moment be unable to do anything to remedy the disparity or he may be unwilling to do what he might because some other mismatch is claiming his resources and his attention. None the less the signal has been generated and will in time have its effect on policy.

Standards of this kind are what I think should be meant by norms. They are concrete, specific and—tacit. They reveal themselves only by the signals of match or mismatch which they

generate when they are evoked by specific cases. They may indeed be made explicit in formal rules and regulations. But these also are only effective when applied to specific cases; and, once formalized, they are liable to diverge increasingly from the developing tacit norm which they try to express.

Tacit norms are common. We tend to overlook them, because we are conditioned to ignore the tacit aspects of our thinking, unless they appear to be pathological. Christopher Alexander² in a book primarily devoted to physical design, says in effect that the designer's task to "eliminate misfit", rather than to create form, which is a tacit standard knowable only through the agreeable abatement of mismatch signals which mark the designer's approach to it. And in support of his argument that norms are necessarily tacit, he cites the difficulty of doctors in defining health and of psychiatrists in defining psychological normality.

Clearly nothing is more important to mankind than the process by which these tacit norms develop. This process, though complex, is familiar and is more easily studied in a social than in an individual context. To return to the example already given, the standards of the single dwelling self-contained for water and sewage had long been changing in towns through simple pressures of density. In England in the mid-nineteenth century the inconvenience of density was amplified by increased consciousness of the attendant health hazard. Cities have always been prone to epidemics and plagues; but by the mid-nineteenth century dawning understanding of the possibility of *controlling* disease began to generate standards of acceptability regarding those factors which were recognized as contributing to health. Amongst these were the supply of pure water and the disposal of human excrement.

A host of diverse factors sped the change. The promise of a market for pipes of all sizes encouraged the production of the necessary hardware. The convenience of indoor water and sanitation attracted the rich and made the bathroom a status symbol. Soon its absence became a negative status symbol, which began to offend sensitive consciences. Widening political suffrage made the poor more influential. Growing concern for equality and social justice made those who felt it readier to measure the deficiencies of the poor against standards once peculiar to the rich. Both of the two influences last mentioned helped to determine who stood for election in local government, what they proposed and to what standards they appealed.

In this familiar mixture of motives and pressures two critically important trends can be discerned. One is the transition of some

² Christopher Alexander. *Notes on the Synthesis of Form*. (1967). Harvard University Press.

state of affairs from the status of "act of God" to the status of "act of man". Toil, inconvenience, sickness and death have always been part of the human condition. But in the past century in the West, far more than at any other place or time, aspects of this condition have been distinguished as something which could and should be controlled by men.

Once this happens, the burden and its distribution becomes a matter of public policy about which it is relevant to argue that it *ought to be* other than it is. It is judged by the sort of expectation that we entertain not of the natural world but of the human world—to use a distinction which Herbert Simon³ recently drew between what is as it is, independent of man's design and what owes its form partly to human artifice. What men might shape otherwise allows and invites *ethical* criteria.

The other trend is the continued readjustment of the standard thus set by all the influences illustrated by my example. The standard may be more or less agreed. It may go down rather than up. But only a political cataclysm is likely to relegate it again to the field of the uncontrollable.

2. Norms and Values

Among the many factors constantly at work to change the setting of these tacit norms, one is explicit mutual persuasion. Textbooks of psychology have very little to say about the process by which concerned people persuade others to share their concerns merely by talking to them. But it is a matter of common experience that they do so; and we should hardly devote so much time to the process if we did not think it important. For example, although many factors prepared the way for the elimination of slavery in the nineteenth century, few people would be satisfied with an account that did not mention Wilberforce.

The debate on social policy is full of appeals to concepts such as equality, justice and liberty. These are abstract words of great ambiguity and imprecision. Therein lies their power and their value. Freedom, for example, deserves and needs to be discussed in every generation precisely because every generation needs to redefine its content. This it could not do if the word were not open-ended, a classification constantly growing and changing with use.

Another reason why these abstract qualitative words deserve endless debate is that they come in complementary and partly inconsistent pairs, such as freedom and order, independence and interdependence, equality and self-development, justice and mercy. Each member of a pair is a compendious label for a number of

³ Herbert Simon. *The Sciences of the Artificial*. (1969). M.I.T. Press.

“values” more or less inconsistent with those implied by the other, as well as being the contradiction of its own opposite. They thus supply an indispensable means to discuss the always conflicting and disparate costs and benefits which can be anticipated as likely to flow from any deliberate human intervention in the course of affairs.

These explicit abstract terms refer to what I think should be regarded as values. They contrast strikingly with norms in several ways. Values are general and explicit. Norms are specific and tacit. Yet each affects the other and both change in the course of the process already illustrated.

That values affect norms is the faith behind all attempts at mutual persuasion and the experience which sustains them. But norms equally affect and even generate the values to which they appeal. Wilberforce could attack slavery in the name of freedom, justice and equality and these appeals helped to change in more lethargic or insensitive minds the tacit standards of what they should find unacceptable in the actual laws and practices of their day and age. But these tacit standards had been and would still be the sources from which the abstract values gained their emotive power.

Freedom had been a potent word for centuries in earlier ages, which accepted slavery as a human condition. But its content had been different. The anti-slavery campaign enlarged it in ways which would not easily be undone. Similarly reformers today, urging higher priority for providing every one with a home of “acceptable” standard, appeal to the same explicit general values. But the standards of what is acceptable have risen, giving a new content to those generalities. And the new content will play a part in changing still further the current tacit standards. This is precisely the object of the reformers’ explicit persuasion.

The meanings which I have given to norms and values, though still imprecise, seem to me a useful step towards distinguishing them and understanding their mutual relationships. It also makes clear the inconsistencies inherent in each.

I have already described those inherent in “paired” values. Our tacit norms equally lack inherent consistency. The mismatch generated by unacceptable housing invites action which will mitigate it, but any possible action, when examined, may well generate equally intense mismatch signals by comparison with some other norm and may be rejected at first, for long or even indefinitely, on appeal to the same or other values. And the signal itself must compete for attention with many other mismatch signals, equally valid, all competing for limited resources, often also competing with each other in that any action to abate one will intensify another.

Thus neither our tacit norms nor our explicit values is a stable system. Perhaps it never should be. Certainly neither was ever so unstable as now for two reasons already given. Increasing human power over the natural environment focuses human expectations on what man should do rather than on what nature will do and thus hugely expands the ethical dimension. And the response of authority to these expectations speeds the rate at which they grow.

This then is the situation in which the policymaker works. It is for him to choose some attainable mix of the disparate benefits and costs with which the current babel of "mismatch" requires him to deal. He *must* reject some of these requirements. What he rejects, no less than what he accepts, will influence the future setting of the norms and values of his society. And his actions will influence them no less through their successes than through their failures.

The Beveridge Report and its resultant legislation in Britain is a good example of this threefold interaction. The report identified five "giant evils"—unemployment, sickness, ignorance, squalor and want. The dramatic language is significant. Giants, in folklore, are not only strong and bad but also vulnerable. A hero comes who does not accept them as part of the natural order. He kills them. The report invited its readers to regard these age-old human conditions as equally defeasible. All were already under some attack but the legislation based on the Beveridge Report expressed a new sense of what was unacceptable and a new determination to alter it.

Twenty-five years later, the situation is different. So are the levels of the tacit norms and the contents of the explicit values. A new Beveridge report might identify some new giants. Among the agencies which have changed the situation, the norms and the values, a major one has been the report itself and the stream of policymaking which it has stimulated and influenced.

3. *Policies and Policymakers*

This then is what I conceive to be the distinction between norms and values, the relations between them and the mutual relation between them and the policies which give them partial expression. What does all this tell us about the role of the policymaker and the abilities which we implicitly attribute to him?

The policymaker is subject to constraints, which limit what he can do—or what he thinks he can do. The distinction is important. If he attempts what he cannot achieve, events will constrain him. If, on the other hand, he does not attempt something because he estimates that it is impossible or too costly or too risky, he is constrained by his own appreciation of the situation. Since it is usually disastrous to go blindly on until we are powerless to go

further, the second is or ought to be the more normal form of constraint. None the less, those who accept such constraints can never *prove*, even after the event, that if they had ignored them, they would in fact have suffered the disasters which they anticipated.

Such constraints may derive from an appreciation of circumstances wholly beyond the policymakers' control. More often, they are beyond his control only because his own decisions have made them so. Where they derive from lack of resources, this could often be made good, if he were willing to divert resources earmarked for other purposes. Where they derive from resistance or lack of support among those whose assent or support would be needed, these attitudes could often be changed, quickly or slowly, by bargain, threat or persuasion. Only in the limiting case, usually rare, are these constraints wholly independent of his own action and his own judgment.

These constraints can usefully be classified in another way. Some are imposed by his expectation of the course of event. Some are imposed by his expectations of other people, and especially by his knowledge of what they expect of him. Yet others are imposed by what he has come to expect of himself. The distinction between these three is important and often overlooked.

Human beings often tell each other what they want each other to do. The wish may be expressed as a command or as a request or as a piece of information which has obvious implications for action. It may or may not elicit the desired response. But whether it does so or not, it is a communication different in kind from those which we derive from observing the natural world. And whether the recipient complies or not, his response has an effect on the human sender which has no counterpart in our relations with the natural world.

Moreover, such express communications supplement and depend on a much larger set of assumptions about the tacit norms and explicit values of those with whom we are in communication. This tissue of mutual expectations is what structures the human world and makes human communication possible.

The policymaker, surveying the constraints which other people's expectations place upon his freedom of decision and action, is estimating the way they will judge and respond to the various actions and ways of action which are open to him. But he need not accept these as independent variables, as he would accept the laws of the natural world. They may be abated or intensified by what he does, even by the way he does it, because they are responsive to human communication; and between human beings all acts are also communications. The domain in which people

persuade, bargain or even coerce each other has its own distinctive laws, the laws of communication, which operate at many levels. Even the bomb at Hiroshima was, and was intended to be, more effective as a communication than as an agent of destruction. Much higher levels than bombs are possible and necessary in making and implementing policy.

Apart from constraints, the policymaker is also conscious of pressures, identical in origin with the corresponding constraints. Some are inherent in the logic of events. Dominant among these is the need to preserve the stability of the system which it is his function to regulate, a condition, though by no means an adequate criterion of his success as a policymaker. Some come from pressure groups of his constituents, and others who are concerned with his policies and able to bring some influence upon him. These pressures always conflict with each other and often conflict with what would otherwise be the course of his policy or even with what seems to him the logic of event.

It is sometimes supposed that the policymaker is no more than a broker among these conflicting pressures, concerned only to find a viable compromise between them within the overall limitations imposed by his constraints. Even if policymaking were no more than this, it would put a premium on high levels of rare skills. The policymaker would need to be adept at working out the logical implications of alternative possible actions, and ingenious in devising novel courses which would better combine diverse benefits and minimize unacceptable costs. I will call these logical skills and heuristic skills. He would also need persuasive skills, to get others to share his insights. Few people combine these skills in an outstanding degree, so good policymakers, even at this level, are likely to be rare.

Yet although much policymaking is no more than brokerage between competing constraints and pressures, none worth calling a policymaker will confine himself to this role. He has his own norms and values, never quite the same in character or level as those which move the pressurizers and the containers. He has the right and the duty to advocate them. And his advocacy will surely make a difference, dissolving resistance, polarizing resistance or both.

So the policymaker, whatever the level at which he operates, is also an artist in the creation of coherent and viable form in human behaviour; and like any other artist, he must believe in the goodness, as well as the coherence and viability of the design which he is trying to realize. And even beyond this, he is an artist in shaping the norms and values from which his policy is made. For he affects these both directly by advocating his policies and

indirectly through his policies when they are in operation.

He thus has scope for initiation and for creation. So have we all. It is what we should expect in a human communication system in which every factor is a function of all the others. But the policy-maker's role magnifies this scope and makes him more than usually potent for good and ill.

4. *Some Implications*

This analysis may seem to imply a view of human motivation more complex than is currently fashionable. It is not, however, more complex than we all use in common speech. The distinctions which I have drawn are reflected in four common verbs. What we want and do not want to do is limited and often transformed not only by what we can and cannot do, but also by what we must and must not do, where those words are used of social obligation in the widest sense, and also by what we ought and ought not to do, where those words cover at least those expectations which we have developed of ourselves. Thus in the example already given, the last century has seen a change in what people want in the matter of sewage and water supply; a change in what they can have and in what they actually enjoy; and changes in what they expect of their institutions, of each other and of themselves. It would be strange if the verbs which distinguish these changes did not correspond with some psychological realities. If these need detailed justification, they require an exposition more elaborate than could be added to this paper. But it may help to make the argument clearer if I summarize the levels of control of human behaviour which are here implied.

It is abundantly clear that animal behaviour is subject to a hierarchy of controls which often conflict, and that human behaviour derives its greater coherence from higher levels of organization, which have their own costs and ultimately their own limits in the greater conflicts which they engender. (This contrast will become apparent to anyone who compares his own behaviour, in his more human moments, with that of a bird on a bird table.) I find it useful to distinguish five main levels.

The lowest is the level of innate response. I will call it the level of *control by releaser*, since the study of it has shown that response is a function of the state of the organism, as well as of the environment. This level is constantly qualified by the second level, which is the level of conditioned response, and which has also been exhaustively studied. Conditioned responses frequently conflict with each other, as well as with the level below. I will call this level *control by rule*, since its formula is—"in these circumstances, do this", where the "circumstances" may range from a simple signal to

any complex of event sufficiently characterized to be recognizable.

When the agent develops any capacity for recognizing causal relations and for modelling the future course of events on various hypotheses, simpler controls are further modified. The expected *result* of the intended activity, becomes potent to evoke or inhibit action. I will call this level *control by purpose*. The new logical and heuristic powers on which it depends are just visible at levels below the human; but both attain in man levels so outstanding that purposeful behaviour has become the paradigm of rational action. Whilst these logical and heuristic powers increase the range of possible coherent action, they equally increase its inherent motivational conflict. For control by purpose not only conflicts constantly with control by rule (still very strong in all of us) but also breeds endless internal conflicts of its own, as it uncovers ever more inconsistent and disparate costs and benefits, flowing from an ever wider repertory of conceivable actions.

But these three levels do not encompass the whole of what men manifestly do. No ingenuity of logical or heuristic process can of itself explain why the agent chooses one course rather than another. For this we must postulate criteria and make assumptions about their origin, development and relevant strength and cogency. In doing so we credit the agent with power to respond to a new and more refined sort of signal, though one no longer unfamiliar, since it is a common feature of all man-made control mechanisms. These are signals internally generated by comparing the course of event, actual or hypothetical, with standards present in his mind and acting on the signals of match or mismatch which the comparison generates. Such signals, as I have argued elsewhere⁴, are different from those which operate control by rule and are a necessary supplement to those which operate control by purpose. Now that science has legitimized such signals, we can allow ourselves to see them throughout the human scene. It is no longer necessary to stretch the concept of tension reduction to breaking point and beyond to account for the human tendency to preserve match and abate mismatch signals. It is not even necessary to postulate a "drive" to account for this familiar behaviour. The concept of motivation itself, with its outmoded implication that form depends on energy, gives way at this level to the more comprehensive and appropriate concept of control by standard or norm.

Once again, the potential increase in coherence is bought at the price of increasing conflict. For standards conflict with each other and obedience to them frequently frustrates specific purposes. These stresses, however, are likely to find acceptable solutions, so long as

⁴ G. Vickers. "Motivation Theory—a Cybernetic Contribution." *Behavioral Science*, in press.

the standards remain relatively constant. Even so, their slow change with time, visible in the course of history, invites the question how they develop and how those who obey them can also be those who change them. This problem was an unsolved intellectual scandal within living memory even in the field in which it is most visible and has been most studied, namely the growth of the common law. But as the rate of other changes quickens, whilst the rate at which the generations change becomes, if anything, slower, the need to change the standards we live by even while we use them becomes ever more important and ever more threatening. The function of resetting norms and values becomes a conscious one. And with it we can discern a new level of control, a level of collective self-control or self-determination which casts special responsibility on the policymaker.

These five levels of control are summarized in the appendix. They are a crude and oversimplified approach to a familiar story of development. I hope that further study will soon refine them out of all recognition. I feel only one confident assurance about them. They will not be “reduced” by one of those “nothing but” hypotheses, so dear to some scientists when they approach the human realm. The fourth and fifth levels will not be dissolved into the second and third—unless, of course, human life itself is so dissolved.

In that case we shall no longer study the more important aspects of policymaking.

APPENDIX

A Summary of Five Levels of Control

Level 1 Control by releaser—the realm of innate response qualified by

Level 2 Control by rule—the realm of conditioned response, amplified as logical and heuristic powers develop, to create the often conflicting level of

Level 3 Control by purpose—the realm of know how, generating a volume and variety of choice which is unmanageable without

Level 4 Control by norm—i.e. by match and mismatch signals generated by comparing hypothetical as well as actual courses of events with tacit standards which define their

acceptability. This level breaks down so soon as norms cease to be relatively stable and universally held unless it is supported by

Level 5 **Control by self-determination**—a process both individual and social which depends essentially on ethical debate and reflection about changing values and on the policy-making which both expresses and generates that debate. It is neither more nor less “rational” than the process already described which has fixed the current standard of an acceptable British house.

Death

Rupert Sheldrake

Death is out of fashion, rarely discussed, forgotten as much as it can be. It is too close to us all. But however much or little we may choose to think about our own inevitable mortality, death is a fact of life which must be considered by any science of life. But even within biology death has been more or less ignored. I think that this has imposed a great limitation on our understanding of life itself.

Life is change. Multicellular organisms grow, senesce and die. This is very obvious, one of the most immediate facts of our experience. But if we turn to biology and ask why do organisms grow, develop, senesce and die we hardly find even the beginnings of an answer. The picture that has emerged as the greatest triumph of molecular biology and biochemistry is an essentially static one. At the core of modern biology are a number of conceptions which are rather like Platonic ideal forms, changeless and universal. These are, firstly, the idea of DNA as the universal chemical of heredity, with a universal structure and a universal code; it can be copied more or less exactly, but is itself essentially static. Then there is the biochemical picture of metabolism, summed up in the Metabolic Charts which one often sees pinned up on laboratory walls; a universal biochemistry which is more or less the same in microbes, plants and men; an interlocked network of biochemical pathways and cycles. This whole system, although dynamic, is thought of as being in a steady state. Deviations from the steady state are corrected by negative feedback mechanisms so that, although oscillations are possible within the system, they are oscillations around a steady state. The third essentially static element in biology is a structural one, derived from the study of dead and fixed tissue by light and electron microscopy. This is represented in biology textbooks by means of a picture of an Idealized Cell, with nucleus, mitochondria, membranes, ribosomes and so on. There is another static structural element in biology, of older vintage, produced by the study of anatomy and morphology; the ideal forms of the different species of organism; the visual image is one of plants preserved on herbarium sheets or animals in bottles of formalin; these are further formalized in drawings and diagrams.

Of course biologists are not unaware of the fact that life is change. Sciences such as embryology and the now fashionable

subject of developmental biology are avowedly and explicitly concerned with development. But the tendency of practically all modern biology is essentially mechanistic; it is not simply the description of change which is aimed at, but the analysis of the mechanisms of change. Here lies one of the greatest difficulties in the whole of biology; this difficulty stems from the attempt to explain the change and development of organisms in terms of the essentially changeless and universal concepts derived from molecular biology, biochemistry and electron microscopy. If a cell is thought of as being in a more or less steady state from a structural and biochemical point of view, then the only way in which change can be brought about is by the imposition of some external stimulus. And indeed changes of this type have been analysed in considerable detail. If one adds the sugar lactose to the medium in which the prototypic bacterium *E. coli* is growing, changes occur such that new enzymes are manufactured which enable lactose to be used as a source of food. If one supplies yeast cells with oxygen they produce energy by respiration; but if one changes the environment to one without oxygen they produce energy by fermentation; a new steady state is established in response to external change. The same sort of analysis is applied to the differentiation and development of cells in higher organisms, but here the external agents of change are chemical messengers, i.e. hormones, formed within the organism itself. But if hormones regulate the cellular changes, how are hormonal changes themselves regulated? This problem seems relatively easy to answer for certain hormones studied by animal physiologists, such as insulin; but this relative simplicity is misleading. The hormones whose formation and control are understood are all hormones concerned with regulating the steady state; they are a very special and limited class of hormone. Any attempt to understand developmental changes in terms of chemical messengers thought of by analogy with this small class of steady-state hormones leads straight back to the problem of trying to understand change and development in terms of static concepts.

I have tried to summarize briefly and perhaps in an oversimplified way what I think are the central patterns of thought within modern biology. The cell and the organism tend to be seen as being in a steady state unless change is imposed from without. Within this framework of thinking, ageing and death are very difficult to explain. Indeed they are not explained. They are ignored as much as possible; they are hardly mentioned in most biology textbooks. The study of ageing is relegated to the special science of gerontology, or within medicine to the specialists in geriatrics. Ageing tends to be thought of in terms of the stiffening of collagen fibres in the connective tissues or the accumulation of unpleasant

fatty substances in the arteries. A number of more sophisticated theories of ageing have been advanced within the last few years which involve accidental internal changes within the cells, but these theories are in general limited to the only form of internal, accidental change which is readily admitted by most biologists, namely genetic mutation. Ageing is supposed to result from the accumulation of defects in the DNA. This may indeed be part of the explanation, but the danger is that now some sort of molecular biological mechanism has been proposed, the problem of ageing will be regarded by many as more or less solved, at least to the extent that no serious thought need be given to it by most biologists.

I want to propose that the processes leading to ageing and death are intrinsic to all cells all the time; only by postulating such internal changes can we make any sense not only of ageing and death but also of growth and development. These changes must be ones which occur progressively with time and be changes which are irreversible. Life is change; living organisms exist within duration; they have time within them; in Bergson's phrase, they are gnawed on by the tooth of time. These internal changes *are* ageing and lead inexorably towards death. Cells have the seeds of death within them; death is not a footnote to life; death and life are intertwined and interdependent.

Unicellular organisms such as amoebae and bacteria are often considered to be immortal. The cells grow, divide, and the daughter cells grow and in turn divide. Some of the daughter cells die; indeed most of them die but the ones that survive go on growing and dividing. An individual unicellular organism is not immortal, but the cell can escape death by growth and division. Multicellular organisms are constituted differently. They depend on a specialization of cells, on a division of labour between the cells, tissues and organs of which they are composed. They contain differentiated cells. And the differentiation of cells is not compatible with their continued growth. In general cells can either divide or they can become differentiated; they cannot do both. So in multicellular organisms most of the cells lose the potential for unlimited growth and division; the organisms could not exist otherwise; they would not be organisms at all but mere aggregations of cells.

I am now going to propose in general terms a mechanism for the sort of process I have been describing in a very abstract way. This mechanism is not the only one conceivable, but it makes it easier to understand the sort of approach I am trying to propose.

I suggest that in all cells there is a progressive accumulation of toxic substances, whose accumulation leads inexorably towards the

death of the cell. These substances could, for example, be breakdown products of proteins or of lipids from cell membranes; but speculation on their chemical identity is not necessary for the purposes of the present argument. From its otherwise inevitable death, the cell has one route of escape: to grow and divide. The toxic products will then be diluted and the daughter cells will have a new lease of life. But again time will lead to a further accumulation of these substances and again the only escape will be further growth and division. Even so there will be a progressive build-up of these compounds in the cells (since each cell inherits some from its mother cell, forms more itself and thus passes on more to its daughter cells than it itself received) and death will finally overtake the cells after a given number of divisions. Such a situation does indeed seem to be the case. Cells taken from the lungs of human embryos can be grown in the laboratory and go on dividing quite happily for about 50 cell generations. Then they die. Similar cells taken from the lungs of adult humans grow and divide for about 20 generations and then die. Death can be evaded by continued growth, but the ancestral debt gradually builds up and finally overwhelms the cells at a time which depends on the number of generations through which the cells have passed.

But the type of cell division I have been referring to here is a symmetrical cell division, where both the daughter cells receive half of the accumulated toxic products of the mother cell. Another type of division is possible, an asymmetric division. Here one of the daughter cells may receive all or most of the accumulated toxic products and the other be truly rejuvenated, having almost none. The slate would be wiped clean; one cell would for a while have escaped from the progressive effects of time while the other would be condemned to differentiation and death, a death which might occur sooner or later but which it cannot escape unless (as occurs in some forms of regeneration) it divides again unequally, producing a rejuvenated cell and a cell even more mortal than itself. In all multicellular organisms, visibly asymmetric cell divisions are quite common; it is possible that these involve an asymmetric distribution of toxic products in the manner described above.

In the light of this hypothesis I now want to consider the growth, development and death of higher animals and plants. Firstly plants. If we look at a large tree we find that it is always growing (except when it is dormant in the winter). Year after year the shoots form the same sorts of leaves; year after year the roots grow in the soil. The tree grows old not because its shoots senesce; the tree dies not because of an inbuilt senescence but because it gets so big that it eventually falls over, or succumbs to disease, or is struck by lightning. But the shoots are perpetually young; cuttings taken from

an old tree will give rise to healthy young trees and this process can be repeated indefinitely. So the growing points of the tree, the meristems, do not age; they can elude senescence and death. If we look at the way the cells within the meristem divide, we find that they divide asymmetrically. Each division gives one cell that remains young, that grows and divides again; but the other cell enlarges, differentiates and sooner or later dies. Some of the cells, for example the wood cells, die as they differentiate; as they die they release substances which control the pattern of further growth and differentiation. So the price paid for the continued growth of the meristematic cells is the death of half the daughter cells, which differentiate and eventually die. The differentiated cells of the leaves die; the leaves drop off. The differentiated cells of the stem die, forming the wood and the bark. But the shoots go on growing. In a tree we see layers and layers of dead tree formed in the previous years; the living tissues are superimposed on the dead whose accretion proceeds as long as the tree is growing.

The tree represents the fundamental pattern of indefinite growth which is characteristic of plants. There are of course plants which do not grow indefinitely, such as the annuals, which die after they have flowered. But even annuals are capable of growing for much longer than their normal life span if they are prevented from flowering, showing that death is caused by flowering and is not due to an innate inability to go on growing.

Animals are different. They do not go on growing. They reach a fixed size; their growth is determinate, and they inevitably die. The initial rate of growth of an animal embryo is very high; but this growth rate slows down until the organism reaches its final size. The progressive decline in the rate of growth led Minot to say in 1890 that the younger the organism is, the more rapidly it ages. This sort of statement is very unfashionable in modern biology; but it focuses our attention on the process of embryology in a far more interesting way than any amount of molecular biology. At first the cells of the fertilized egg divide rapidly, more or less symmetrically. But then the rate of cell division slows down; tissues begin to differentiate; and throughout the development of the embryo tissues and groups of cells die in the midst of other tissues which continue to grow. This striking phenomenon, although commented on by embryologists, has received very little attention. The death of these cells may not only be the price that is paid for the growth of other cells, but also provide a major source of the elusive chemical messengers which are supposed to influence the patterns and types of differentiation which occur in the embryo. In the adult organism, some tissues continue to grow: the skin, the intestinal wall, the liver; and blood cells continue to be formed.

But in all these cases continued growth is offset by cell death. The skin, for example, is constantly being replaced; the skin cells die as they differentiate. It is probable that the living cells at the base of the skin divide unequally, like the cells of a plant meristem, one cell remaining young and capable of dividing again, the other differentiating and dying. Tissues such as the skin which retain the ability to grow are the least mortal parts of the body. On the other hand there are some tissues whose differentiation is completed relatively early in life and which possess little or no capacity for regeneration; muscle is to a large extent like this but the supreme example is found in the nervous tissue. The cells of the central nervous system are all differentiated; they cannot divide and they inevitably die. And when they die they are not replaced.

But while the individual animal is made up of mortal tissues, there is one type of cell which escapes from death, when the slate is wiped clean and which is rejuvenated to the highest degree. This is the egg cell. The freeing of a cell from the accumulated products of ageing can, I have suggested, occur only by asymmetrical cell divisions; the renewed vitality of one cell is bought at the price of the death of its sister cell. It is a remarkable and well-known fact, but one to which little or no significance has been attached, that in both animals and plants the formation of the egg cell involves two asymmetric divisions of the egg mother cell such that four cells are produced, three of which die. The similarity of animals and plants in this respect is particularly significant because sexuality has evolved independently in the animal and plant kingdoms; in both only one of the four potential egg cells actually becomes an egg. The contrast with the formation of the male germ cells is also very striking. In both animals and plants all four of the potential sperm cells or pollen grains remain alive. But pollen and sperm cells are mortal; they have a limited life span; the lucky ones reach the egg cell, fertilize it by passing their nucleus into the egg, but the pollen tubes or sperm cells themselves remain outside the egg, and die.

Death at the cellular level is therefore significant in two major ways: the death of cells resulting from asymmetric cell division may pay the debt of mortality which enables their sister cells to be rejuvenated and to escape for a while from ageing, in a sense to conquer time. Secondly, cell death may play a role as a source of chemical messengers that are released as by-products of the breakdown of protoplasm. At least in plants, there is considerable evidence that this is in fact the case. But there is a third way in which cell death may be of importance. In the most differentiated of all tissues, the brain, the nerve cells develop and differentiate quite early, mostly during the period of embryonic growth. Some

new nerve cells are formed after birth, but in man the maximum number has been reached by about the age of two. These cells are differentiated, they are mortal; and they die. Nerve cells are dying all the time; on average there are about 10% fewer at the age of 80 than there are at age of 20.

The conventional view of this process is to ignore it as much as possible, but otherwise to assume that all it can mean is a progressive deterioration of function in the brain which only becomes of importance during senile decay. This view derives from a static conception of physiology. In the naive models of the brain based on analogies with telephone switchboards or computers, the structure has to be taken for granted as a perfectly functioning whole. These models see the brain as both genetically programmed and self-programming; information is processed according to these complex programmes by permutating it and recombining it in all sorts of ways. Since computers are not creative in any very interesting way, a computer model of the brain implies a lack of creativity. But the most striking difference between the human mind and a computer is that human beings are creative and computers are not. It is precisely this creativity which the computer models cannot account for and which leads at least the less sophisticated adherents of this type of thinking to deny that creativity exists at all. It can be explained, they argue, by permutations and recombinations of information in a complex but potentially predictable way.

But creativity is not a mere reshuffling; it is the production of the new and unforeseeable, which cannot, by definition, be predicted. The creativity that is expressed in biological evolution is explained in neo-Darwinian theory by chance mutations. Monod refers to mutations as chance caught on the wing and also speaks of the inexhaustible resources of the well of chance as being the only source of absolute newness; random inner change lies at the heart of evolutionary creativity.

If the brain were an essentially changeless structure, a super computer working smoothly, it would have no source of inner change which could account for creativity. But the brain is not like this; its inner structure is undergoing constant change precisely because it is mortal; cells are dying and they are not replaced. The death of these cells must be regarded as taking place at random, by chance. The inner changes brought about in the brain are thus unforeseeable; they are thus potentially a source of absolute novelty by exact analogy with chance genetic mutations.

Unless we adopt the very unlikely hypothesis that the numerous cells within the brain that die are doing nothing and that their disappearance makes no difference, it seems necessary to conclude

that cell death might have profound consequences for the nervous connections in the brain. Some pathways of conduction might be broken, others be formed and new combinations produced in a completely unforeseeable manner. In conscious life, a new connection, a new idea, may just appear—we are unable to explain where it comes from. And in dreams the most amazing variety of impressions, recollections and images are combined with unfailing novelty. These processes might be going on in all our brains all the time; the vast majority may be dismissed and forgotten, as we forget most dreams; and many may never reach consciousness. An immense wealth of novelty may lie within everyone all the time; but only in some people some of the time are new ideas or images selected, developed and used. Again we can think of the analogy with genetic mutation and natural selection: most mutations are harmful and are removed by natural selection. In some very conservative species, the living fossils, nearly all mutations are filtered out. But in others some of the mutations are preserved, developed and contribute to the creation of new species and forms of life. But too many mutations are lethal; the organism breaks down. Similarly, if cell death within the brain is to act as a source of useful novelty, the mechanisms which filter out harmful changes and which preserve and develop others must themselves continue to function. We do not grow more and more creative as we approach senility: too many cells have died; the balance between change and conservatism breaks down. Cell death can only play a positive roll when it is relatively rare. Although it may be precisely because the brain is mortal and because cells die within it that creativity is possible, this process must lead towards senility and death.

These hypotheses are speculative. They may be wrong. But unless we think about the mortality of cells we cannot begin to understand the mortality of organisms. And unless we think about the mortality of organisms we cannot make sense of evolution, which depends on the cycles of growth, reproduction and death. In Goethe's phrase, death is Nature's device for having life in abundance. Without death there could have been no evolution, no creation of new forms of life. Without human death there could have been no evolution of culture. And our own mortality is a necessary condition for the growth and development of consciousness itself.

Living with Leukaemia

Pamela and Jack Ravensdale

In January 1970 we published an anonymous article, "Living with Leukaemia", which was originally a B.B.C. broadcast talk. The reason for anonymity is obvious, but now that the writer has died we are republishing it, an unprecedented action for T. to T. Many people who read it then wanted to know more; many readers have come to T. to T. in the last three years. In an epilogue to the reprint Pamela Ravensdale's husband completes the record.

When twelve months ago I heard that the condition of the blood (carefully never referred to as "disease"; "condition" is so much more consoling) which had taken me to a haematology clinic for a routine blood count every four weeks for the past six years was in fact chronic leukaemia, it was the judge in his black cap who sat there talking to me, not the competent consultant who hadn't really meant to let the bogey out of the bag at all. But once said, it was too late to pop the bogey back in again, and there we were with the thing leering at me and saying, "Well, now what are you going to do about it?"

My type of leukaemia, he told me, was a killer, but not a quick killer like the more acute forms of the disease which does all the headline hitting. (A life sentence, said the judge, nodding his head in agreement, not the block after all.) And how long, I asked, feeling now a kind of personal interest in this conversation, how long did this quiet chap take to finish the job? Oh, five years from diagnosis, perhaps; perhaps six, seven, eight—who could tell? Sometimes ten; usually not more. But then, research—drugs—new methods—

I was past listening. "Me", I assured him firmly, "I shall instead undoubtedly be mowed down by a bus". With which he cheerfully agreed. Was there any chance, however slight, that the children would have inherited this from me? No, there wasn't. Did my husband know? The consultant thought he knew: I said I knew him well enough to be sure he couldn't; he could never have kept this from me for so long; I would surely have realized, if he had, that there was something in the wind, wouldn't I? We left it at that.

I remember, as I left the haematology clinic that day, that the market with brightly striped awnings over the stalls was crowded with people, gay with flowers and fruit and cheap jewellery,

cheerful with noise and bustle. The sun was still shining, and no one seemed to notice this placard I was sure I was wearing, this bell I was ringing.

An hour or two later I was beginning to come to. There were two things that I knew I had to do: to find out more about leukaemia, and to discipline myself not to let my husband suspect for one minute what was really wrong. This was the difficulty; I fly to him with everything, and he heals the wound, wipes the tears, comforts and sustains me, always. And now, when I needed as never before to share this with him, and with no one else, I knew it was the one thing I must not do. Some day perhaps, when I had to, but not now. By the time I went home, I had to be able to behave as though this was a day like any other day.

I was deciding this in the murky depths of the city reference library, the relevant volume of the *Encyclopaedia Britannica* in front of me: "Leukaemia—a disease of the blood-forming organs which is encountered at all ages and in both sexes. Its cause is unknown, but it is considered to be of the same nature as that of various other forms of cancer". (There we were: the blow below the belt.) It went on to describe the main varieties of the disease and how long each took to run its course ("After diagnosis", the specialist had said, "after diagnosis";—never any good at simple arithmetic—do I add or subtract the six or seven years since then? And what difference does it make if I do?)

"The cause of leukaemia is obscure—" (That I did know) "—and this disease is invariably fatal. A number of methods are available, however, whereby the severity of the manifestations may be so modified that the victim may carry on in comparatively good health for a time . . .". I was not, at that moment, much cheered by this, still being busy with different calculations about being likely to be still alive for from three to ten years after diagnosis plus or minus the six or seven already gone.

But there was one thing I did now realise; chronic leukaemia couldn't be controlled indefinitely. For a time yes; but (the *Encyclopaedia Britannica* does not mince its words) "this disease is invariably fatal". Looking back I realise now that the information in the *Encyclopaedia* might well have been out-of-date. Medical knowledge advances quicker than its text-books. However, it never occurred to me to doubt that what I read was true.

So by the time I reached home that afternoon, I was no longer shocked, but taut with anger and resentment. I hated not having been told the truth before: I was furious with myself for being stupid enough to believe what I had been told all this time. And too there was, as I imagine there always must be, the fiercely personal, unfailingly impertinent question—"why me? Why does

this have to happen to me?" A question to which there is never any answer.

Not surprisingly, for the rest of that summer, all the time I couldn't tell my husband what this so-called blood disorder really was, I was unbearable to live with. I couldn't sleep; the days weren't so bad, but at three o'clock in the morning this bogey-word leukaemia nagged at me the whole time. I worried about everything. I was full of self-pity. I thought, miserably, about all the places I would never see, all the things I would never do after all. I snapped at my long-suffering husband and bit the children's heads off at the slightest provocation.

Mercifully, our own doctor came to visit one of the family that autumn, and I had enough sense to confide in him. He told me of course my husband had known all along from the time the disease was first diagnosed. The relief of knowing that he knew was indescribable. It is not, after all, something one can say casually over supper—"Oh by the way, darling, I nearly forgot to tell you—I've got chronic leukaemia"; but to be able to say "Look, I know too; now we can cope with it together", was a blessed relief for both of us. And, too, knowing that he had known all along put me properly in my place. It may not have been easy for me, but it was a great deal harder for him, and he'd known for years and soldiered on. I hadn't. A very humbling experience.

Added to this, our doctor told me that he had given me six months when the diagnosis was first made; I began to feel that the years since then were a gift of time that had been granted us, and to accept the presence of this quiet stranger, rather than resent his company so bitterly. There he was; there was nothing we could do about it, only admit he was still there, and be thankful.

We had had six years already, six years in which the children had been growing up, becoming more independent, more able, even the younger ones, to stand on their own feet; six years of being together, which we so easily might have been deprived of. I would like to be able to say, with my hand on my heart, that one result of this has been to turn me, overnight, into a very noble character. Alas, this wouldn't be true. But sometimes for days together I forget the presence of this uninvited guest; sometimes still I wake at night with the now familiar fear too much with me. Alone I could never have coped; but together we can. Time is very strange; I bitterly resented, a year ago, being deprived of the future, but now I am grateful for the past, and can appreciate the present more than ever before. We don't plan ahead very far; sheer superstition, of course, counting off one more week, one more month, on my fingers—and if I don't step on the black lines in the pavement the bears won't get me—or not this year, anyway. I avoid friends who are already

planning where they will go on holiday the summer after next, kindly relations who in July write to ask what the children would like for Christmas, well-meaning acquaintances who suggest, that when our family is older I shall of course get a full-time job. If you never say it out loud, it still might happen. But we have learned to value what we have. I have found time to read more, to do more voluntary work, even to write a little. I have tried to subdue my ruling weakness—never to do today what can be put off till tomorrow. That's quite something. I still wake up sometimes, especially at three in the morning; but we have each other and the children, family and friends, a house we're happy in, absorbing interests, love and trust and laughter.

“In the treatment of leukaemia”, says the *Encyclopaedia Britannica*, “X-ray therapy and radio-active substances such as radio active phosphorus, as well as certain chemical agents, have proved to be useful”. So far, a couple of sessions of X-ray therapy, four-weekly blood-checks, and a carefully adjusted quota of little pink pills have proved blessedly effective. There will come a day when they won't be; we both know that. It could be a great deal worse than this.

Pamela Ravensdale

Epilogue

On the second of April Pamela Ravensdale died, nearly ten years after making this broadcast. Over the air she had not told her reason for writing the talk: it might help others to know that life could not merely go on under the shadow that clustered around the word “leukaemia”, but that the simple, ordinary things of life could become immeasurably richer than anything known before.

In the Valley of the Shadow a new intensity and satisfaction came into her emotional life and her marriage—not that they had been negligible before! These were not things she could easily tell the world. But she could tell her husband in so many ways.

She was shy of trying to put into words what she had already discovered, that the simple could be elemental and more important than anything else. In words this might sound sentimental, pompous or trite according to the lack of experience of the hearer, so in the broadcast she only hinted at it: in the next ten years she lived it out to the full in her life.

What she knew she could not have faced when the illness was first diagnosed was not her own fate, but the prospect of four children between two and ten to be made motherless sometime soon. When she knew the full truth three years later (the arithmetic in the broadcast really had gone wrong) she already knew that she was holding her own, and might go on holding her own for years

more, perhaps until the children were children no longer. For this she would fight, and her experience might help someone else who needed to fight and not despair.

Letters of all kinds, but particularly letters of thanks, poured in to the BBC. One of these mentioned the Leukaemia Research Fund. Obviously the cheque for the talk and its repeat must go to this fund, but that scarcely seemed enough. By this time she had learned more about the disease, and the grim outlook in those days for children with its acute form. This she found a heart-rending contrast to what she considered her own relative good fortune. She called together trusted friends, formed a Cambridge Branch of the Leukaemia Research Fund, and became its first secretary and driving force. She swept us all along with her exuberance. There followed years of slog and success. She served on the national executive of the fund and saw it finance the establishment of a Chair of Haematology in Cambridge. She saw the prospects of little children who were her fellow sufferers slowly but perceptibly improve. In those years she shared in the anguish when false hopes were raised, when breakthroughs were announced too early, or when charlatans attracted to themselves too much publicity. Only her closest friends knew that her prime motive was the concern for children: only her husband knew that everything she did for the Fund called up our uninvited guest to accompany her and challenge her gaiety and wit. After five years she felt it was time to hand over the work of the Fund to others while she drew breath for what she knew would almost certainly be her last years.

It was an exhausting task raising four children through adolescence in those particular years. Making a home for them in an old, run-down manor house with a vast wilderness of a garden to tame was exhilarating, but a drain on energy. But Pamela was strangely liberated: she refused to bury her talents. The scarcely possible became irresistible for her again and again in that ten years. She took up her writing again. She was in an audience that heard a publisher say, "Don't think for a moment that your first play will ever be published": he had just published hers, and he published two more.

She was elected to membership of Lucy Cavendish College, Cambridge, and became an expert on the family history of the Tudors. She gave talks and wrote articles on Victorian furniture and jewelry. During her last illness she completed the story of one of her ancestors, a missionary to the West Indies who perished bravely in a dramatic shipwreck. She enjoyed her writing.

But most of all she enjoyed people. For years she had managed to do some teaching, in classes of adults, classes of apprentices, and factory girls. She found them all exhilarating because she got

back something of the enjoyment and excitement which she communicated. And she had so much to give in zest and gaiety. But the time came to concentrate her resources a little. She liked having a job to contribute to the family's income, but came to accept that her vocation was taking her along other paths.

She had been such a successful and lively W.I. president that she had to get through a constitutional change to free her for her greatest efforts for the Leukaemia Research Fund. Five years later she moved on again. Her last years were a love affair with the little village of Landbeach, near Cambridge. The children were growing up and beginning to leave home: it was time to think of the future and even of the possibility of retirement. She saw a pair of old thatched cottages such as she had sworn she would never live in, and at once became spell-bound with their possibilities as a home. It was in her venture of making this new home that she acquired her knowledge of Victoriana. The house is not only a monument to her taste: it breathes her personality.

All this while she was regularly visiting and comforting aged and sick relatives who lived three hundred miles away in Cornwall. She spent far more time and energy than a woman in full health could have afforded in travelling and sorting out their business affairs for them. As she took root in Landbeach, her Cornish roots deepened too.

Landbeach fascinated her. She loved it at once, and it returned her love. She became the first secretary and inspiration of the Landbeach Society, and she still inspires it, giving the village a consciousness of itself and its past which we hope it will never lose.

In all this her love of people found its expression and flowering. She took instantly to the shy, the weak and the poor, who were restored by her warmth, and by her unspoken, sincere assertion of their importance. The vigorous and lively she excited by her greater vigour and liveliness. The pompous, the pretentious and the mean were the targets of her devastating outbursts of sudden wit. But this was so good humoured that it usually soothed these people too. To know her was to understand the Magnificat.

In hospital she was acutely concerned for her fellow patients. (Meeting them, she said, made her realise that she could have been much worse off than she was.) The only objection that she had to hospitals was their concentration on illness which she felt was only marginal to living. She thoroughly enjoyed the few hours that she was allowed out during the week-end before the last. She could by then only move with difficulty, but she was incandescent with the fire that burned inside, and revelled in sitting at home with her family, in being taken out to tea, in the sun in the cathedral close, and in the music of the choir. We were glad for that week-end. She

did not give the impression of a woman desperately ill, who knew that all the efforts of a whole scientific department to save her might be in vain. She was an enjoying person, as her most distinguished friend said.

Ten days before her death she and her husband completed the purchase of a cottage on the Cornish Moors, in the country where she had first taken him from her home before they were married. The doctors had wanted her to give this venture up, but she insisted that she must either go on fighting for her future, or what else would there be left but to decide who sends the flowers to the funeral. She saw death staring at her, and put him in his place by staring back at him briefly.

The deep content which made her last days so radiant came from knowing that whatever happened she had already won, through the life and love that she had packed into those borrowed years. She now saw this love and vitality pouring back to her from her children. In her family there was no generation gap any more, scarcely any difference of age; men and women together.

She considered her condition carefully and rationally, and decided that with all the limitations and distress her condition imposed on her, it was better to struggle on than to give up. On the last day the doctors seemed optimistic of a long remission, and assured her that her fighting would help. She decided that she had so much that she loved, that she saw no point in giving it up for the sake of a fight. "Right then, I fight!", and she took her husband's hand and spent the remaining hours laughing, loving and joking. She knew then that if they had not been married, he would have proposed to her, then and there as she was, and she was content. She also knew that, even if the worst came to the worst, other people could hardly have packed into a century what she had had in the last sixteen borrowed years. She sensed her triumph, and those closest to her shared in it. She had given herself with a prophetess's abandon to what mattered most, and we shall remember those last days for the joy and the triumph.

Early next morning she went into a coma from which she never recovered.

When we laid her to rest in the old churchyard, the tree that shades the grave was putting out the first tips of its leaves. It has since blushed pink with blossom, opened white, set fruit; but I am still more dazzled than stunned. When we thought of her as we tried to arrange the service for her, she seemed to take over. She was a Cornish Celt who refused to recognise the Synod of Whitby. She was celebrating Easter when we thought we were still in Lent, and she took all of us who were with her then into her triumphant Alleluia.

Jack Ravensdale

Comment

1. *Transcendental method: Lonergan's arguments for the existence of God*

Dorothy Emmet invited me to comment on her article in the last number of *Theoria to Theory*, in which she discussed (most interestingly) the writings of Rahner and Lonergan. I shall confine myself to Lonergan and to Lonergan's argument for the existence of God. My remarks will supplement, not quarrel with, Dorothy Emmet's. Lonergan is described, along with Rahner and Coreth, as a "Transcendental Thomist". What does it mean to say that his argument to God follows "transcendental method", and how effective is it as an argument? The argument looks as if it owed more to St. Thomas than to Kant; and E. L. Mascall can claim that it is a near-neighbour of his own, not distinctively transcendental, form of Cosmological Argument. It may clarify the situation if we first of all ask what job the word "transcendental" does in these contexts.

The central Kantian attempts at transcendental arguments are attempts to demonstrate that we must accept some *a priori* principle in order to be able to claim that a whole class of judgments is objective: for instance, judgments about an objective time-order require the principle that causal law holds for all changes. (Cf. the symposium on Transcendental Arguments, *Proceedings of the Aristotelian Society, Suppl.*, 1969.) More broadly, a person using a transcendental argument singles out some features of our experience, some set of judgments or some area of discourse, and he claims that those features, judgments or pieces of discourse are possible only under certain conditions. The goal of the argument is to establish that these conditions hold. The case is, of course, strongest if it can be argued that even an objector to the transcendental argument must presuppose—in his own very objecting—the occurrence of the experiences or the propriety of the judgments, or must himself rely on the area of discourse concerned.

More broadly still, we can allow the term "transcendental method" to a systematic philosophy which, like Lonergan's, gives primacy to the theory of knowledge. "Thoroughly understand what it is to understand, and not only will you understand the broad lines of all there is to be understood but also you will possess a fixed base, an invariant pattern, opening upon all further developments of understanding" (*Insight*, p.xxviii).

Other aspects of Lonergan's transcendental method were aptly described by Dorothy Emmet, and I shall not cover the same ground again.

To employ transcendental method to establish the existence of God would be (roughly) to show that the asserting of God's existence is indispensable to our making sense of some fundamental feature of our experience, or to the making intelligible of a sphere of discourse to which we are too deeply committed to contemplate abandoning. Now an argument for God, almost identical with Lonergan's argument in *Insight*, but somewhat simplified, can be given that kind of structure:

1. To Lonergan the notion of being is "all pervasive". It "penetrates all cognitional contents". "Knowing is knowing being" (356f).

2. It follows that a person who denies God's existence relies on the notion of being in his intellectual activities in general—as much as does the believer.

3. For Lonergan, knowing and being are isomorphic. Being is ultimately intelligible, and wholly intelligible. What is not fully intelligible from a particular viewpoint must be deemed intelligible at some higher viewpoint. "By being one means . . . the goal of intelligent enquiry and critical reflection" (499).

4. Through an examination of 3, Lonergan concludes that for intelligibility to be complete, we cannot accept that the world as we experience it and (partially) understand it exhausts reality. Contingency and the incompleteness of all our explanations prevent that. Only the positing of an "unrestricted act of understanding" does full justice to the demand for completeness of intelligibility.

5. By way of further argument, this is identified with God. God, therefore exists, and the denial of his existence is self-undermining.

In brief: the notion of being is indispensable for any cognitive activity. But the notion of being, on examination, leads us to the notion of deity.

I say this argument is *close* to Lonergan's: Lonergan himself, however, gives his argument a greater complexity. He does not see his task as finished when he derives the notion of an "unrestricted act of understanding" from the notion of being. "By asking what being is, we have been led to conceive an unrestricted act of understanding. . . . If now we ask what causality is, we shall be led to affirm that there is such an unrestricted act." Our ordinary causal explanations of an object involve "final", "exemplary" and "efficient" components. Suppose the object is, for instance, a bridge, these will answer questions about its use or purpose, the engineer's design, and the work of building the bridge, respectively.

Now if such causal explanations are of quite universal scope, then there exists a "last end", a "primary exemplar of the universe of proportionate being*" and a "first agent". Lonergan now argues for this conclusion, relying once again on the principle that being is thoroughly intelligible and that therefore we cannot rest in any causal explanation where the *explicans* is some "mere matter of fact". Even an infinite regress of efficient causes would be "simply an aggregate of matters of fact". The primacy of epistemology shows itself here, since causality, for Lonergan, "denotes the objective and real counterpart of the questions and further questions raised by the . . . unrestricted desire to know" (651). And a more patently transcendental note is sounded two pages further on: "one cannot confine human knowledge within the domain of proportionate being without condemning it to mere matters of fact without explanation and so stripping it of knowledge not only of transcendent but also of proportionate being".

The final stage of Lonergan's elaborate argument uses a similar transcendental type of reasoning in support of the essential premise that being (which is the real) is "completely intelligible". Being is "all that is to be known by intelligent grasp and reasonable affirmation". Lonergan argues that every position incompatible with his own (every "counter-position") "leads to its own reversal; for it is involved in incoherence as soon as the claim is made that it is grasped intelligently and affirmed reasonably; and an intelligent and reasonable subject cannot avoid making that claim". The intelligibility of being is presupposed in any recourse, by anyone at all, to "intelligent grasp" and "reasonable affirmation".

As Dorothy Emmet remarks, and as my account of the argument should have made clear also, Lonergan is not content to give a merely *regulative* force to our intellectual drive towards complete intelligibility. A regulative view (i.e. an ideal giving a direction in which thinking proceeds) could not possibly bear the weight of his argument for God. Yet I am far from sure that Lonergan has given good enough grounds for the "constitutive" view (i.e. one characterising something which actually exists) which he does take instead and which his argument requires. We do find, for instance, that what one type of explanation leaves as a brute-factual "empirical residue" is made intelligible in an order we discern with the help of another type of explanation. We cast about for still further intelligibility-conferring explanations which will incorporate the residue. And so on. The idea of eliminating the brute-factual altogether is a powerfully regulative idea, fostering a discontent with whatever opacities remain at any stage in any enquiry. But

*The Universe as it can be "known by human experience, intelligent grasp, and reasonable affirmation".

it can do its work without our necessarily believing that there is a point of view from which all opacities vanish—in an unrestricted act of understanding. I might with some reason *surmise* that there may be such; or go on to develop a view of God as of essentially indeterminable ontological status: object of thought, or reality in itself. But my critical point is that the notion of the complete intelligibility of the world is an extension of, or extrapolation from, our successful attempts to understand aspects of the world. It is not a condition of our having any knowledge at all, nor a condition of our having the knowledge we do have. Only if it were a condition could a valid transcendental argument be mounted.

Suppose, however, we grant for the moment that being is, through and through, intelligible; and that this is taken as constitutive, not regulative only. What of the transition from that claim to the much bolder claim that such complete intelligibility could be manifested only in an “unrestricted act of understanding”? One place where Lonergan makes a case for this move is *Insight*, p.674. Intelligibility, he says, is (a) material, (b) spiritual and (c) abstract. (a) Concerns the objects of physics, chemistry, biology, etc.; and since these have contingent aspects, including an “empirical residue of individuality”, intelligibility here is necessarily incomplete. (b) Concerns beings with power of understanding; and so long as such a being can continue its inquiries, intelligibility has again not reached completeness. (c) Abstract intelligibility is found in “concepts of unities, laws”, etc.; and since they arise only in the “self-expression” of understanding beings, we still have not found completeness. The only possibility is a spiritual intelligibility which has nothing to inquire about, since its understanding is total, that is to say an unrestricted understanding. The intelligible “either is identical with understanding or else related to it as something that could be understood. But intelligibility of the latter type is incomplete, for it is conditioned in its very intelligibility by its relation to something else” (676). So there remains only the unrestricted act of understanding.

I am not persuaded that these are all the options. Reality might be through and through intelligible although that intelligibility were not known or “expressed” by any spiritual being whatever. “Intelligible” does not entail “is actually apprehended or understood”. Nor therefore is there any necessary incompleteness in an intelligible reality that is not apprehended. Lonergan denies that “abstract intelligibility” can be complete, because it is a matter of “concepts” of laws, etc., and as such, I presume, parasitic upon some mind which does the conceiving. But we can still talk meaningfully about intelligibility in the operations of nature them-

selves, and in the “unities” and “laws” themselves, again urging that “intelligible” means “capable of being rationally grasped”, but no more. If an intelligible structure is actually grasped in understanding, it is not thereby given greater intelligibility or completeness.

Criticism of the causal explanation stage of Lonergan’s argument would exceed the limits of this short article. It would urge that explanatory effectiveness is relative to initial problems, and that the recurrence of new problems does not necessarily undermine the solutions of the old. The notion of complete intelligibility in explanation, once again, can be seen as a valuable ideal, a regulative notion that extends or extrapolates from our experience of *limited* intelligibility; it cannot claim, however, to be a *condition* for the possibility of any explanation.

Perhaps enough has been said to show that there are no legitimate short-cuts to the appraisal of Lonergan’s theistic argument; and that appraisal must concentrate especially upon the enormously general and difficult question—how knowing and the drive-to-know-more are related to being and the intelligibility of being.

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2. *Theological Method*

I find it gratifying that Dorothy Emmet should independently come to the same conclusion as I did about Lonergan: namely, that there is an inconsistency between his dynamic view of human knowing as continuous self-transcendence and his acceptance on the authority of the Catholic magisterium of a body of dogmatic teaching. She tells me that only after she wrote her article did she come across my essay, “Lonergan and the Teaching Church”, in the first volume of papers from the International Lonergan Congress of 1970, *Foundations of Theology*, edited by Philip McShane. In that paper I argue through an examination of Lonergan’s writings that the underlying presupposition of his whole philosophico-theological enterprise is dogmatic faith. The jumps that she rightly discerns in his thinking are prompted by the assumption controlling his entire work—the Roman Catholic faith.

I still consider my analysis valid, and I refer readers to my essay for the details. I do not want here to repeat or summarise

what I said then. I have since read *Method of Theology*, which was not published when I wrote my previous comments. Dorothy Emmet's perceptive essay has also stimulated my thinking about Lonergan afresh. So, I should like here to set down some newly formulated criticisms of Lonergan, though they still express the same basic reservation.

First, underlying his whole enterprise is, I am more than ever convinced, the clinging to dogmatic faith. I should now put it in this way. Lonergan conceives revelation as a cognitive absolute. Readers of Kolakowski will remember how in his essay, "The Priest and the Jester", he shows how the concept of revelation has passed into philosophy in the secularized form of a search for an absolute in the order of knowledge; in other words, as an attempt, repeated in various ways, to check the endless questioning of human thinking and establish an a-critical point, a point not subject to criticism because beyond criticism¹. Lonergan as believer and theologian cannot free himself from a concept of revelation that takes it as a body of truth from God, infallibly interpreted by an authoritative magisterium and forming a prior objective absolute for faith and theology. He does make some moves in the direction of a different concept of revelation—less divine more human one could say, though less mythical more historical would be more accurate. But these moves have never been followed through. The older theology emerges in his philosophy as the search for an absolute starting-point for knowledge, something which can be affirmed in a way that excludes the possibility of any future revision other than incidental. He finds this secure basis, immune from revision, in the invariant structures of cognitional activities. These structures when thematized give him his theory of knowledge. Then on the ground that the structures of the known are correlative to the structures of knowing, the same invariant starting-point is made to yield a substantially unrevisable metaphysics. Not surprisingly that metaphysics turns out to be the traditional, Thomist metaphysics. At that point the pace quickens and in the last chapter of *Insight* the reader is taken at a gallop through natural theology and Christian apologetics, with traditional concepts and theses shooting past.

Lonergan in his performance denies the open-ended dynamism of the human spirit he proclaims and releases in others. He does not seriously question his concept of revelation and does not seem to be aware how it determines the main lines of his philosophy.

Second, Lonergan does not take the mediation of truth through

¹ Leszek Kolakowski, *Marxism and Beyond* (London: Pall Mall Press, 1968), 39-45.

history seriously. I say this because *passim* he presupposes the permanent self-identity of the Christian faith through all the changes of society and culture. No one who consistently accepts history or the insights of the sociology of knowledge can make such a claim to permanence and absoluteness. History cannot be anticipated. Any continuous self-identity has to be realized in history, before it can be claimed. It cannot be asserted *a priori*, as if we can somehow—through revelation and an infallible magisterium?—leap out of history to some a-historical standpoint. Unless, too, we ignore the social basis of all our knowledge, we must acknowledge that any body of religious truths and values, emerging as these must in a particular society and culture, can be at first only potentially universal and permanent. Universality and permanence cannot be claimed from the outset, but have to be gradually actualized as the truths and values are taken up into other cultures and also are made subject to questioning and criticism, which will point up the relativity and transitoriness of many elements.

Lonergan works within the limits of the Catholic dogmatic tradition. In the chapter “Doctrines” in *Method in Theology* he reiterates the traditional concept of revelation and the infallible magisterium. The attempt to reconcile this with history is basically by a move that distinguishes permanent meaning and truth from changing cultural contexts. The move is not new, and it has already produced endless variations in the protracted retreat from the classical view of man and of truth. Essentially it represents a refusal of history. The dialectic of history is limited to the phenomenal and incidental. The essential structure of the Church, the truth of dogmas, the nature of man: all remain outside the historical process.

On more than one occasion in *Method in Theology* Lonergan puts aside questions about revelation, development and authority and such like matters as not methodological but theological. Personally I find it indicative of the ideological (in the Marxist sense) character of Lonergan’s thought that he should have retreated into methodology. The shift to method is a mystification of the real issues. It cloaks the deeper, unadmitted changes that are taking place for Catholics.

Third, I suggest that Lonergan’s statement in *Method in Theology*, “Faith is the knowledge born of religious love”, is incoherent with the rest of his thinking. I might say in passing that it caused more than one student of *Insight* some surprise, especially the nonchalance with which it is presented. The cognitive theory of *Insight* was not modest enough to warn us how incomplete it was as an account of knowledge. But that is not my point here.

I want to argue that consistently to maintain the determining

primacy of love with regard to faith as knowledge implies the rejection of a theoretical system of identity for Christian truth. By a theoretical system of identity I mean one that finds the norms of continuing truth in theory as prior to practice, in knowledge as prior to action. The primacy of love is the primacy of action, unless love is restricted to a state of inner consciousness and not seen as a reality embodied in deeds. The very structure of *Method in Theology*, let alone Lonergan's other writings, presupposes a theoretical system of identity for Christian truth, according to which communication follows upon research, interpretation and so forth and Christian action is the fruit of Christian reflection. But if love is the source of faith as knowledge, then Christian truth would not be reached primarily by interpretation but by *praxis*—to use the Marxist term, appropriate here. Christian *praxis* would not be the application of already known truth, of truth reached prior to action through a variety of theoretical processes and a dogmatically functioning magisterium. It would be instead that in and through which one came to know as a believer. If faith is mediated *in praxi*, believers have to renounce an *a priori* claim to the self-identity and universality of their beliefs. They have to actualize that self-identity and universality through their actions.

To conclude. Lonergan's enterprise is only deceptively open-ended. Likewise, his acceptance of history, of modern as opposed to classical culture, of the primacy of love in faith as knowledge, is illusory. All through his work he assumes but never justifies the conviction that openness to the transcendent God implies acceptance of a dogmatic faith. His thinking is controlled by what Newman called the dogmatic principle. Lonergan's intellectual conversion and the philosophy that results is a pencilled outline of what in the finished painting is conversion to the Catholic Church with its dogmatic beliefs.

All the same, the immense richness of the Catholic tradition is reflected in the immense richness found in Lonergan's writings. I myself have learnt more than I can ever measure from him.

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Stages of Human Consciousness

Having followed the course of *Theoria to Theory* since its beginnings back in 1966, I think that some of the readers might be interested in the following:

We can witness today a conspicuous preoccupation with consciousness. And this interest is by no means confined to academic

circles. On the contrary, it appears that it is the general public, perhaps under the impact of the drug "epidemics", which induces particularly psychologists and philosophers to pay increasingly more attention to the question of the nature of consciousness. Unlike the East which has always shown a deep concern for man's inner continuum, the West has really only very recently fully awakened to this dimension of human life, at any rate hardly before the incisive inauguration of depth psychology marked out by Sigmund Freud's *Interpretation of Dreams* (1900).

In view of this fact a far-sighted, integrative and hence ultra-specialist analysis of the "properties" of consciousness seems imperative. This need is met to a notable degree by the Swiss cultural philosopher Jean Gebser,* whose monumental study on the structuring of consciousness has won wide recognition on the continent and is now also beginning to be taken serious notice of in the United States¹. Among those who have acknowledged the essential validity of his central concepts are, to mention but a few names, Werner Heisenberg (physics, philosophy), Herbert Kühn (prehistory), Adolf Portmann (biology), G. R. Heyer (medicine), Helmut de Terra (paleontology) and Lama Anagarika Govinda (Indian philosophy)².

Professor Gebser's well-documented and audacious work is significant in several respects. First of all, Gebser's study sheds considerable light on the rather intricate question of the history of human consciousness with special regard to the formative impulse of consciousness in the making of culture. This I propose to call its *anthropological* relevance.

The *psychological* significance of his work lies in that he was able to introduce greater differentiation into the concept of the depth mind. (He incidentally avoids the term "unconscious".)

Furthermore, Gebser's study represents an acute criticism of contemporary philosophising and indeed of philosophy as such. He attempts a kind of morphological analysis of the main trends or schools of thought, past and present, in the light of the evidence of the structuring of consciousness. His observations are chiefly designed to expose the one-sided anchorage of the various philosophies. This I wish to call its *philosophical* relevance.

Finally, his study supplies novel criteria for inter-human dynamics, particularly for the now so highly important East-West

*Professor Gebser died suddenly on May 14th.

¹ Jean Gebser, *Ursprung und Gegenwart* (Stuttgart, 1966²), 2 vols. A revised paperback edition (3 vols.) is in print. An excerpt from this book was published in *Main Currents of Modern Thought*, vol. 29, no. 2 (Nov.-Dec. 1972), pp.80-88.

² See G. Schulz (ed.), *Transparente Welt* (Bern/Stuttgart, 1965).

encounter. Therein one might see its *sociological* significance.

Naturally these areas of relevance overlap and are interdependent. There is, one might add, scarcely any field of human expression to which his findings would not in the last analysis be relevant, and Gebser has succeeded in pointing out most of them himself. He seems at home as much with ancient life-styles and "ideologies" as with their modern counterparts. He appears familiar with the most advanced research in nuclear physics and its philosophical interpretation, and also with the spearhead-developments in biochemistry, psychology and similar crucial scientific disciplines. Moreover, he shows a remarkable grasp of the arts and not least a deep understanding of the problems of everyday life.

From the massive bulk of the material, I propose to select Gebser's four-structure model which provides the backbone of the remainder of his work, whereby I shall restrict myself again to a few paradigms of mainly anthropological bearing.

Gebser's intensive researches have disclosed that from the angle of the unfolding of consciousness, man has traversed four great "stages" each of which was initiated by a mutation of consciousness. Before I proceed to outline these four structures, a short word about the term "mutation". This is evidently a borrowing from biology, without however also carrying over its biological connotations. Gebser employs this term because it seems to express best the radical qualitative changes that take place with the transition from one type of consciousness to another. As opposed to the organismal minus-mutations known to biology, which lead to ever-increasing specialisation, the mutations of consciousness have a distinct "plus" character insofar as they effect a super-determination, a dimensional gain or integration: the qualities of the previous structure(s) are not thrust aside and wiped out completely, but are drawn into the new configuration where they assume a fresh significance.

Like Lévi-Strauss, Gebser does not hesitate to point out that these structures are not unique unrepeatable events of the past, but that they are still present in us and that they in fact determine our personal constitution which is reflected in our behaviour. In other words, these structures (Gebser speaks of them also as "intensities" or "frequencies") are an inherent part of our make-up and hence can be made tangible. The four structures are—in chronological sequence—the archaic, the magical, the mythical and the mental. (The first three are commonly subsumed under the somewhat hazy concept of the so-called "prelogical mentality".)

- (1) Closest to the Origin and reflecting its space-time transcendence is the *archaic* consciousness which coincides with "the

time when the soul is still asleep" (Gebser). Characteristic of this primeval structure is the complete identity which seems to exist between the microcosm, that is man, and the macrocosm. Chuang Tzu referred to it when saying: "The true men of former times slept dreamlessly", which emphasises the fact that the psyche had not yet at that time awakened to the reality of a *vis-à-vis*, was then not yet troubled by inner conflicts and outer mal-adaptations. This structure largely eludes understanding. There are, however, various stray references which hint at the particularity of this early constellation of consciousness, especially the evidence of certain ancient creation myths and their counterparts in archetypal "imagery" as well as the whole complex of "transempirical" states of mind.

- (2) With the *magical* consciousness, the second incisive mutation, man for the first time finds himself not merely being in the world, but also experiencing it as a nascent *vis-à-vis*. The all-identity of the archaic structure gives way to (emoted) unity. It is quite probable that one or two other structures have to be interposed between the archaic and the magical "intensity". The magical configuration of consciousness overlaps the period of the ice-age cave paintings with their impressive realistic-earthly style and their recurrent motif of magical (non-verbal, graphic) "spells" cast on the hunted animal. Of particular significance is the fact that a number of the early pictures and figurines (from diverse areas and periods) depict men without mouths. Gebser takes this to point to the irrelevance of speech in early magical man; his predominant cognitive function appears to have been hearing, which is also ontogenetically the earliest function. This phenomenon of mouthlessness has been examined in detail by Sigrid Knecht who collaborated Gebser's views³.
- (3) Becoming aware of man's inner reality was the novelty and qualitative gain of the mutation leading to the *mythical* consciousness. This trenchant event coincided with the Neolithic Age. Evidence of this structure is abundant. As emotion was the vital medium for magical man, so is imagination (*imago* = picture), inner experiencing and its utterance in words and pictures characteristic of the mythical structure. The mere associative-analogical relating of magical shifts to symbolic thinking in the mythical consciousness. This process of becoming self-conscious was prepared in the

³ S. Knecht, "Das Phänomen der Mundlosigkeit", *Transparente Welt*, pp. 178-208.

terminating phase of the magical period by the sleeplike awareness of "natural" time: the rhythms of life, on earth and in the celestial sphere. The mythical consciousness manifests itself within a bi-polar frame of reference; and its principal form of expression is the mythologem, "as reflector of the psyche" (Gebser). On the one hand myth means silent inner vision, on the other hand it is depicting, verbalising that which has been revealed in the vision, which has been "imagined" interiorly. This pictorial consciousness prevails to a superlative degree in the Eastern hemisphere and an understanding of its nature is an essential prerequisite for the full comprehension of the various proliferations of the Oriental cultures, particularly of India, the country of myth *par excellence*. I can endorse the extreme usefulness of Gebser's observations on the differentiae of the mythical consciousness in regard to my phenomenological studies in Yoga and related fields of Indian culture.

- (4) The arts, especially painting and architecture, are excellent indicators of supra-individual changes in the style of thinking, that is, the form of consciousness of a certain period. Thus among the wealth of styles of pictorial art, one is able to differentiate two distinctly contrasting types: non-perspective and perspective art. The former is further subdivided by Gebser into pre-perspective art (of the magical structure) and un-perspective art (of the mythical structure). The archaic structure represents mere latency. The perspective style belongs exclusively to the *mental* structure whose beginnings date back to the fifth century B.C. and earlier. Characteristic of this structure is directional, objective-dualistic thinking. The perspective style as peak phase of the mental consciousness became apparent at the onset of the European renaissance (about 1250 A.C.) and gradually developed into the rational consciousness as its decadent exponent. The discovery of the external reality and its objectification was accompanied by the establishment and consolidation of the ego as the central reference point for all perspectivity; this ultimately led to the hypertrophy of the ego and its increasing isolation from the objective surroundings as evidenced today. One of the most pernicious accompaniments of this one-sided denotation of space is the quantification of time and the complete neglect of genuine time (as quality and intensity). In this faulty attitude one has to look for the real causes of modern man's psychological mal-function, his fear of time (*Zeitangst*) and his greed for time (*Zeitsucht*).

With the assistance of the criteria unearthed for each structure of consciousness, Gebser is in a position to embark on an objective criticism of our present day civilisation. He does so with great vigour but never without much empathy. Whatever attitude one may assume to his interpretation of the cultural situation today, the above-indicated four-structure hypothesis has all the essentials of becoming an invaluable tool of the student of human culture and of consciousness.

Since all I could do in this context was to draw attention to his work and briefly indicate one of its many facets, I feel I must stress that any judgment about it ought to be reserved until after the whole of the original has been studied and comprehended.

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Review: *Sociology and the Remaking of Society*

Albert Weale

Karl Marx, ed. Z. A. Jordan. Nelson. £1.25

Max Weber, ed. E. T. A. Eldridge. Nelson. £1.25

John Stuart Mill, ed. R. Fletcher. Nelson. £1.95

Is it just an accident that the words sociology and socialism are so alike? Most academic sociologists nowadays, anxious to achieve some respectability for their discipline inside our universities (often, it should be added, in the face of intensely conservative pressure) would say that it was an accident, and would probably add the rider that understanding sociology was hindered rather than helped by linking the social sciences with one political viewpoint. For Ronald Fletcher, the general editor of this new series of texts published in the *Making of Sociology* series, the issue is less clear. For instance, he writes in his preface to the volume on Marx:

“Since the time of the French Revolution, the making of sociology has been an inseparable part of the task of re-making their society with which men have been faced: of grappling with the dilemmas of the inhumanities and disruptions on the one hand, and the progressive improvements on the other, of the spread of industrial capitalism, in such a way as to create a more human society¹.”

Although this is an approach to which I am sympathetic, it needs more clearly and rigorously stating than it is here, and this is very much an impression which is reinforced by reading through the selections of writers covered in the series itself. Weber was not a socialist; Mill had something of the socialist in him, though of a rather idiosyncratic kind; and it has not been until comparatively recently that the relevance of Marx for sociological theory, as distinct from his relevance for socialist propaganda, has been recognised. If we want to establish a relationship between political argument and sociological theory, it will have to be done in another manner than simply positing a direct correspondence between political attitudes and sociological work.

At first sight Weber appears to provide the most effective

¹ *Marx*, ed. Z. A. Jordan, p.1. It is interesting to note in this context that Ronald Fletcher has himself retired from academic life and has taken up full-time writing—the latter with a vengeance, for besides being general editor of the series he has also published two volumes of a projected three-volume work which is a discussion of the history of sociology; both volumes so far are of encyclopaedic length. *Beginnings and Foundations* is 680 pages, long, and *Developments* has 839 pages.

counter-example to Ronald Fletcher's general line of argument, and his strong insistence that sociology was a value-free discipline committed to political neutrality seems to be in contradiction to the view that the sociologist, *qua* sociologist, is devoted to the task of remaking the society in which he lives. Consider for example the following remarks by Weber on the subject which are included in Prof. Eldridge's volume :

"When a researcher . . . meets complaints from the workers about any conditions (system of remuneration, system of foremen, etc.) in factories, this circumstance would *not*, within the terms of the present survey, concern him as the symptom of a practical 'issue' on which he would have to pronounce a judgment; rather it would be taken into consideration simply as the phenomenon attendant upon certain transformations (technical, economic or psychological) whose progress it is his business to *explain*. . . . However, the researcher would then have to view such complaints not with regard to their 'justification' but purely with regard to their occurrence²."

Weber here presents the findings of research as sharply distinguishable from the process of political decision-making, and this hardly seems compatible with the view that the making of sociology and the remaking of society are strongly linked enterprises. But is Weber right here? In fact it seems that it is in just such an example that the notion of value-freedom breaks down, since it is impossible to sustain the sharp antithesis between explanation and justification. The technical and economic changes about which Weber speaks as the causes of worker dissatisfaction have to be mediated through their states of mind as the psychological antecedents of behaviour. Now suppose, and it is irrelevant for the argument whether or not this is true in any particular case, that the workers whom Weber is discussing had good reason to complain in the way they did, reasons which we could recognise to be valid. Were this true, the antecedent conditions sufficient to explain their behaviour would be their response to the situation with which they were confronted constituted by a set of reasons for acting in a particular way, and it would be otiose to look for other antecedent states of affairs which would serve as an explanation for their behaviour. But, and here is the rub for Weberian value-freedom, it would also be distinctly odd to say that the workers were being reasonable to behave in the way they did (as would be implied by the judgment that to look further for antecedents would be otiose), and yet to suppose that this judgment has no bearing on the issue of justification. Normally to say that a piece of behaviour is reasonable is to justify it, and as long as the notion of value-freedom depends upon a strict separation of explanation and justification, it is susceptible to

² *Weber*, p.105.

refutation by this sort of argument. What is more, the practice of sociology in cases like the one that Weber cites depends upon the exercise of the skills of political judgment: for to conclude that the complaints are justified is to rely upon those types of decision we employ when we make any political judgment.

If on these grounds then the idea of value-freedom seems implausible as a description of all aspects of sociological work, Weber's notion of value-relevance also suffers from certain ambiguities. Prof. Eldridge glosses the notion by saying that what Weber means is that one's values will be reflected not only in the problems one selects for study (about which everyone is agreed) but they will also be reflected in the concepts one uses as the tools of study³. The following is an example of what this might mean in practice. In order to help explain the behaviour of a particular occupational group we may need to know whether to classify it as a profession or not. Prof. Eldridge would argue that in these sorts of cases the concept of a profession is doing service both as a theoretical concept and as an evaluative term. Because sociology uses such terms, the argument goes, some notion of value-relevance is indispensable for understanding its nature. It is, however, difficult to accept the argument in any strong form, for it relies upon a tacit bracketing of theoretical concepts and evaluative terms without allowing that we can distinguish them. There are, for example, perfectly good theoretical criteria for applying the concept of a profession to the identification of a social group independently of our evaluation of the group's behaviour. Those criteria include some of the following: how the group regards itself; whether it has organizations which resemble those of other professional groups; how the group is regarded in the wider community; and its ranking in terms of status by comparison with other groups. All these factors stipulate conditions which would be considerations to be taken into account when trying to decide whether to classify the group as a profession or not, and this could be done independently of one's own views on such subjects as the regulations laid down by the Law Society regarding the relationship between barristers and solicitors, or one's views on the disciplinary procedures of the British Medical Council.

There is moreover another reason why it is important to retain the possibility of theoretical agreement amidst moral disagreement, namely that so long as one regards theories as incommensurable because they rest on incommensurable value-judgments, there is no way in which moral disagreement *about the same thing* can be expressed. Since in order to disagree one needs to talk about the

³ *Ibid.*, p.12.

same thing as the person with whom one is in disagreement, this would seem to be a *reductio ad absurdum* for any strong notion of value-relevance. Imagine two people having a moral disagreement over the behaviour of members of a profession. Their theoretical criteria, that is to say the means by which they identify the social group to which they are referring, must enable them to identify the same group of people, for unless they can agree to this much there is no reason to think that they will be in moral disagreement over the same thing and so will not in fact be disagreeing at all. One can only make sense of the phenomenon of specifically political disagreement on the assumption that some theoretical concepts can identify items in the social world in a manner that is distinguishable from any particular political or moral viewpoint.

The relationship therefore between sociological theories and moral evaluation will not be analytic, following from the meaning of the terms used, but conventional, dependent for its force upon a tacit agreement between the sociologist and the wider community on standards of moral classification. Hence, to suppose that the possibility of distinguishing between theoretical concepts and moral evaluation exists is not to imagine that one cannot gain politically and morally relevant insights from the descriptions of social change offered by a sociologist of Weber's calibre. Only a severely "prescriptivist" view of moral discourse would limit the use of moral language to imperatival recommendations. Once we allow, however, the case that moral evaluation may take place through a wide variety of speech-acts, the political relevance of sociology begins to emerge. If Ronald Fletcher's argument that sociology is a humane discipline is to be taken seriously, it should not be interpreted to mean that political recommendations or policies can be easily drawn out from the explanations which sociologists offer. Rather, it is a matter of looking at the way in which sociologists choose to characterize the society they study and the social changes they experience. When for example Weber speaks of an increasing routinization of social organizations taking place as large-scale methods of capitalist production develop, or when he speaks of the "disenchantment" of the world as viewed through the eyes of those who have experienced the secularization of society, the moral evaluation is implicit but it is nevertheless there. It is indicative, moreover, of a way of thinking about society which more happily co-exists with some political theories than others.

The same point can be illustrated with the example of John Stuart Mill, who is the subject of a series of selected passages chosen and selected by Ronald Fletcher himself. Like Weber, Mill recognized that the social changes involved in the transition to

capitalism were marked by a process of routinization, and yet for Mill the process was to be more firmly welcomed. For example, it provides the grounds, he argues, for the emancipation of women, who are the only social group he suggests who have not benefited from the more rational allocation of social roles since more traditional patterns of social organization were abolished⁴. The contrast between Mill and Weber at this point is sharp and is indicative of the whole temper of their respective *oeuvres*. The selections chosen for the Mill volume are illustrative of this temper (they include selections from Book vi and some earlier parts of the *Logic*; extracts from *The Principles of Political Economy* and some personal letters), although the editor has wisely left out any extracts from *On Liberty*, because the text is cheaply and easily available in other editions. The method chosen to indicate the contemporary relevance of Mill's work is, however, disappointing. Quotations are selected showing Mill's views on specific matters, but this way of doing things is unfruitful, because even when similar social problems to our own can be recognized the context in which they occurred and the society in which the original observations were made have so changed that the relevance of Mill's specific observations is not at all clear. We need Mill's example, his insistence that social policy should be formulated on the most rigorous understanding of social structure available, rather than his specific recommendations. It would also have been helpful to have had included some discussion of the philosophical issues raised by Mill's conception of the social sciences: for example some discussion of Alan Ryan's claim (about which I am doubtful) that general laws for Mill are inference-licences, which seems to go along with an "instrumentalist" approach in the philosophy of science, would have helped to give contemporary perspective to the work. It is nevertheless a good sign that Mill's name is being mentioned in the context of the development of sociological theory as well as of political thought.

Of the making of books on Marx there is no end. The volume by Prof. Jordan should none the less be useful because it contains extracts from a wide range of material from the writings of Marx himself, and this should prove of special help to those who are trying to pick their way through differing exegetical interpretations of Marx based on the supposed distinction between the youthful writings and Marx's more developed theories. Marx is one writer where it is especially necessary to distinguish his sociological contribution from his political theory, simply because he is a writer who insists on linking them so much. One valuable feature of this

⁴ Mill, pp.349-350.

particular volume is that it makes clear the inter-relationships between the various parts of Marx's work, and in particular his dependence upon a philosophical anthropology which stressed the notion of production as constitutive of distinctively human activity. The merit of these readings is that one can follow up the significance of this fact for oneself as it bears on other aspects of Marx's work.

All three of the volumes bring home the continuing relevance of the writers from whom the selections are made. Unlike many other disciplines, the practice of sociology and a knowledge of its history stand in a very close relationship to one another. By this I do not simply mean that as a matter of fact sociologists tend to adopt particular theoretical approaches which can themselves be traced back to earlier sociological theorists, so that we find "functional" analysis in the tradition of Durkheim, or "interpretative" sociology among the followers of Weber. There is a tendency towards this piecemeal identification, but such labels are at best one-sided characterizations of the social sciences. In saying that there is a special link between the practice of sociology and the knowledge of its history therefore I mean that many of the current theoretical problems in the social sciences found their original formulation and definition in the work of past writers, so that understanding the problem is often equivalent to understanding what previous writers had to say on it. The importance of this fact moreover extends beyond the technical confines of the discipline. Because sociological evidence is so tied to the assessment of the plausibility of various political theories, disputes within sociology—say over the correct understanding of the process of social stratification— intrude upon, and are sometimes identical with, political disputes— say over whether the Marxist characterization of society in terms of competing classes is correct. The writers who are the subjects of these three volumes all exemplify the link between the history of sociology, its theories and its bearing on political disputes.

The main market for these volumes will undoubtedly be the student of the social sciences who is anxious to know something of the history of his subject, but hopefully the general reader who wants to know what sociology is all about will find good use for them. The normal test for selections of this type is whether, when one has finished reading them, one wants to go on and read more of the original author, and on that basis all three of these books pass the test reasonably well. I should however like to qualify my general recommendation in one or two specific ways. It is a pity for example that Prof. Eldridge in his volume on Weber still relies on Talcott Parsons' translation of *Wirtschaft und Gesellschaft*, so that Weber's *aktuelles Verstehen* is translated as "direct observational understanding". Weber's point in this passage is that such

understanding is not directly observational but is immediate because we can subsume the action to be explained under a description provided by the rules and conventions governing social life. Not only is the mistake regrettable in itself, but it obscures the fact that Weber anticipated the sort of views about the social sciences contained in Peter Winch's *The Idea of a Social Science*, and showed that such points did not make sociological explanation incompatible with causal explanation as Peter Winch maintained. The continuing inclusion of this mistaken translation is especially unfortunate since Prof. Eldridge has taken the trouble to have exceedingly interesting selections newly translated from the German. Finally, Prof. Jordan occasionally slips into the habit of giving only short extracts from the material he is quoting, some of which hardly seems worth the trouble. For instance, is it really helpful to have just three lines on social class from *The German Ideology* quoted on page 142? Apart from these matters however these volumes are worthwhile in themselves, and are good representatives of the series of which they form a part.

Sentences:

I

"Dream" by Sandra Billington

"Hello, my love, do come in. It's glorious to see you. You are late you know, but never mind, it's taken some time to get things going. For example we thought that the Pages would never open, but now they have, and you'll see, they're delightful. I insist that I introduce them to you. This way. Be careful of the slope of the deck. It isn't much I know, but we can't have any accidents now, can we: no bruised shins or grazed elbows before the party. By dawn who knows how many battle scars there'll be. Oh my, listen to me, too much drink already. Now, down this companion way. Ssssh, wait a moment. Now, down there, do you see it? A rat. There are a lot of them out here. None down below where we all are; its bright and gay and warm down there. Not very much further. Yes, I know my way. This is the door. Prepare yourself my love. One, two, three and in we go. Oh, I do beg your pardon, darling. I said I do beg your pardon . . . oh, never mind. Enjoy yourself, my love, everyone's here."

Noise, laughter, shouting: wave after wave of it flooded out of the cabin. And snatches of music, and drums. All so gay, loud: loud as the light was fierce. Warmth too, sweet warmth, consoling the elegant laziness in us. It was dazzling, vibrant, hysterical; shaking the framework of the ship. Occasionally, swept up into groups, words could be heard. "Make the most of it, I say"—"We're alright". And an underlying murmur—"This is the best, we have no need of the rest, of the cabins decks and holds, nor any part but this safe stern, safe stern in a weak ship." "It is true then, we are sinking?" "Sinking, sinking nonsense, nonsense, sinking, nonsense." A chant grew and spread through the whole company. It echoed and shrilled until, with sheer intensity, the ship shuddered. The shrill turned to a scream, a vividly dressed figure scrambled through a porthole, and after a slight splash there was a moment's confused silence. Then a trumpet played, and another. The drums joined in, and a feeling of safety grew again.

Everyone believed that the ship was sinking. The moment it had been launched the words had first been said. The mayor, all his family and council gathered on the quay, a dignified woman crowned the achievement with champagne, the chocks were removed, and as the ship gathered momentum down the slipway and struck the water amid cheers of delight, she was blessed with

these words. "The ship has a fault, the ship is sinking, the ship will sink. Amen". "Hurrah" roared the crowd. Soon the words were thought about and floated quietly under the hysteria. It was thought that the leak was in the prow which was why nearly everyone had gathered in the stern. The ship was widest here, they could crowd with comfort, and as a result, the uneven weight tilted the ship, lifting the prow clear of the water. There seemed to be no reason why this could not go on indefinitely, provided they remained where they were. The question of whether they were moving was a mystery. Few wished to venture out and see, beyond the people was a sense of danger, of threatening darkness. Some did wander away, out of boredom perhaps, and were rarely seen again. The silence and mystery surrounding their disappearance was as eloquent as the blackness they had walked into. Those who returned appeared crazed, and spent their time without sleeping wandering on the fringe of darkness and light, murmuring words and producing ideas which were taken as philosophy or raving: adopted and discarded with the changing years.

A man among many was for some time bemused and bewildered by the contrast of noise and silence. The determination grew in him to be one of the ones who left. It was not a thing he wished: he did not wish to leave familiar, comfortable surroundings, but all that he had loved or admired grew to be so meaningless, that he would rather risk everything than suffer more at the hands of his own misjudgement. He edged nearer to the outside of the crowd and saw where the light ended abruptly behind a wall of people. He slipped through the wall and stood in the darkness. He looked back, and saw with regret that no-one had noticed him go, otherwise he might have returned. As it was he went on, he could do nothing else. He felt his way forward, until his ankles struck a wooden step. He felt the rough supports with his hands and climbed up. The darkness around him was total, yet he seemed to be carrying it with him. Above, and to his right light appeared to gleam from damp patches on the wooden sides of the ship, and he saw quite clearly, the outlines of ropes and other decaying tackle heaped carelessly on the deck. A soft warm smell enveloped him, salty and full of decaying vegetation. He followed the passage along the side of the deck, climbing over untidy objects, and whether he climbed up more steps or whether out of a wooden hole was hard to tell, but the air became cooler and sweeter, he was on the top deck, open to the sea and rain. The greatest relief was the silence. If it was a void he had plunged himself into, he was not alarmed any more. Death did seem more likely than return, more tangible, more acceptable. It was related to the darkness and silence, to think with

it helped and guided him, whereas, when he thought of what he had left behind, he became afraid.

As he stood and thought, he became aware of something dim and green which swayed, slipped out of his sight, and returned. The ship was swaying, and moving forward. Into the black rushing air, blindly towards dim green lights. When he looked forwards the gentle sway appeared to be the only movement, but when he looked to the side to see whether the objects were passing them a rush of air caught him on the cheek. He fixed his eyes on the green phosphorescent glow ahead and walked towards it. The fine relentless sound of water breaking on the keel swelled in his ears. He began to run towards the very beginning. He tripped and fell onto the prow and for a moment remained there winded, his hands on wet solid wood in front of him, borne on the very crest of the breaking water, his lungs reviving with the salt air. He put up his arms and his fingers gripped the top of the prow. Slowly, determined to miss nothing in its drama or anti-climax, he raised himself to his feet and looked forward. The sea was black, the sky was black and the air was cold. The green glow, like painted velvet on black canvass was weed, moss and grass growing casually and assuredly, so many cheshire cats, above large and dangerous rocks. The ship was passing so closely that long strands of the weed stroked the sides, as though studying in detail for its host, the size of the prey. They drew his gaze forward, from one, a black towering sentinel, to another sly barb, innocently topped with green, protruding through the waves. All so relentless and permanent: solemn dark icebergs: giants which changed the sound of the water to a more threatening note as they glided by.

Watching this permanent procession of destruction, he was again assured that he had come to see the end, and that he would see it. He felt this with relief, and remembered with surprise his earlier fear and regret. The panic in the stern was so remote and ridiculous. He began to laugh, spreading out his arms to touch the rocks passing close: cold smooth ghosts haunting the passage of the ship, and as he touched them they began to shrink. The boat too shrank from under him. He was quite free, though alone, in the air. The dark hulk passed dimly, far below him. It paused for a moment and he sensed the noise from the stern. He saw the activity, and wished that they could see him.

II

From "Where the Wasteland Ends" by Theodore Roszak*

The world cries out for revolution—for the revolutions of bread, and social justice, and national liberation. . . . But it needs the next revolution too, which is the struggle to liberate the visionary powers from the lesser reality in which they have been confined by urban-industrial necessity. And I do deny that this liberation can be achieved automatically by a politics belonging to an earlier historical horizon. It requires a revolution in its own right. Only those of us who have reached the horizon of the technocratic society are ready for that postindustrial revolution. We alone know the impoverishing price we have paid for the old ideals. We alone can untangle the terrible paradox of progress which gives us this world where things get worse as they get better. . . .

There are dragons beneath our cities, primordial energies greater than the power of our bombs. Two thousand years of Judeo-Christian soul-shaping and three centuries of crusading scientific intellect have gone into their interment. We had assumed them dead, forgotten their presence, constructed our social order atop their graves. But now they wake and stir. Something in the mode of the music, in the mind-rhythms of the time disturbs them. I am as aware as any that these dragon forces are nothing to be trifled with, even if one thinks they are no more than subjective passions. Nevertheless, to admit that urban-industrialism is erected upon a culture of alienation is like admitting that an edifice tall as the clouds and centuries in the building has been raised on a rotten foundation. Sooner or later, that foundation must be dug up and rebuilt—though the edifice should be toppled and the dragons below aroused. Let us hope they will wake to be gentle beasts after all.

*From the Introduction to "Where the Wasteland Ends" by Theodore Roszak. Published by Faber and Faber (New York, Doubleday) and quoted by permission.

NOTES ON CONTRIBUTORS

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Pamela and Jack Ravensdale. See "Epilogue" to *Living with Leukaemia*.

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Charles Davis is Professor of Religion and Chairman of the Department of Religion, Sir George Williams University, Montreal, Canada. His recent books are *Christ and the World Religions* (Hodder and Stoughton, 1970) and *The Temptations of Religion* (Hodder and Stoughton, 1972).

Georg Feuerstein worked as a freelance graphic artist before he specialised in Indian Philosophy. He is the author of several publications in German and English, among them "A Reappraisal of Yoga" and the forthcoming study "The Wisdom-Doctrine of Krishna: An Introduction to the Bhagavad-Gita" (both Rider and Co.).

Albert Weale is currently researching in political theory and the social sciences at Clare College, Cambridge. He is a member of the Child Poverty Action Group, and is secretary of the Cambridge branch. His interests include the theatre and films.

Sandra Billington is reading English at Lucy Cavendish College, and has written several short stories since "Dream" was written ten years ago. She is interested in experimental plays, and has written two short ones to date, one of which has been performed.

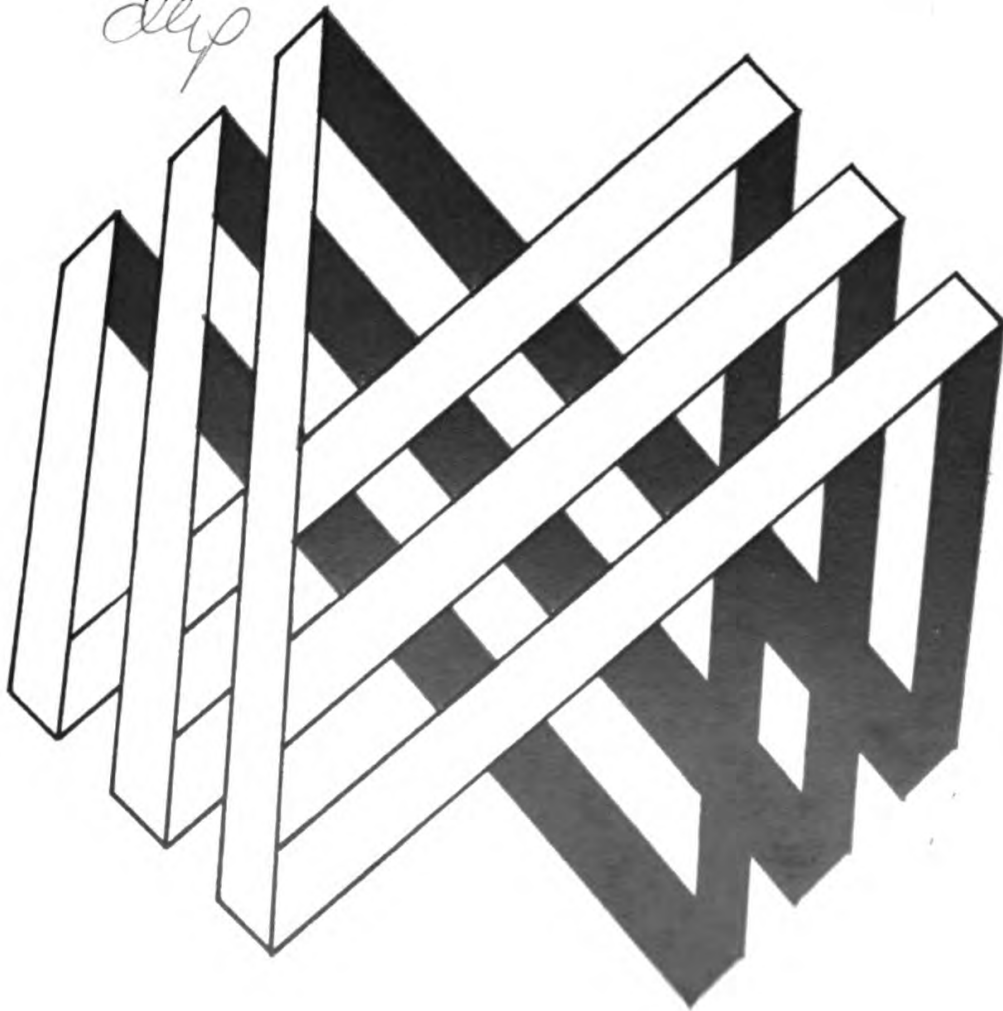
Michael Brick, who designed the cover, studied at the Department of Fine Art, University of Newcastle-on-Tyne and taught in the same Department for three years. Now Granada Art Fellow at the University of York. Has been represented in various group exhibitions and has had a one-man show at the Serpentine Gallery, London.

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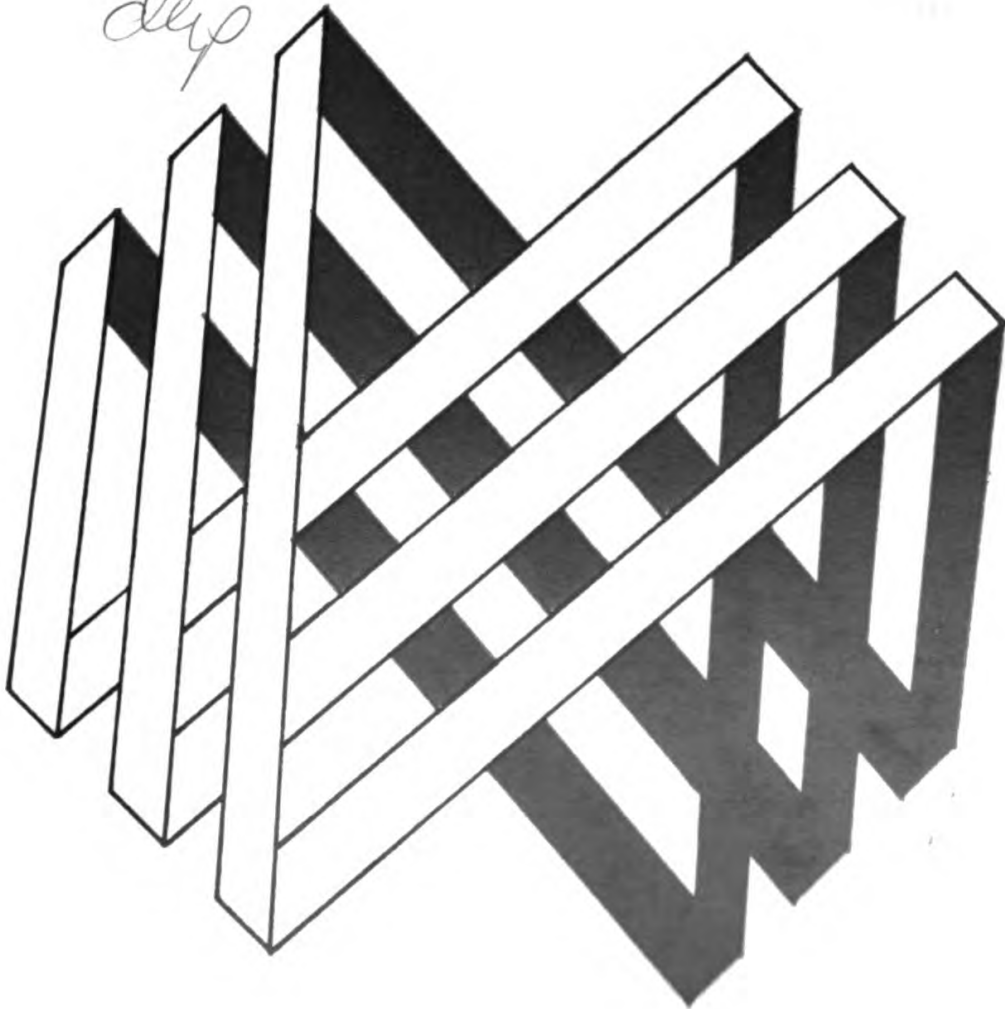


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THEORIA

to theory

Volume 7 Number 4 October 1973

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Editorial

The article by Margaret Masterman in this number is, as will be seen, an extract from a book in preparation to be called *Elementary Christianity from an Advanced Point of View*. The title is taken from Klein's *Elementary Mathematics from an Advanced Point of View*, a book which explained old and fundamental mathematical ideas by putting them in new lights, alongside newer, more general devices and analogies. The strong interest, however, which has already been shown in this extract, taken on its own, shows that it can stand as an article in its own right. It needs in the end, though, to be read not only in the context of the more complete study from which it has been extracted, but also in the light of the "Revisionary Metaphysics and Revisionary Science" discussions which *Theoria to Theory* has been sponsoring all this year. Papers from these are now being prepared for publication in a book, and widespread interest is already being shown in these also.

In such a situation, in which publications connected with a journal are pending, and in which it is evident that there is going to be interest before they appear, an editor always has to take the decision of what to pre-publish. Too much pre-publication leads to misunderstanding and misrepresentation; too little, in copies of the desired but still publicly unavailable documents being distributed and drawn on without their authors' knowledge. It was because this was already happening in the case of this extract that we have obtained the author's permission to publish in this number.

We have had various discussions bearing on Comparative Religion in *T. to T.*; for instance, Ninian Smart's article in I ii (but see footnote below, p. 26); in II iv, where we looked at the teachings of the Beas Community in the Punjab, which some of our contributors were joining; in IV iii, where we looked at Casteneda's Yaqui Sorcerer; and in VI ii, where there was a discussion of forms of Buddhist meditation. Our general approach has been to compare the contemplative sides of the religions and traditions concerned and the forms of action and skills which come out of them, rather than to compare different theological doctrines. It is certainly not the policy of *T. to T.* to do apolo-

getics for Christianity, or indeed for any other religion, tradition or sect. Margaret Masterman's article is published here, in addition to the reasons already mentioned, because it illustrates a new method, first exemplified in the particular case of Christianity, of bringing out the distinctive aspect of a particular religious and mystical tradition in a way which might eventually link it, by various indirect enquiries and procedures, with a general revisionary scientific view of the world. We should welcome any other such examination of the fundamentals of any other religion from a similar "advanced point of view". This number also contains an article by Fred Rosen on Simone Weil's concept of labour which illustrates the "passionistic" theme of which Margaret Masterman writes.

* * * *

Beginning in January, we shall be being published by Gordon and Breach Ltd., and readers will probably be getting renewal notices from them sometime before that.

Discussion: *Transcendental Meditation*

Members of the editorial board (collectively called “Questioner”) talk with Una Kroll, Anthony Campbell and John Windsor.

This discussion arose out of an article entitled “The Dangers of Meditation” by Una Kroll in The Times of June 30th 1973 in which she drew attention to some striking affinities between descriptions of states of consciousness in transcendental meditation and states experienced by Christian and Buddhist contemplatives. She also said that too little attention was paid by teachers of TM to the dangers in altered states of consciousness, of which religious teachers were so aware, and queried the wisdom of separating TM from a religious way of life. John Windsor wrote a letter challenging Una Kroll’s article, describing it as “hostile” because of the comparison she drew between changes in consciousness which occur during TM and drug induced changes, which she said could lead to murder and suicide. He said that the comparison was unsupported. We invited them to come and continue the discussion with us. We also invited Anthony Campbell, having read his book “Seven States of Consciousness”. Anthony Campbell and Una Kroll are both doctors.

“Transcendental Meditation” is the name given by Maharishi Mahesh Yogi, the Indian monk and teacher, to his technique in tapping the innate ability of the nervous system to rid itself of stress and fatigue effortlessly and at will. When learning the technique, each would-be meditator is given a mantra—the thought of a sound devoid of meaning—which is used in a specified way. Maharishi defines the mantra as “the vehicle for the natural tendency of the mind to ride on”.

U.K. I should like to begin by saying that contrary to the impression I seem to have left with John Windsor, judging by his comments on my *Times* article on the subject of TM, I am not “hostile” to TM. I would however, like to clarify some of the issues which raise points of interest for me and which make me feel that there are dangers which should be recognised in the

practice of TM. (Not that danger would ever dissuade me from praying or meditating). On a semantic point may I make clear the Christian use of the word "meditation". For me meditation involves conscious thought or concentration, whereas the prayer of simplicity (acquired contemplation) which I would parallel with TM as being close in kind, a simple mantra (aspiration), takes the subject away from conscious thought into a relaxed stillness. I find that often transcendental meditators misunderstand what we mean by "contemplation". For instance, Maharishi Mahesh Yogi says in his Commentary on the Bhagavad Gita. "The process of contemplation and concentration both hold the mind on the conscious thinking level, whereas transcendental meditation systematically takes the mind to the source of thought, the pure field of creative intelligence". Well, as one who has practised contemplative prayer for many years I know that contemplation does not hold the mind on any conscious level of thinking. Indeed one Christian has a great deal to say about this type of prayer in *The Cloud of Unknowing*. Forgive the digression. Anyway what I meant to bring out into the open is that so far a great deal of study is being done on the physiology of TM, and so far as we know no comparable studies have been done on Christians who contemplate.

A.C. No. But St. Teresa's descriptions of some of the physiological effects of her mystical states sound very similar.

Questioner. But was she talking about the same state? She was in trance, whereas what you are talking about, and what Maharishi describes is what Christian writers on mystical development, notably Augustine Baker, call "habitual acquired contemplation". The Maharishi probably knows about the further stages they call "infused contemplation", but TM is concerned with the former stage.

A.C. It is concerned with a natural state of stillness where something is allowed to happen; the organism seems to have an innate capacity to go into this state; and it is open to everyone.

J.W. You don't need to start from any particular religious

beliefs. All you need in order to learn the technique is an intact nervous system, that is, simply one which is capable of thought. Changes in autonomic functioning occur effortlessly, automatically.

U.K. Will you remind me of the physiological effects of TM which as I understand it have now been widely studied, particularly by Wallace and Benson in America and Fenwick and Allison in England?*

A.C. Might we list these?

Fall in oxygen consumption.

Fall in respiratory rate.

Slight fall in heart rate.

Slight fall in blood pressure.

Fall in blood lactate level.

Increase in electrical skin resistance.

A number of Electroencephalograph changes, including increased intensity of "slow" alpha waves with occasional theta wave activity.

U.K. Am I right in thinking that the most significant changes are the E.E.G. changes and the blood lactate level response?

A.C. I should say that the most important change is the fall in metabolic rate, which is *not* associated with a loss of awareness.

J.W. I should emphasise that TM is effortless, and involves no control. The technique is a systematic way of producing the conditions in which the nervous system reacts on its own. Everything goes by itself. It could only be dangerous if effort was involved because this would raise the possibility that the nervous system was being pushed in the wrong direction.

U.K. But there must be some "work," in the technical physical sense of "work", in the brain to alter an electroencephalograph.

* See Wallace, "Wakeful hypometabolic physiological state", *American Journal of Physiology*, Vol. 221, No. 3, Sept 1971; J. F. Allison, *Lancet*, 1970, Vol. 1, 7651, pp. 1971; Wallace, "Physiology of meditation", *Scientific American*, Feb. 1972, Vol. 226, No. 2.

Also if you alter the state of the autonomic nervous system, you alter the level of hormones in the hypothalamic part of the brain. This is where I see possible dangers, particularly with young persons. In young persons the autonomic nervous system is less stable, and they can get more easily into altered states of consciousness. Chemical alterations in the brain can alter their perception and they can get into difficulties over this. I think that before we interfere with the known mechanisms we have to have a lot more evidence about reversible and irreversible electro-chemical responses. For instance, we know that in the drug field we are able to suppress anxiety with phenothiazines and we can produce a comparable effect with more permanent results with modified leucotomies. In some way the arousal system is modified and I cannot hold that the results of that are always reversible when you remove the drug. The brain has a habit of doing its own internal biofeed-back technique. An illustration is the way in which an anxiety state can become chronic after a single episode provoking fear. The car crashes, the patient is afraid. There are chemical changes in the central nervous system. In some people the nervous system seems to develop its own feed-back system so that, although it is no longer stimulated externally, it goes on producing chemical changes resulting in anxiety.

J.W. When we speak of “alteration” in the functioning of nervous system we are referring to the temporary *reduction in activity* which occurs spontaneously during meditation. This is the precise opposite of “work”. Its essence is deep rest during which physiological abnormalities (stresses) are automatically neutralised.

U.K. I still think we are still using the word “work” in two different ways. You are describing lack of externally observable activities, I am saying that in order to produce rest, or any change whatever, “work” in the physicist’s sense of exchange of energy has to take place.

J.W. The restfulness—which physiologists have shown to be deeper than sleep—is proof of the effortlessness of the process. To cause damage it is necessary to make an effort of some sort. Among the indicators of the self-sufficiency of the state which

occurs during TM is the fact that although oxygen consumption falls to about 20 per cent, there is no compensatory over-breathing afterwards. The state appears to be integrated because lower overall oxygen consumption co-exists with increased distribution of oxygen due to increased blood-flow, and brainwave patterns associated with both sleep and alertness occur simultaneously.

A.C. I would here remark that the long term results seem to be invariably beneficial. I must emphasize again that TM does not manipulate the nervous system in any way. On the contrary, during meditation one simply lets the attention take its own direction, which is in the direction of greatest attraction (“inwards”), and on the physical level this is accompanied by certain changes. But what is remarkable about this process is that all the physiological changes occur *spontaneously*. They could best be compared, perhaps, to the changes which occur during sleep. The TM state appears to be a “fourth” *natural* state of the body, which complements and sustains the ordinary waking, dreaming, and deep sleep states. I would say that what is dangerous is *not* allowing this state to occur!

U.K. Do you really know that it is invariably beneficial? All teachers of TM haven't medical knowledge, so do they really know who should and who should not be encouraged to do it? You have to consider not only the teaching but the person to whom it should be given.

A.C. You would obviously need to give personal attention in the early stages of TM to people whom you found were disturbed, and advise them, for instance, to reduce the time they spent on it. There could be a danger if people go in for long periods of meditation without balancing them with normal activities. Maharishi emphasizes the need for a balance of these two sides. And TM is meant for normal people, not as a therapy for severely disturbed people. The point is that we are not trying to produce altered states of consciousness but to allow the body to get rid of its stress.

U.K. What about the likeness and difference of the effects of TM and the effects of drugs? Zaehner has compared drug in-

duced states with those described in the Upanishads, with the corollary that if drug-induced states are dangerous, so is TM, which is a method for producing similar states. But he is surely wrong to claim that drug-produced and manic states and these kind of meditative states are similar. People in the drug scene are wanting to go straight to the experiences, leaving out the preparatory foundation which I take it Maharishi is teaching.

A.C. As regards Zaehner's remarks about mysticism and drugs, I hold that these have no application to TM. I would not accept his claim that drug-induced states and the states described in the Upanishads are identical or even closely similar. I have discussed this question at some length in my book *Seven States of Consciousness*; it's a bit complicated to go into in detail here.

U.K. I would like to take you up on one point. You have assumed that a release of stress is always beneficial. I disagree. Have we any real evidence that it is a good thing in apparently well people for their "fight-flight" responses to be diminished? Aren't these mechanisms in fact as natural as you claim the TM state to be, and do we know what we are doing when we suspend normal mechanisms which operate in people and which are known physiological responses to stress?

J.W. Stress causes suffering and can't be good.

A.C. It certainly can't be good if it shows there is malfunctioning in the organism.

J.W. We are not suspending the normal mechanisms which operate in people. TM is a normal mechanism.

As Anthony said, it must be balanced with activity. And during activity meditators have been shown to cope better with stressful stimuli. The skin-resistance tests by Orme Johnson, which Una cites did not indicate a diminution of the "fight-flight" response of meditators. What they did show was their more rapid habituation to a given stressful stimulus—in this case a loud noise administered at irregular intervals. Initial reaction to it by meditators was just as lively as that by non-meditators, but meditators got used to it quicker—an appropriate response in this case because the sound, though disturbing,

was not a real threat to their wellbeing. The conclusion must be that the “fight-flight” response of meditators is not dulled but becomes more refined and more stable. They cope with stress more effectively.

U.K. I mentioned simple kinds of stress which can be reactions to danger. The use of stress can even be therapeutic. Some kinds of depression respond dramatically to a therapy in which the patient is deliberately kept awake all night. It is interesting to note that the depression doesn't always return with the passage of time. Something beneficial has happened as a result of prolonged wakefulness, though the system left to itself would naturally go to sleep. And there are even more important kinds of stress arising out of your relation to your environment, some of them because you have got to do something difficult, for instance learning something difficult. There is stress before playing a match, and you need both to feel it and surmount it. Even more before some public performance, and you won't perform so well without that kind of nervous tautness before you start.

Qu. Also one may be free from stress because one is coasting along and not dealing with problems in oneself and in one's relations with other people, and when one comes to go deeper into this, one will have to face stress.

A.C. We must distinguish “challenge” from the environment, which is good, and “stress” in the individual, which means malfunctioning and can only be bad.

You should get to a state of being able to function properly without stress. Even where there is still some stress, TM can prevent you from overreacting. For instance if you are startled by a motor horn suddenly sounding behind you, the effects pass off quickly. You don't go on feeling them, because there is less “noise” in the system.

Qu. But sometimes stress is a condition for producing something. What about Beethoven when he produced his sonatas? It would not have been better for the world if he had been told he must get rid of stress.

A.C. But wouldn't it have been better for Beethoven?

Qu. Not if what he really wanted was to produce the sonatas. After all, what we want is genius and sanctity, not just contentment. But there is another problem: you say that for the Maharishi liberation is a physiological matter.

A.C. Yes.

Qu. This is revealing. But this need not be the same as spiritual liberation.

A.C. I think it is.

U.K. Is a purely physiological release going to take you to the deepest levels? The use of a mantra can work in different ways at different levels. You say you are just giving people a technique for inner liberation, but you don't give them a way of dealing with their outer life. If it is a technique, there is the question of what it is to be used for; there is a responsibility on people who set something like this going to think about how it is to be used socially. It is said the American Government is prepared to have soldiers taught TM *en masse* to release tensions. But they are then going to be asked to do the very same thing that caused the tensions. There could be a cynical use of the meditation technique, if it is just taken as a technique on its own. I well believe the pace of our society is such that people need something like TM. Equally, there could be a selfish use of the technique, from hours spent engaged in meditative relaxation. Other traditions of meditation have said there must also be a moral side.

A.C. Other traditions have said: Become moral and then meditate. Maharishi says meditate and you will then become a moral person.

Qu. But if you are going to release tension, you have got to think about the social environment in which people are having to live. It can take them and use them for its purpose. Gary Snyder, in writing about Zen Buddhism says that Zen, like water, can flow into any mould. He thinks that it has good effects on Americans, who are individualistic and used to making moral protests. But with the Japanese, it will never encourage them to rise against any tyranny. The Japanese and

Germans, when they take to Zen, already have all too much obedience in their bones. TM is now being poured into moulds of various cultures. We need a world-wide test to see whether it does something to people which wouldn't be expected from the culture. Will it, for instance, do something the American Army doesn't expect? Or can it be used in the service of any cause whatever?

J.W. If you wanted to manipulate people, you would need a technique which weakens them, whereas TM makes them stronger.

A.C. And the strength isn't independent of the moral aspect. The criminal, for instance, doesn't become a more effective criminal through TM.

Qu. But can it combine with *any* moral system?

A.C. Yes and no. Maharishi says moral activity consists in working in harmony with cosmic law, and meditation puts you in this harmony.

Qu. Some kinds of metaphysics—Schopenhauer's for instance, and Nietzsche's—would say cosmic law is quite ruthless and amoral. There is a real question here; also can you have it both ways? saying TM is only a technique, and then also making a metaphysical statement about it being in tune with the law of the cosmos?

J.W. I find no difficulty in combining these viewpoints. During the psycho-physiological procedures of TM, we spontaneously contact the unmanifest value of what Maharishi calls "creative intelligence". This pure intelligence, he teaches, functions at every level of creation. It is the basic nature of the mind, the basic nature of creation and the fundamental value of the process of evolution.

So, by regularly experiencing that basic value within us through TM, we create the conditions in which the manifest qualities of creative intelligence—its self-sufficiency, integration and progressiveness—spontaneously emerge in our everyday thought and activity. We ensure that our progress is upheld by the principles on which the entire progress of life is based.

U.K. One of the points I stressed in my article was hesitation about unleashing meditation from a considered way of life. You talk about alternating meditation and activity, but how much do you think about the kind of activity you alternate with? If you build a way of life into the use of the technique, then can the technique be used profitably by Christians, for instance, or Buddhists, in the setting of their own views?

A.C. Certainly, Maharishi tells people they should remain within their own religious traditions.

Qu. But every religious tradition has spoken of something which in Christian terms is called “self-naughting”. Also in Christianity there is a process of becoming aware of one’s pattern of faults and virtues, without fuss. This can take a long time to achieve—perhaps 20 years. How is the TM training going to connect with this?

A.C. You get an idea of renunciation during meditation, but it is renouncing of peripheral things, such as thinking about your failings and your wanting to be better. Dom John Chapman, a Christian writer on prayer, also said you must give these up.

U.K. You can give them up when you have learnt their shape. You are only allowing for one sort of person, not for the sort of person who needs to use his will and his wits in order to relate to the pattern of his deepest desires. And why shouldn’t he?

A.C. Because then he would be setting up a partial view of what he ought to be.

U.K. You have a will and wits, and why shouldn’t you have some say in the kind of skills and characteristics you want to develop? Pope John was this sort of person. He had many years in which he was thinking about his faults—his temper, for instance—as you can read in his *The Story of a Soul*, and he ended up a king of men.

J.W. If you want to improve yourself—and TM is one of many techniques for self improvement—then you should ensure that your activities in this direction are effective and unmistakable. TM accomplishes the goal most effectively because

it spontaneously and directly produces more effective people. By spontaneously improving yourself you become better able to improve yourself! Meditators don't waste much time worrying about their shortcomings. They just meditate regularly and find that their behaviour naturally becomes more effective, more harmonious.

U.K. What do you say about the problem of evil? I meet it in myself, and not only in my ordinary mental experiences; I meet it when I go down into myself. How do you help people to cope with the difficulties they come up against when they are getting down to being more aware of themselves? They can be undoing their conditioning, and run into things—obsessions, rages—which had been buried. They can become aware of daemonic forces in themselves.

A.C. You get down to an absolute with bliss quality, where these things are transformed from below and become irrelevant.

U.K. But you have to go up and down and may not be very good at it. I am puzzled by your ignoring the journey.

A.C. The mantra is a means to take you down. It puts the body in a particular frame in which it is safe from these things.

Qu. I am not sure there is any state of absolute security from evil. Even at deep levels, something can go wrong, through pride for instance. Do you really reach a state where everything is absolutely O.K? But your great strength is that you are prepared to make TM open to testing.

Qu. One interesting question would be whether other rhythmic activities—some kinds of manual work, or some kinds of physical exercise—have the same sort of results as TM is said to have.

J.W. They couldn't because TM isn't an activity, but a state of deep rest physiologically distinguishable from the everyday waking state during which physical exercise takes place.

Qu. This can be a question of words, since rhythmic repeat-

ing of a mantra is going on, and this is surely a kind of exercise. And the sort of breathing the Zen archer was taught to do was a very TM-like activity. Anyhow, if you are prepared to test for corresponding effects in people doing rhythmic work and exercise, look out! It might turn out that their blood lactate level was reduced.

A.C. I do not think we can decide the issue by armchair discussion. What we need are lots of long-term follow-up studies. Such studies are already being carried out in this country and elsewhere, and it will be much easier to talk about the question when we have more “hard” information.

Elementary Christianity from an Advanced Point of View: *Margaret Masterman*

(Chapter II, section 2, draft 6. References in square brackets are to other parts of the book.)

Summary of what is given by the advanced point of view.

A. What is unique in Christianity

What is unique in Christianity, seen from an advanced point of view, is *that it is the Universe seen under a passionistic aspect.*

It is the Universe mystically seen, of course—the *Visio Dei*, if you like—not the Universe mechanically seen. (“Universe” is almost certainly the wrong word here, since it sounds like the name of the first overall map in an infinitely stretched-out celestial Atlas.)

But the fact that the Universe is mystically seen does not mean that it is not scientifically seen; though it does involve realising that we are still in the stone age of science: that our current mechanistic scientific systems are far more superficial, partial, and limited in application than some scientists and philosophers think,* and that we still have no clue—probably in terms of laboratory science only the beginning of the beginning of a hint—as to what the fuller Universe could be really like. (And still the concept of “Universe” is too small: it is the wrong word here.)

All the great mystical traditions have attained a mystical vision of what is ultimate, though under different names (Tao, Nirwana, Blessedness, *Visio Dei*); and any “mystical science” (“science” being taken here in its fully modern sense) which

* For instance, it is still not widely understood that what the molecular biologists mean by “cell” is “extended protein synthesis system”: or that, except in a very commonsense way, the kind of atomic foundations which the molecular model requires are just not there: that (in fact) the molecular model falls flat on its face as soon as it is extrapolated outside itself. As for the “atoms are made of particles, molecules are made of atoms, cells are made of molecules, humans are made of cells, societies are made of humans,” affair, this is not serious at all, it is (at best) a fun-thing: just where it is required that it should scientifically stand up, (i.e. at every joint) it lets you down: a century from now we shall pretend that we never thought of it.

may be created in the future will have to start from the simplifying assumption that they are all talking about the same thing—and all the more so as the mystics from all the traditions state in identical terms that what is there is far beyond anything which can be talked about.

Nevertheless, it is still Christianity, and Christianity alone, which makes explicit, and stresses, this passionistic aspect.

That this is so—once you state it—is of course not novel. What is novel is the insistence that the fact that it is so can be investigated scientifically; that what we have here is a situation “ripe for science”, instead of a situation totally recalcitrant to all science, as is always said.

The second thing which is novel is the insistence that, in spite of the simplifying assumption, mentioned above, that all the mystical visions are ultimately of the same reality, there is still something unique to Christianity, namely, the fact that its vision sees the mystical Universe under this “passionistic aspect”. The study of Christianity, therefore (as opposed to the general study of all mystical religions) is largely the study of this passionistic aspect; and the many current misunderstandings of Christianity are misunderstandings of this aspect.

The Passionistic Aspect

The general metaphysical notion of “passionistic aspect” as used here, comes from a more limited notion of human passionistic action. [See, on this, in the last chapter, section 4, item 4.]

Human passionistic action is action resulting from a state in which a human being is totally relaxed, fearless and joyful (and therefore supremely effective) in circumstances which would normally inspire ultimate horror, terror or collapse. It will be maintained throughout this essay that this passionistic state, which is probably the deepest human state of which we have any observational knowledge, is *sui generis*: that the passionistic state cannot be explained away in terms of anything else.

The Passionistic Version of the Macrocosm-microcosm Hypothesis

Any abstract metaphysical exposition of Christianity would have to combine a detailed knowledge and analysis of the passionistic state (the analysis itself could be psycho-physio-

logical) with some fairly extreme version of the microcosm–macrocosm hypothesis,—though I find it difficult to imagine the what this version might be. It is clear, though, that framing the hypothesis would require passing from consideration of passionistic *action*, this being considered as a static state, to consideration of a dynamic life–death–resurrection passionistic *process*: and of its possible pervasiveness throughout the Universe.*

This passionistic microcosm–macrocosm hypothesis, like all such metaphysical extrapolations, would have the well-known philosophically and morally undesirable characteristics of inter-relating human society directly with the cosmos.

It is worth remarking, however, that it does *not* equate passionistic (redemptive) action, or the passionistic (life–death–resurrection) process

(i) with the evolutionary process in itself, as, say, Teilhard de Chardin does. (Far otherwise: the “redemptive” “self-sacrifice” of some particular species or of some cell-group, might cause it to disappear altogether, rather than to evolve.†)

(ii) with the “self-transcending” process in itself: far less with that form of it which consists of a de-personalising regression into the group mind, where there is no longer any individual merit or guilt, and where the individual gladly and suicidally sacrifices himself (or butchers others) for any or every known bad human cause.

* Any such hypothesis, by its nature, will be highly metaphysical and extrapolatory, since it will extrapolate from the living to the non-living Universe, i.e. in the contrary direction from the mechanistic microcosm-macrocosm hypothesis, which extrapolates the other way round. But at any rate the passionistic extrapolation, unlike the mechanistic one, does not try to dress itself up as straight science, and then fail scientifically at every point where, if it were scientific, it would be most needed. The passionistic extrapolation is extreme revisionary metaphysics, not science; and it would be ridiculous to put it forward as anything else. But it is not, just for that reason, plain silly; and, as I keep on saying, it could have remote scientific revisionary foundations, at various indirect places.

† On current theories of evolution, this cannot happen. But, in fact, at the cellular level, it does happen; so those mechanists who think that human beings, human societies and organic species are just large bunches of extended protein-synthesis engines, housed in plastic containers and jostling competitively with one another for survival, are refuted, at the cellular level, by the known behaviour of cells.

(iii) with the human masochistic sexual perversion, as in Freud.

If you want to construct a mechanistic molecule-based metaphysic, do so by all means; if it helps your thought, and if you want to, go straight up from a protein synthesis system to human society. But if you want to obtain, on the contrary, a revisionary–science-based all-inclusive metaphysic for the human race to live by, then, for goodness sake, go downwards starting from the most free and compassionate and evolved individual state and type of action which we know about, before descending to the primate, organism, cell, molecule, or wherever else, conceptually speaking, you want to go: refuse all substitutes.

Special Characteristics of Passionistic Action

(a) Passionistic action is, by its nature, creative, original, regenerating, enheartening, and therefore (when its effects are conceptual) *revisionary*; i.e. its operation changes one state of affairs into another, seen by hindsight to be a much better, state of affairs. Suddenly the stereotypy is sloughed off, and men say, “Good heavens, what were we afraid of? Only of death? Why, that is like being afraid of your own shadow.”

(b) It is therefore politically *revolutionary* (in some sense, but often over a very long time-scale).

(c) It is, by its very nature, *equalitarian*. (In principle, anybody can attain it; because, in its essence, it is an unforced surmounting of the fear of death: and everybody, without exception, has to die.)

(d) Passionistic action is also, by its nature, *dynamic*. It is dynamic action, but springing from a very deep unitive source, which is introspected as a combination of love, glory, blessedness, and, even in the midst of conflict, of Sabbath rest. The natural self is annihilated; but only to make place, so that the deeper Self can emerge.

When passionistic action goes wrong, therefore, it goes very wrong; because it becomes daimonic. (“Sieg Heil! Sieg Heil!”)

(e) Passionistic action is supernaturally *combative*. (Hence the predominance of images of war in Christian mystical literature.)

In its true form, it wars strongly, but pacifistically; “not against flesh and blood, but against principalities and powers”,—unless it deteriorates or remains immature, in which case it becomes plain pugnacious. In this last case, you get such things as religious wars, duals of chivalry, and crusades.

The non-Christian prototypes of passionistic action, in this century, are

(i) Arthur Koestler,—both at points in his own life, and also, in some of his real-life studies, and in two of his novels;*

(ii) the Yaqui *bruyo*, whose pseudonym is Don Juan Matos, and who has been chronicled by Carlos Casteneda as a “Man of Knowledge”.†

Don Juan it is who urges and teaches his pupil Casteneda to follow, mystically, “the way of the warrior”—in which, though the sorcerer, or passionistic warrior, feels himself to be the possessor of unlimited personal power, he pays back the debt to other living creatures, which he has incurred by killing and hurting them, throughout his life, for his own purposes, by the final, willingly given gift of his own body. Unless, therefore, he has been killed earlier, under torture, by his enemies, he goes alone, to his chosen place, does his death-dance, and dies.

Jesus of Nazareth (who, don’t forget, was also a hillman, not a townsman) was just such a warrior, and his death-dance was the Mass. His three temptations, moreover, as he himself relates them, in the narrative, are exactly the first three of Don Juan’s Four Enemies of the Man of Knowledge. These four are physical fear, certitude, lust for dominion, and the self-pitying abdication of old age.

(f) Passionistic action, particularly as Christ exemplified it, is *regenerative*. Christianity is a healing religion: in fact, of all the great religions, it is still *the* healing religion, since all Eastern religions, founded on a metaphysic of reincarnation, tend to have double-think about the urgency of restoring any-

* *The Invisible Writing*, esp. pp. 429 ff. See also *Arrival and Departure*; and, of course the end of *Darkness at Noon* (“*Le Zero et l’Infini*”). Also, especially, the essay “In Memory of Richard Hilary” in *The Yogi and the Commissar*.

† See *The Teachings of Don Juan: A Yaqui Way of Knowledge* (1969); *A Separate Reality* (1971); *Journey to Ixtlan* (1973). Also *Theoria to Theory* IV iii.

one's deteriorated body, as opposed to helping him to die well and so obtain a good new birth.

(g) Passionistic action, in the Christian form, is by its nature predominantly *social*. Although Christ himself came alone out of the Nazareth hills, the Christian family-based groupings of the first three centuries operated socially, in crowded towns; their sphere of operation—and of martyrdom—was within human society.

In this, Jesus of Nazareth contrasts sharply with Don Juan Matos—for whom other human beings, if they are not fellow sorcerers, have become, on the whole, mere shadows. According to Casteneda, Don Juan lost both his parents by massacre, in war, his wife, by illness, and his son, by industrial accident. Sorrow nearly killed him, but, instead, he became the pupil of another *bruyo*; and, like his master, first a hunter and then a warrior, and, in both, a solitary. He sees the Universe as a “multi-verse” (which, in the end, will also probably turn out to be the right way scientifically to see it). He is clairvoyant, and he thinks that we see nature in the inert materialistic way that we do only from the force of social habit. His habitual interaction with the forces of nature, and with what, for him, are the living spirits of plants and animals, and his developed sense of the nature of the supernatural warfare match those of any early Greek Christian Desert Father. But, if the whole human world disappeared (and particularly, if the whole white world disappeared) Don Juan Matos would not greatly care.

As opposed to all this, Christianity is socially redemptive; and (except for the Greek Fathers themselves and their direct imitators) both hell and heaven are to be looked for in other people as well as in oneself. The Greek Fathers themselves, (who were in some ways very like socially more compassionate Yaqui sorcerers) sharply separated the sinners whom they dealt with from their faults. For them, sinners were sick men, devil-possessed, to be pitied, treated, and cured; though they hurled anathemas about like children, and (being Greeks) loved controversy for its own sake. But the Coptic monks were not Greeks; as every reader of Charles Kingsley knows, they killed Hypatia. And it was this second kind of conduct, not the first, which became the ecclesiastical norm; with the result that the medieval Church took to the Inquisition—which is felt by

everybody who has really studied its literature to be an appalling parody of a potentially high ideal.* Anyone who disagreed with the magisterium was “raving”, “possessed” (they sometimes were); and the cure of the patient was achieved by burning him alive. (We now give our mental patients insulin coma treatment, neurosurgery, electric shock convulsions and aversion therapy, which are the same sort of thing, but not quite so much so, and scientific.)

It follows from (a) to (g) above, that a “Church”, by its nature, to qualify as a “Church”, will have to be a “passionistic society”. Any such society, however anti-passionistically labelled, will be in fact such a society; and no non-passionistic society, however passionistically labelled, in fact will be such a society. (This is not quite what the Gospel says; but it is what the Gospel comes out at.)

This passionistic slant, then, is what is mystically unique to Christianity. The other thing that (contrary to what is said in most textbooks) is conceptually unique to Christianity is that through it have emerged both modern science and modern democracy; but this thought will be pursued in more detail at a later point.

B. What is in common between Christianity and other mystical religions

What is in common between Christianity and other mystical religions is that all of them are to be thought of as emerging from a common mystical “root” or thrust, or basic tendency, in man.

If there is to be any future “science of the soul”, Christianity, like other religions, must be thought of as springing from a common mystical “root”, or drive, which is available to all human beings. It has its own slant, granted; but it is a slant which “tints” an antecedent common mystical trend. As the history of various Protestantisms shows, any attempt to analyse passionistic Christianity in isolation from its mystical base (let alone to practise it non-mystically) can be disastrous; for then

* Unlike the Nazi concentration camps, where there was no ideal. These last were just mass slaughter houses for cattle, who were, in fact, people.

all the earlier stages of mystical development, which precede, and therefore secure the authenticity of, the true passionistic state, are missing.

However, what is this common mystical trend?

It is currently in vogue—and indeed quite possibly right—to analyse mysticisms comparatively starting from a Hindu-based theory of religion, not a Western one. [Under items 2 and 3 of Section 4, in the last chapter it was, however, suggested that over the longer run, a psycho-biological theory of para-development, or of post-ontogenetic overall growth, might be constructed, onto which differing forms of mystical development and the behaviour characteristics of them, might be mapped; for though human societies differ in their cultures, human beings do not differ in their basic physiology.]

However, at the moment, such outstanding comparative religionists as John Moffitt* and Ninian Smart† both start from the Hindu norm.

On their analysis, and in Moffitt's form, mystical development is thought of as having four main trends (which Moffitt calls "Voices") each of which gives rise to its own practices, type of metaphysics, and cult.

These are:

- (i) *The way of supernatural illumination and knowledge*
In Moffitt, this is called "The Voice of Intuitive Wisdom", and it corresponds roughly to, though it is wider than, *Rajah Yoga*.
- (ii) *the way of devotion to, and adoration of, a God of transcendent love*
In Moffitt, this is called "The Voice of Devotional Self-Giving". It corresponds roughly to Ninian Smart's *Bhakti*.
- (iii) *the way of physiological athleticism*
In Moffitt, this is called "The Voice of Conscious Discipline", and it corresponds, though very roughly, to Patanjali's *Hatha Yoga*.

In this way the induced supernormal transfiguration

* *Journey to Gorakhpur: an Encounter with Christ beyond Christianity*. (1972).

† "What is Comparative Religion?" *T. to T.* I ii.

of the body itself triggers off the concurrent transformations of heart and mind.

(iv) *the way of disinterested altruistic action*

In Moffitt, this is called "The Voice of Service and Human Community".

In this way (which corresponds, but again, only roughly, to *Kharma Yoga*) the divine is seen, not primarily as immanent (inside oneself) nor as transcendent (i.e., as the ground of the whole universe) but primarily in a third, normally unnamed, way, that is, in other people.*

Ninian Smart (judging from his key-article in *Theoria to Theory*) though concurring with this kind of analysis, would probably wish to simplify it yet further. For Smart, the fundamental distinction is between Moffitt's first way (which Smart calls "Yoga") and Moffitt's second way (which Smart calls "Bhakti").† Associated with the first way is the third (for there is a Hindu saying: "No *Raja* without *Hatha*). Associated with the second way is the fourth (probably on the Christian assumption that there is no love of God without love of your neighbour). Either the first or the third, or the combination of them, tends to produce solitaries. Either the second or the fourth, or

* The reader should be warned that the hypothesis set out above is a simplification of what is actually in Moffitt. But such simplification is inevitable, because Moffitt himself is simultaneously trying to set out (at least) two incompatible points of view. With part of himself he straightforwardly desires to re-found any future theory of comparative mysticism on a modern version of the old fourfold Hindu theory, not on Trinitarian Christianity. With another part of himself, he is afraid that this may annoy the Catholic Magisterium,—which indeed it may. Moreover, he realises that very few Hindu or Buddhist mystical teachers exemplify just one of the four ways, in a pure manner, to the total exclusion of the other three; and he tries to use this fact to convince a candid reader that Christianity, in fact, manifests all four ways through its various saints and mystics,—though without ever saying so. The resulting book, which should and could, have put forward a fundamental hypothesis for consideration, becomes a muddle; partly because Moffitt does not realise what it is to put forward a hypothesis, as opposed to developing a theology.

† See *Theoria to Theory*, I, ii. The key ideas in this article in fact came from Söderblom, to whom Ninian Smart should have, but did not, give a central reference. Söderblom drew this distinction in his Gifford Lectures. *The Living God* (London, 1933). See especially Ch. II, "Religion as Method: Yoga" and Ch. IV "Religion as Devotion: Bhakti."

the combination of them, tends to produce men and women who live in normal society. The solitaries tend to be apophatic; to want to go behind all conceptualisations of the ultimate, whether personal or non-personal. The devotional mystics tend to believe straightforwardly in a personal God, and to talk about Him, and to require everybody else to believe in Him and talk about Him also.

This Smart–Moffitt exposition, granted, is oversimplified. Nevertheless the message which gets over to, say, the superficial reviewer (who will certainly ignore the endless backpedalling) is that, of these four Hindu “ways”, only the second is really theistic, and therefore available to be practised by Western seekers for contemplation; though, particularly in this century, Westerners could now also practise the fourth. Lack of the first and third “ways”, however, keeps Western mysticism permanently cramped and truncated.

Now, all this may be so,—though you could argue that, to a certain extent, the first and third “ways” had been practised inside Christianity by some of the Greek Desert Fathers. What I want to say here, though, and what neither Smart nor Moffitt seem to have noticed, is that none of these four “ways” is the passionistic “way” of the self-sacrificial receptive warrior: this last is a fifth “way”: The Hindu “incarnation”, like Rama-Krishna, who, in the course of following the practices of *Bhakti*, takes on his disciples’ *karma*, and thereby gives himself cancer, of which he dies, is the nearest thing which Hinduism has to this fifth way, but it is not the same thing. There is no supernatural battle here; death and hell are not thought of as despoiled; captivity is not led captive; there is no ultimate triumph; the whole conception is much more passive, and quite different.

What is genuinely comparable is the Mahayana Buddhist idea of the Bodhisattva, the Buddhist “incarnation”, who, having attained Nirwana, comes down again, through love, from “heaven”, to redeem souls from the seventh and lowest Buddhist hell, which only he can do. (Compare the sentence from the Apostles’ Creed: “He descended into Hell”.) Notice too that this redemptive Bodhisattva idea, which is not in early Buddhism, arose after the early Buddhist ideas had been filtered through a culture of (Tibetan) hunters and warriors; i.e., of hill people. But even here, there is no supernatural battle and

no redemptive sacrifice; only Buddha Metreya, the predicted Buddha of the future, who will come from the West and be the eternal exemplification of redeeming love and compassion.

So, my contention is that the Christian passionistic prototype, even more than the Buddhist one, will not straightforwardly map on to any prototype just derived from the “way” of Bhakti. Neither is it true, as Moffitt sometimes seems to think, that if you bunched together all the differing metaphysics generated from the four Hindu “ways”, you would get something like the Christian conception of the Trinity. You wouldn’t. Like it or not, the whole Athanasian conception of the Trinity has the passionistic slant. The second *persona* is that of which the narrative of Jesus of Nazareth was an “icon”; the third *persona* is the continuing passionistic spirit of *Christ* (of Christic passionistic action in the world, if you prefer something more abstract). Even the ultimate and ineffable *persona* of the “Father” is still of a father who could beget such a son; though this last fact has caused theological trouble. The Christian Trinity is indeed like the Buddhist Mahayana Trinity; indeed uncannily like,—once you realise that you have to allow for the Christian passionistic slant. But neither can be straightforwardly got from, or indeed be mapped back on to, the four Hindu “ways”; and this creates a big difficulty in trying to refound a scientific comparative religion on the four Hindu “ways”, on the ground that they are the most basic forms of human contemplative goal which we know of, and, moreover, that their practices are susceptible of direct observation, and that the physiologically differing effects of these practices can also be subject to test. The two forms of the Bhodisattva prototype, or “way”, are much less susceptible to direct physiological test, but they are there; and (in the hills, and among the older faiths) their counterpart always has been there, right from the beginning of man.*

To say this, though, is not to deny that the Hindu base can be used (somehow) to refound comparative religion: and to

* See, on this, Gary Snyder’s contribution in *Conversations: Christian and Buddhist*, edited and compiled by Dom Aelred Graham, Harvest Book, 1968. On pp. 78 *et seq.* Gary Snyder correctly says that we now no longer understand the depth and power of the older, hill-and-forest “nature” mysticism; but he also fails to show that he is aware of the basic sacrificial and self-sacrificial slant in it.

say that the passionistic idea originally came from other faiths is not to deny the element of genuine novelty in Christianity. The Christian missionaries to India, for instance, who, while awed and dazzled by the depth, variety and sophistication of Hindu mysticism, yet felt that, in spite of Christianity being possibly much more primitive, it yet had something different and unique, an element of "revelation", or of "discovery", peculiar to itself, were in fact right. This new element was not the message of Christ's first, prophetic period; "inside your self there is the Self". ("The kingdom of Heaven is within you.") For this first message, this announcement, if you like, is just what is in common to all mysticisms. No, the Christian revelation, the "discovery", was: "there is in the Universe, the possibility, the hope, of supreme, self-sacrificial, redemptive action (of efficacious passionistic action, if you like). The regenerative effects of this are so great as to be, over the short run, unimaginable; and it is the operation of this which is the only true path to supreme glory. ("I, if I be lifted up, will draw all men unto me.") *This* is what gave substance to the old, initiatory "mysteries"; this was the extraordinary first-century Christian prescription (backed by Christ's resurrection* and by the hope of his return) for dealing with all-pervasive and rampant evil. And this, on any book, was really a discovery. It was a totally counter-intuitive and non-obvious statement about the basic nature of the mystical universe—and this whether Jesus of Nazareth consciously realised the full nature of what he himself was doing, or not. It was a discovery, moreover, which, in the first centuries, and for reasons which are still largely unknown, had an incomprehensibly strong credibility about it; it made supreme sense. But, right or wrong, that credibility has since faded; this is a discovery in the validity of which people

* The dolts who say that Christ could not possibly have resurrected—that he never went into Maha-Samadhi, that he never subsequently resuscitated, that he never projected any subsequent apparitions (and that's not probably the half of it), but that it was only a Great Big Beautiful Spiritual Experience, are, at last, being overtaken by the progress of parapsychological investigation and research. But it has taken this, and also the emergence of the counter-culture, to make people see that the right question to ask about Christ's resurrection is not: "How could he possibly have resurrected?" but "All right, the man resurrected: so what?"

no longer believe, and the true nature and depth of which they can no longer understand.

What Christianity is saying might still be right, though. And in its sphere, it is the only contender; for what other way is anyone suggesting of dealing with all-pervading, rampant evil? So, however old the source from which it comes, it still might be the human race's supreme and ultimate mystical intuition. On the other hand, opponents might say that it was, on the contrary, only the last vestigial insight left behind from older, much more primitive sorcerer-based cults, which "took on" because it happened to re-emerge inside ("modern") first-century Greek and Roman society; an insight which we, being now more "civilized", have now outgrown. (That is where the controversy now is.)

Anyhow, the Byzantine mosaic-makers knew that this discovery was novel, and knew also that it came out of, and must be seen against, the cosmos represented by the older symbolisms. So, in their domes, they superimposed the glorified Christ on the Jewish Tree of Life,* or on the cosmic Mystic Rose; their mosaic message was metaphysical, as well as visual; and they themselves knew exactly what they were saying.

In this self-labelled, "civilized" century—which, even technologically, is still in the Stone Age, and mystically is far more primitive than anything which has been seen for at least five millennia—for the depth and efficacy of the redemptive battle "for ever waged by the Eternal Passion" to be taken seriously, there has got to come about a scientific change. The central point of this change, if it ever does occur, will grow from a revisionary scientific re-investigation of the nature of death. Don't forget, passionistic Christianity does not teach that the Divine Warrior, when his body dies, is himself annihilated, but that, in some sense, he enters into his glory. So this creed does not show a road only to self-annihilation, but also shows the passionistic Self's path to life under the dimension, or mode, of eternity. The question is what does all this mean? Does it mean something para-physical? (Don't forget, we have been hoaxed once by being told that the resurrection of Christ was

* See, on this, Gladys Keable, "Word of Power in the Lord's Prayer illustrated by its counterparts in Yoga and Kabala" (a forthcoming study).

just a beautiful metaphorical dream, when it is now clear that it was, on the contrary, something very scientifically interesting indeed.) So what of death itself? Do we really know what it is? Organ transplant work has made the old medical dogmatic view of the nature of clinical death disappear in a single decade. Is it so obvious that the mystical insights about the nature of death are irrelevant to a revisionary scientific estimate of it?

So, some mechanists don't like our doing this: they think any revision of our current view of death to be scientifically impious. So what? Evidence is piling up that the crude, limited, commonsense view of death is clearly wrong; and if we genuinely had a new view of death we might also gain, I suppose, a new view of life, and a new view of love, and of compassion (let alone a new view of such things as ageing, which is coming anyway); and, in the end, even a new view of the redemptive blessedness of passionistic glory.

The only thing is that the re-investigation, though revisionary, must also be, in the modern sense, fully scientific. It must not produce a science-fiction or occultist view of death, but a scientific one.

There is one last thing: passionistic Christianity, by its very nature, is a redemptive mysticism, not a condemnatory one. The metaphysical idea behind it is that the continuing action of the "Eternal Passion of Christ" redeems souls from the lowest hell; not that it puts them there. How the mediaeval world, starting with such an idea, got stuck finally with a primitive, eternal, irredeemable, retributory hell (even if the danger of landing finally in this was mitigated by the counter-possibility of getting into Purgatory) is hard to understand. But the underdogs of the Middle Ages had a very great deal to put up with, and, because of this, lived, I think, in a state of semi-continuous rage. They therefore wanted their corrupt Popes, their oppressive bishops, their perverted judges, their torturing rulers, their massacring, looting and predatory robber barons definitely to fry alive somewhere, shrieking in torment, for ever and ever; and never ever, be able to get out. (And some underdogs in the early centuries probably also concurred with this; moreover, Christianity inherited a Jewish judgement.) But this desire was the direct converse of the operation of the martyrs, who embraced, thanked and regarded their executioners,—who

often became their successors; and, that being so, it can be taken as read that it was the converse also of the essential message of early Christianity. A modern Russian saint, the Staretz Silouan,* when confronted by this contradiction, said yes, he supposed maybe you had to believe there was hell, but you definitely did not have to believe that there was anybody in it. "For," said he, "Love could not bear that." He was quite right: Love can't.

There is one last argument to be set up, one last thing to be done. Christianity, among the mysticisms, may be the way of the redemptive warrior, and therefore may be (by comparison with Hinduism) analytically primitive. But it is irrefutable that it has given birth to modern science; and indeed to the idea of modern democracy. Both of these, moreover, are sophisticated and non-obvious modern ideas to which the four yogas, as usually taught, are inimical. The detailed case for asserting all this must be made at another point. (Roughly, the case turns on the central fact that (all unknowing) the Church was midwifing modern scientific development, with its built-in claim to exclusiveness and universality; and that this alone explains the comparable claim to exclusiveness and universality—the triumphalism, if you like—of the mediaeval and modern Catholic magisterium. But there is a lot more to it than that.

It is cardinal here, though, to realise that science is a Christian creation; because it is through having been steeped for years in these same scientific ideas that I have now used them, *via* some very putative revisionary science of the future, to present elementary Christianity from an advanced point of view. For if my claim here is right, this form of presentation is also a Christian enterprise: time will show that revisionary science has itself come out of magisterial Christianity,—even if this evolution has been in spite of, rather than because of, the explicit action of the magisterium.

* See *The Undistorted Image* (1958), by Archimandrite Sophrony, p. 38.

Labour and Liberty: Simone Weil and the Human Condition

Fred Rosen

In her life and writing, in spite of her own ill health, Simone Weil attempted to explore the condition of the manual worker in contemporary industrial society. This formed a recurring theme in much of her varied writing, most of which was unpublished at the time of her early death in 1943 at the age of thirty-four. In 1934, she wrote her first major work on this theme, the “Réflexions sur les causes de la liberté et de l’oppression sociale”.¹ At the same time, she obtained a year’s leave from teaching for private study to prepare a philosophical treatise. While the treatise was the “Réflexions”, then partly written, her real intention was to experience factory work. She worked for more than nine months in three factories doing exhausting tasks, and emerged feeling that she had “received for ever the mark of a slave”.² In January 1935, when she began working in a factory, she wrote to a friend that the greatest temptation was to give up thinking: “one feels . . . that it is the only way to stop suffering.”³ Six years later she restated this thought:

The workers themselves can only with great difficulty write, speak or even reflect on this subject, because the first effect of affliction is that thought wishes to escape; it does not wish to consider the affliction which wounds it. Moreover, the workers, when they speak of their own lot, repeat most often words of propaganda made by men who are not workers.⁴

Her writings on the worker’s condition are attempts to overcome this dilemma.

According to her biographer, Jacques Cabaud, Simone Weil was not satisfied with her conclusions in the “Réflexions”, and it remained incomplete and unpublished at the time of her

1. The “Réflexions” is in *Oppression et liberté* (Paris, 1955); *Oppression and Liberty*, trans. A. Wills and J. Petrie (London, 1958).
2. See *Waiting on God* (London, 1968), p. 33.
3. *La condition ouvrière* (Paris, 1951), p. 16 (*Seventy Letters*, trans. R. Rees, London, 1965, p. 16).
4. *La condition ouvrière*, p. 241.

death.⁵ Nevertheless, in January 1943, while she was working for the Free French in London, she arranged for the “Réflexions” and two other articles on problems of labour, which she had written in 1941 for the journal *Economie et Humanisme*, to be typed and sent to her.⁶ In the first of these articles, “Expérience de la vie d’usine”, she states in more concrete terms the problems of the factory worker and presents proposals for reform which are based on her own experience. In the second, “Condition première d’un travail non servile”, she explores this theme in connection with Christian symbolism.⁷

It is likely that Simone Weil planned to put together in some form the ideas contained in these three essays, but she did not live to do so. In this essay, I hope to examine these ideas, from the early analytical writing and critique of Marx to the later more mystical studies where Simone Weil emphasises the close connection between labour and contemplation, and, in a sense, bring them together into a single focus. In spite of the clarity of her writing and the absence of a technical vocabulary, Simone Weil is not easy to understand, and much of my effort will be devoted to an elucidation of her main ideas.

In the *Réflexions*, Simone Weil works out, in terms vaguely reminiscent of Rousseau, concepts of liberty and oppression which bear particularly on the worker’s condition. She begins with the contention that life in primitive societies is “under immediate compulsion, under the ever-present spur of natural needs”, and that this direct compulsion seems to diminish with the growth of advanced modern societies.⁸ Few people in modern states are forced to obtain their food each day, by hunting or fishing, or face the threat of starvation. Nevertheless, she argues that while the direct compulsion of nature diminishes, it is replaced by an indirect compulsion, which “continues certainly to be exercised, and still pitilessly.”⁹ She calls this compulsion “oppression” and accounts for the rise of oppression in this way. In primitive societies, where each man needs to struggle directly against nature, the dependence of one man on another

5. See *Simone Weil, A Fellowship in Love* (London, 1964), p. 103.

6. *Ecrits de Londres et dernières lettres* (Paris, 1957), p. 227 (*Seventy Letters*, p. 167).

7. *La condition ouvrière*, pp. 241–259, 261–273.

8. *Oppression et liberté*, p. 87 (62).

9. *Ibid.*, p. 87 (62–63).

is more limited than in modern Western societies. As forms of production become more complex, what she calls “privileges” arise. Religion, the requirements of defense, and the organization of exchange become so complex, that full-time priests, warriors, bankers and merchants become necessary. These “privileged” elements arise in society because they perform services which are best organised under monopoly conditions. Soon, they (especially the warriors) are in a position where they are incapable of production themselves, but possess the fruits of other’s struggle against nature. But these privileges alone are not sufficient to cause oppression, because the weak can resist and the strong may be restrained by a feeling of justice. Oppression becomes associated with privilege through the presence of an additional factor: “the struggle for power”. She writes:

The preservation of power is a vital necessity for the powerful, since it is their power which provides their sustenance; but they have to preserve it both against their rivals and against their inferiors, and these latter cannot do otherwise than try to rid themselves of dangerous masters; for, through a vicious circle, the master produces fear in the slave by the very fact that he is afraid of him, and vice versa; and the same is true as between rival powers.¹⁰

The struggle for power necessarily makes social life oppressive and operates in this endless circle. The circle cannot be broken by the establishment of a stable political order. While between man and inert nature, she writes, there can be equilibrium (a rock moved to a new position will “accept” this new position), between man and man there is no equilibrium because of man’s capacity for self-determination. Only if, between two men, one is exterminated can stability arise. But if the object of power no longer exists, power also will no longer exist. That is to say, a master has no power over a dead slave, and his power exists only so long as he keeps the slave alive. But by keeping the slave alive, he leaves open the possibility of revolt. He must continuously enhance his power to maintain it, not only over his slaves, but also in relation to potential rivals in the same position as he. All power, Simone Weil argues, is thus unstable, and there is only a continual race for power.

10. *Ibid.*, p. 91 (65).

In her critique of Marx, she argues that oppression is not unique to capitalism. In capitalism, the unique factor is that the instruments of industrial production are the chief weapons in the struggle for power. Thus, the labourer feels oppression most in advanced societies, as he becomes a key element in this struggle. As the requirements of competition increase, the worker is pressed continually to increase productivity. As technology becomes more complex, the gap between mental and physical labour is enhanced, and the manual worker increasingly performs simple, repetitive tasks, in ignorance of the total process in which he participates. As industrial production becomes increasingly important, both factory and office become divorced from the rest of life. The worker spends a portion of his day in a strange world often surrounded by barbed wire fences and ruled by the time clock.

Simone Weil believes that Marx, more than anyone else, understands the mechanism of oppression in capitalist societies. "Marx", she writes, "gives a first-rate account of the mechanism of capitalist oppression; but so good is it that one finds it hard to visualise how this mechanism could cease to function."¹¹ While Marx writes in the *Critique of the Gotha Programme* that a higher phase of communist society will see "the anti-thesis between mental and physical labour" vanish, Simone Weil argues that he fails to show how the evolution of a regime based on a modern system of production can achieve this result.¹²

Since, for Simone Weil, all advanced societies are prone to oppression because of the absurd, though very real, "struggle for power", any hope of liberation for labour based purely on the evolution of productive forces (that is, technological progress) is bound to be fruitless. Hence, she condemns the Marxist hope of liberation through revolution on the grounds that the evolution of productive forces on which it depends is inherently oppressive.

While she rejects the possibility of liberating labouring men through revolution or technological progress, she does not give up all hope of liberating men from degrading labour. To under-

11. *Ibid.*, p. 60 (40).

12. *Ibid.*, p. 62 (41). See K. Marx and F. Engels, *Selected Works* (London, 1968), p. 324.

stand this, we need to consider her concept of liberty. According to Simone Weil, men have no freedom against necessity, because their world and themselves are subject to it. Similarly, they are not free to cease labouring without ceasing to live. Mankind is thus subject to a natural necessity which seems a condemnation to continual servitude. She expresses this as follows:

Living man can on no account cease to be hemmed in on all sides by an absolutely inflexible necessity; but since he is a thinking creature, he can choose between either blindly submitting to the spur with which necessity pricks him on from outside, or else adapting himself to the inner representation of it that he forms in his own mind; and it is in this that the contrast between servitude and liberty lies.¹³

She defines liberty in terms of a relationship between thought and action. An abstract model of complete liberty would be analogous to a properly solved problem in arithmetic or geometry, where the individual, using his own judgement, sets forth on a sheet of paper a representation reached in his own mind. He would not be able to choose among solutions; but his freedom would consist of the obedience of the body to the mind, which through a process analogous to natural necessity solves the problem from the elements given. A man is free to the extent that he understands his actions and these follow necessarily from his understanding.

Most of her proposals for the reform of factory work are aimed at increasing the role of understanding in methodical work, or, in her view, transforming the worker into an artisan whose productions proceed from his understanding of the things he produces. Her aim, however, is not a return to the values of the medieval craftsman, as favoured, for example, by William Morris, and a revival of the decorative arts. She is not opposed to factories and modern production. The factory, she believes, "could fill the soul with the powerful feeling of collective life".¹⁴ Its noise and rhythms could be intoxicating; and the sense of dominating nature in a way in which each participant in the collective enterprise feels indispensable could be satisfying. Nevertheless, she contends that the modern factory system, as it is

13. *Ibid.*, p. 115 (86).

14. *La condition ouvrière* (Paris, 1951), p. 242.

actually organised, only degrades the individual worker. He is in the position (with the addition of fatigue) of a small child told to string beads to be kept quiet, and while the action makes no sense, he does so out of fear of punishment and the hope of a sweet. For work to make sense, reform would be necessary on several levels. She suggests that each worker should know clearly the role he plays in fabrication and the role of the factory in the life of society. If he makes a part for the Metro, she suggests that he is taken there and is shown the function of the part in the train. While she admits that it is impossible to confer with all workers before each change of work, it is possible, she argues, for all workers to be taken on tours of the factory (while being paid) and given a technical explanation of what is being done. The workers should also be allowed to bring their families who should know what their husbands are doing when at work. Nevertheless, she concedes that the additional knowledge the worker obtains and the changes made in his routine will not transform him into an artisan, so long as his time is spent performing simple repetitive tasks. Yet, even at this level, she believes a remedy exists. The repetitive movements of the workers might be replaced by automatic machines, and the workers themselves could devote their time to making the various cams to be inserted into the machines. In this process, the worker uses his intelligence in combination with manual work and becomes an artisan. At the level of factory organisation, she proposes a measure of autonomy of workshops within the factory, and increased autonomy for the worker in his workshop. The worker should know several days in advance the tasks he is to perform, and, if possible, have some choice of the order in which he will perform them.

Simone Weil developed her critique of factory work during the depression and war, and, since that time, the working conditions in many European factories have improved considerably. But I do not think these developments make her position an outdated one. While factory work is carried out under more "enlightened" management today, the stimulus for this development has seldom been a concern for the condition of the workers themselves, except insofar as their condition is an important factor in productivity. The stimulants to work remain the same as for the child stringing beads, fear of punishment

and the hope of a sweet; for the worker, fear of unemployment, and the hope of more money. These are not stimulants which change, in Simone Weil's view, the character of work from its degrading condition. In addition, she warns against superficial reforms, such as simply reducing hours and increasing wages, as these may only make factory work more difficult and degrading. In one passage, she writes with considerable insight:

. . . [B]ut to make people a mass of idlers who are slaves two hours a day is neither desirable, when it is possible, nor morally possible when it is materially possible. No one would accept being a slave for two hours; slavery, to be accepted, has to be endured each day to crush something in man. If there is a possible remedy, it is of a different order and is more difficult to conceive. It requires an effort of invention. It is necessary to change the nature of the stimulants of work, to diminish or abolish the causes of disgust, to transform the relationship of each worker to the functioning of the factory, the relation of the worker to the machine, and the way time passes in work.¹⁵

Simone Weil remains pessimistic as to the possibility of this necessary transformation of factory work. The collaboration between the powerful and the oppressed to effect such a change is, for the most part, precluded by the struggle for power which generates oppression. Furthermore, the factory is part of a larger collectivity to which the average man, whether factory worker or not, finds himself increasingly subjected. The specialisation in factories, which threatens individual autonomy, is paralleled by a specialisation in society in knowledge and in culture. Modern man, she argues, has acquired an ignorance no less pervasive than that possessed by primitive man. "People used to sacrifice to the gods, and the wheat grew. Today, one works at a machine and one gets bread from the baker's. The relationship between the act and its result is no clearer than before."¹⁶ The liberation of men from degrading labour thus remains for Simone Weil an ideal, but its importance is not thereby diminished. It is impossible for collective power to destroy completely individual liberty. "The collectivity," she writes, "is more powerful than the individual in every domain

15. *Ibid.*, p. 253.

16. *Cahiers, I*, (Paris, 1970), p. 28 (*First and Last Notebooks*, trans. R. Rees (London, 1970), p. 19).

except one alone: the domain of thought".¹⁷ In the context of labour, prospects for liberty depend, for Simone Weil, on the extent that the capacity to think and act in relation to the forces of nature is preserved by individuals, that is, to the extent that workers become artisans.

II

The most striking aspect of Simone Weil's analysis is the connection she establishes in her later writings between labour and contemplation, between what has been regarded for centuries as the lowest and the highest of human activities. This is not a doctrine one finds in the ancient Greeks, especially in Plato, whom she greatly admires. While she believes, as we have seen, that factory work need not be degrading, she also admits that there remains in the activity of labour "an irreducible element of servitude which even a perfect social equity will not erase."¹⁸ Yet, she argues that the same conditions which chain men to servitude also provide the basis for contact with a supernatural reality. The "irreducible servitude" in the life of the physical labourer is the absence of ends to be pursued and an overwhelming concentration of effort on existence alone. The worker works, not in view of some good, but merely to "earn his living", that is to say, to maintain his existence. The day is divided into periods of work and repose. The worker works in order to eat and rest; he eats and rests in order to be fit for work. But, existence, she contends, is not an end, but a condition for the pursuit of ends. Insofar as the worker devotes his attention merely to existence, he is, so to speak, tied to the point of departure. His life, she points out, is analogous to that of a squirrel turning in a cage.¹⁹ In her notebook, she states the worker's condition as follows:

To strive from necessity and not for some good—driven not drawn—in order to maintain our existence just as it is—that is always slavery. In this sense the slavery of the manual workers is irreducible. Effort without finality.²⁰

17. *Ibid.*, p. 16 (8).

18. *La condition ouvrière*, p. 261.

19. *Ibid.*

20. *La pesanteur et la grâce* (Paris, 1963), p. 180 (*Gravity and Grace* (London, 1963), p. 159).

To turn continually in a circle leads to a condition of nausea, and to avoid this sickness, Simone Weil contends that the worker either must become insensible or he must have compensations. Ambition for himself and his children forms one type of compensation; violent and sensual pleasure forms another, which she asserts, is the dream which substitutes for the ambition. The consumption of a range of narcotics which allow the worker to forget his condition is another. These may vary, she argues, from drink to the need to dress up on Sunday, so as to pretend that one is not a worker. There is also the hope of revolution which she sees both as a narcotic and as the creation of a collective ambition to overcome the condition of labouring. While revolution against social injustice makes sense, when it attempts to overcome the servility inherent in work itself, Simone Weil argues that it becomes a narcotic and a lie. In the latter form, revolution is not only collective ambition, but it carries with it a sense of adventure, which represents a further reaction against the worker's condition. The adventure in novels and police films and criminality among adolescents, she feels, is similar. Furthermore, the desire for money, which motivates other classes, fails to solve the worker's problem because as soon as he accumulates enough of it, he ceases to be a worker. Ambition for one's children is similar; one can only wish that they escape the worker's condition. There are times, she admits, when rapid industrial development, as in Russia and North America, produces change at such a rate that it appears to the worker that he has new things to which to aspire. But these instances, she maintains, are exceptional.

Simone Weil believes that there is one remedy for the pain and suffering of the worker's condition. It is a remedy which corresponds to the peculiar condition which restricts the scope of desire to existence itself. For this reason, because the worker's life is tied to existence alone, he is in direct contact with existence, that is to say, with the universe, its order, and its beauty. She states that the worker is privileged in the sense that he has no other goals to pursue which leads him away from the source of beauty which is God. She writes:

The spirituality of work. Work makes us experience in the most exhausting manner the phenomenon of finality rebounding like a ball; to work in order to eat, to eat in order to work. If we regard

one of the two as an end, or the one and other taken separately, we are lost. Only the cycle contains the truth.

A squirrel turning in its cage and the rotation of the celestial sphere—extreme misery and extreme grandeur.

It is when man sees himself as a squirrel turning round and round in a circular cage that, if he does not lie to himself, he is close to salvation.²¹

Thus, while revolution, ambition, and the pursuit of pleasure cannot bring ends into his life, he is for this reason uniquely exposed to the beauty of the universe. For others a process of detachment is necessary to make contact with God. But

No terrestrial finality separates the workers from God. They alone are so situated. All other conditions imply special aims which form a screen between man and pure good. But for them no such screen exists. They have nothing superfluous of which they have to strip themselves.²²

It is not fashionable today to suggest that the lot of the factory worker might be improved through contemplation. But to dismiss her argument on these grounds is to miss the important elements in it. It is necessary to see clearly what she is not arguing. She is not telling the worker, in the manner of a nineteenth-century Methodist, to accept his condition and through labour remove the guilt of original sin. Nor does she accept the more classical Christian argument that divine worship is an activity apart from the utilitarian world of work. What is striking about Simone Weil's doctrine is her belief in the very proximity of contemplation and physical labour as activities which constitute the human condition. She argues that what philosophers and mystics have hitherto believed is reserved for a very few in their lives is, in a special way, open to all who labour. Her argument has also a critical dimension. The recognition of the proximity of labour and contemplation is complemented by the rejection of arguments which find satisfaction for the worker either in his life as it is, or, as it might be, after a revolution.

Simone Weil does not merely say that labour is painful; such an assertion is not new and can be found, for example, both in

21. *Ibid.*, p. 179 (158).

22. *Ibid.*, p. 180 (159).

Marx and in Bentham's utilitarianism.²³ But she is referring to more than the pain associated with physical exertion and concentration when she writes in *L'enracinement* that "physical labour is a daily death," and that "labour does violence to human nature."²⁴ She argues that labour, like death, is not a matter of choice, but a necessary part of the human condition. Furthermore, men flee both from death (and not only violent death) and from labour. She believes that the difficulty of consenting to spend one's life in daily labour is similar to the difficulty of facing and accepting the inevitability of death. We generally connect labour to the process of maintaining life—to earning a living—and tend to overlook the connection between labour and death. Although the "life process" or "life cycle" to which labour is connected includes death, it is only by thinking about death itself that the more direct connection with labour becomes clear. The analogy between them occurs on several levels: the exhaustion of labour is analogous to dying; the revulsion from a life of physical labour is analogous to the revulsion many feel when thinking of facing death; and the passive acceptance required for the life of steady physical labour is analogous to that displayed by anyone who has learned to face death. Simone Weil thinks of this passive acceptance, if accepted willingly, as a form of obedience, and this obedience, she believes, is analogous to obedience to God.

In this context she writes:

Manual labour. Time entering into the body. Through work man turns himself into matter, as Christ does through the Eucharist. Work is like a death.

We have to pass through death. We have to be killed—to endure the weight of the world. When the universe is weighing upon the back of a human creature, what is there to be surprised at if it hurts him?

Work is like a death if it is without an incentive. We have to act, renouncing the fruits of action.

To work—if we are worn out it means that we are becoming

23. See J. Bentham, *An Introduction to the Principles of Morals and Legislation*, ed. J. H. Burns and H. L. A. Hart, *Collected Works* (London, 1970), p. 47; E. Andrew, "Work and Freedom in Marcuse and Marx", *Canadian Journal of Political Science*, III (1970), p. 248.
24. *L'enracinement* (Paris, 1962), p. 378 (*The Need for Roots*, trans A. Wills (New York, 1952), pp. 300, 301).

submissive to time as matter is. Thought is forced to pass from one instant to the next without laying hold of the past or the future. That is what it means to obey.²⁵

If, as Simone Weil suggests, the acceptance of a life of physical labour is analogous to the acceptance of death, it is no wonder that the worker seeks to avoid work and is tempted to indulge himself in the many narcotics he uses to diminish the pain. But, if the worker can accept his condition, she contends that he is obeying God and in direct contact with God, although the experience is painful and his condition is servile. She admits that many workers are unable to see the analogy, and one reason for this is the absence of any attempt in their lives at contemplation.

Nevertheless, hard daily labour does allow the worker to develop the requisite passivity for contemplation. So long as his work does not destroy the capacity for contemplation (though she believes that most factory work does this), the worker too can develop his attention:

In any society, he who mans a machine cannot exercise the same species of attention as he who solves problems. But the one and the other can, equally if they desire it and if they have a method, each exercising the species of attention which constitutes his own lot in society, favour the appearance and development of another attention situated outside all social obligation which constitutes a direct link with God.²⁶

The pain and suffering of manual labour cannot, she believes, be overcome except as it is transcended by contemplation. While contemplation does not diminish the pain and humiliation of labour, it gives meaning to it:

Slavery is work without a light from eternity, without poetry, without religion.

May the eternal light give, not a reason for living and working, but a sense of completeness which makes the search for any such reason unnecessary.

Failing that, the only incentives are fear and gain—fear, which implies the oppression of the people; gain, which implies the corruption of the people.²⁷

25. *La pesanteur et la grâce*, p. 181 (160).

26. *La condition ouvrière*, pp. 270–271.

27. *La pesanteur et la grâce*, pp. 180–181 (159).

It cannot be said that she is prescribing an opiate for the worker. Indeed, she argues that any doctrine which pretends that the worker can escape from the servility of labour either by revolution or by technology is an opiate. Furthermore, while passivity is a necessary condition for transcending the worker's condition, it by no means commits Simone Weil to a reactionary political doctrine. She remained throughout her life a member of the militant Left, and while a critic of the Marxism of the 1930s, she still believed in the necessity of a basic transformation of society. The transformation necessary for the development of contemplation in relation to work would be no less extensive than that envisaged by Marx. Nevertheless, she belonged to no party or movement, because these, like the church she refused to join, tended to restrict the development of independence and understanding. Yet, in the working class movements in the cities where she taught, in Spain during the Civil War, and in London with the Free French, she actively devoted her energies to helping the oppressed.

In her later writings, she sees a twofold task involved in the establishment of this "direct link with God." First, she stresses the importance of examining each occupation to see how the activity itself can constitute a preparation for the development of what she calls a "transcendent faculty".²⁸ She recognises that it would serve little purpose merely to incorporate churches or religious symbols into factories, as the relevance of these to factory work would not be clear. The connection between the work done and the contemplation of God must be established from the perspective of the worker. In numerous examples in her writing, she attempts to integrate symbols of Christianity into this perspective; for example, she writes:

The image of the cross compared to a balance in the hymn of Good Friday could be an inexhaustible inspiration for those who carry burdens, handle levers, are fatigued in the night by the weight of things. In a balance, a considerable weight near the point of support can be raised by a very feeble weight placed at a very great distance. The body of Christ was a very feeble weight, but by the distance between earth and heaven, he has made counterweights to the universe. From a manner infinitely different, but sufficiently analogous to serve as an image, whosoever works, raises up burdens, uses levers,

28. *La condition ouvrière*, p. 271.

has also to make from his feeble body counterweights to the universe. This is often too heavy and the universe often makes the body and soul bend under the weariness. But those who fasten themselves to heaven will easily be counterweights. Those who have once perceived this thought cannot be distracted by fatigue, ennui or disgust. They can only be restored.²⁹

In addition, the very capacity for contemplation must also be preserved, especially from the threat posed by the modern emphasis on efficiency and productivity. While she is not opposed to efficient work, she finds that continual emphasis on increasing speed in work destroys the rhythm, measure and balance which are necessary for the worker's attention to develop. The reform of factory work, therefore, must not only reconnect thinking with doing, but it must also transform the activity itself so that the possibility of contemplation is not destroyed. Secondly, the reform of society in general must start from the premise that physical labour should be the "spiritual core" of a "well-ordered social life".³⁰ This involves not only the recognition of the physical needs of all men in society, but also of the needs of the soul. *L'enracinement*, written in London in 1943, attempts to state these needs and the means to meet them for a reconstructed France at the end of the war.

III

As a critique of Marxism, Simone Weil's early writings have a special importance. We have already considered her concept of oppression and her criticism of the way Marxists have expected the evolution of productive forces to provide the foundation for a regime of liberty and equality. One still reads of the need for economic development as an excuse for delaying or denying liberty, as though economic progress will itself magically lead to liberty. While Simone Weil shares with Marx a form of naturalism, she tries to expose in his thought a "naturalistic fallacy" where he derives moral values from the natural phenomena of productive forces. This critique of Marx's reliance on "productive forces" is also directed at non-Marxist theories of technological progress.

29. *Ibid.*, p. 267.

30. *L'enracinement*, p. 380 (302).

Simone Weil and Marx share, most of all, a preoccupation with the importance of labour to the human condition. Both admire Prometheus, though Marx regards him only as a noble “saint and martyr”, while the more spiritual Simone Weil sees Prometheus as an early intimation of the Passion of Christ.³¹ Nevertheless, they differ greatly in their understanding of the character of labour. Marx thinks of labour in terms of self-realisation and creativity, and in its non-alienated forms, it represents the most characteristic expression of human personality.³² While he does not deny that work is painful, he would not say, as Simone Weil does, that manual labour is “a daily death”. But Marx does not show that all work, such as digging and sweeping, is inherently creative, and it is not sufficient to say that an individual may dig “non-creatively” in the morning and do philosophy at night to answer Simone Weil’s contention that manual labour is inherently servile. To a limited extent, Simone Weil accepts that work can be creative, insofar as it combines intellectual and manual labour. But the significance of labour, for Simone Weil, is not that it is the basis of creativity, but that, if performed willingly, it enables the worker to transcend the human condition.

31. See *Intuitions Pré-Chrétiennes* (Paris, 1951), pp. 105–106 (*Intimations of Christianity among the Ancient Greeks*, trans. E. Geissbuhler (London, 1957), p. 70); Andrew, p. 249.

32. See Andrew, pp. 245–246.

Bioelectrical Fields

James Beal

Much of what goes on in space, especially in the Earth–Sun relationship, and in cosmic rays from deep space, affects our environment, ecology, and biology. It is wise and prudent to learn the mechanism of these relationships and radiations, and what trends they may be causing in the Earth's evolution, climate, and ourselves.¹

The scientists of the Renaissance gave man an impetus toward total awareness that has carried him beyond the Earth as well as toward the centre of life. We are beginning to understand the structure of mind.

The human brain is the most complicated structure in the known universe, but as practically nothing of the universe is known, it is probably fairly low in the scale of organic computers. Nevertheless, it contains powers and potentialities still largely untapped, and perhaps unguessed at. Probably ninety-nine per cent of human ability has been wholly wasted; even today, those of us who consider ourselves cultured and educated operate for most of our time as automatic machines, and glimpse the profounder resources of our minds only once or twice in a lifetime.

Until comparatively recently (the 1950s) biologists regarded a cell as a minute bag of fluid that was relatively simple in structure. But under the electron scanning microscope, cells were seen to be exceedingly complex. What earlier seemed to be a "simple cell wall" was likely to be folded and convoluted—precisely the right kind of structure to serve as a semiconductor.⁸ And components of the cell are likely to include organic semiconductors such as liquid crystals which are hypersensitive to temperature changes, magnetic and electric fields, stress, radiation, and trace contamination. To complicate matters even more, many cells have a double outer membrane; electrically, such a membrane functions as a capacitor with the characteristics of a leaky dielectric.² It should be mentioned here that recently superconducting fluctuations have been observed experimentally in organic molecular crystals at transition tempera-

tures of 60K.³ A number of investigators feel that a strong possibility exists for superconduction in special circumstances at room temperature within living systems.⁴

There are many systems, natural and man-made, which are synergistic in nature, i.e., the total effect is greater (or different) from the sum of the effects from individual components. The end effect cannot be ascertained by a study of the discrete components. The mind, as a product of brain, body and environmental stimuli, may be the highest form of synergistic pattern now known to exist. The phenomenon of consciousness (and learning processes) needs more objective study; however, this may prove a tough objective, since the consciousness or mind has only itself to study itself with! It may be worthwhile to start with simpler systems and work our way up. Perhaps the emerging use of sensitive "bio-sensors" such as plants, tissue cultures, and eggs would give us the necessary amplification and selectivity for specific quantitative data of value. Remember also the use of "bio-sensors" as environmental hazard detectors, such as the canary used by miners to detect poisonous gases. Certain animals, such as cats (Siamese?) and dogs may be sensitive to psychic phenomena of specific types. There is a good deal of work going on in Russia and Europe on the effects of EM and electrostatic (ES) fields on the central nervous system; also EM and ES effects (and amplification of these effects) around the human body during certain types of paranormal phenomena. The Russian research in parapsychology and parapsysics appears in proper modern semantics as "biological radio communication", "the problem of information transmission", "perception of space effects", "meteorological feeling", "generic memory", "bioenergotherapy", etc.

The work in Russia may result in some sort of most useful technological surprise—at the very least in some worthwhile biomedical breakthroughs. Instead of heaping scorn on an unexplainable phenomenon, the Russians accept it as a natural, spontaneous, rare event characteristic of mind and proceed to investigate it, though, perhaps, not as thoroughly as required here. They don't have to prove it to themselves as much as we in the Western world have to do! There is not as much built-in cultural bias and mental blocks to overcome.⁹

To digress briefly, it seems that serendipity, hunches, and

creativity are borderline cases similar to psychic phenomena and just as difficult to analyse logically. So much of what goes on in the mind is experimental and not subject to experimental analysis. Did you ever try to describe an emotion to someone—or a rainbow to a blind person? How does a mango taste? (Like a peach with a hint of turpentine!). Usually, the best you get is an analogy to something else, which is poor communication and extremely subject to distortion.

Creative processes, like psychic processes, can be stimulated by strong emotion and prolonged concentration; creativity is also commonly accompanied by neurotic symptoms and personality, because of a different way of looking at things and resultant interpersonal and cultural conflicts. However, if we recall that the profound basis of creativity is a free flow of ideas from the subconscious to the conscious mind, we see that this is similar to other psychic phenomena; that although messages may register on the receiver's subconscious mind, there are so many stronger and more dynamic mental functions to restrict the registration of these messages on the conscious level (high "noise" to signal ratio), that more frequently than not, the message will be repressed. Dr. Rhine noted the close association of parapsi phenomena and creativity as early as 1934, when he indicated that the highly creative skills of the composer, the inventor, the poet, the reflective scientist, required the highest integration of the nervous system for their best creation. Not only does scepticism ("snicker effect") and low motivation preclude good test results, but so do physical fatigue, and depressant drugs.⁵

The way to learn something is to try and see if it exists. When someone theorizes a new nuclear particle, gigavolt particle accelerators are fired up, massive hydrogen bubble chambers are activated, and 100,000 photographs are taken. Computers are programmed to search all the plates seeking the proposed behaviour pattern. The physicists say, in effect, "If such a particle exists, then it should have these properties . . ." and make a test to see. It is time for the parapsychicists to do the same thing on psi phenomena, using some of the ultrasensitive testing equipment now available for application as detectors, enhancers, suppressors and biofeedback training aids.¹¹

Recent brain wave experiments indicate that ES fields can

influence the rate of spontaneous electrical impulse generation by the nerves. Other recent tests have demonstrated that brightness discrimination and alertness improve under the influence of a (+) ES field, and the visual critical flicker frequency is affected.^{10 11 12 13} Overall beneficial effects of (+) ES field applications are caused by the following:¹⁴ (1) *Reduction of the viscosity-index* of blood and lymph fluid (discovered in 1745). This produces an anti-fatigue effect and acceleration of growth factors. It should be noted that the earth's (+) potential gradient reaches a maximum during full moon and third quarter; the metabolic processes of life increase, as does O₂ consumption.²⁰ Traditionally, crops are planted at this time for optimum germination. In addition, it is wise to avoid surgery at this time to prevent problems with "bleeders", (2) *Electrophoresis Effect* causes microbes, virus, and bacteria to travel to the anode (+) of an ES field because their net surface charge is (-). This produces germicide and clean room conditions. In larger cells, the internal charges create (+) surface charges. The surface charges are very important to all living processes and can be demonstrated by electrophoresis, and (3) *Ion-regeneration of the body cells*. Cell renewal happens through ion exchange. Waste products are partially expelled through the skin, and partially through the excretory tract. The electric field attracts these surplus ions away from the body surface, permitting rapid and unhampered renewal of all cells. This effect contributes to the general well-being of man.

The beneficial effects of electrical fields are apparently the results of the combined action of the positive field and the suspended (-) ions in the air. The electrical field is the force of motion and the ions are the carriers of electrical charge. This may be the explanation of why effects of (+) and (-) ions on living systems, without the proper ES field present, have shown erratic or contradictory results. Tests have been conducted under the proper conditions with qualitative results indicating (-) ions (O₂ molecules with a surplus of electrons looking for electro-chemical processes to enhance) produced improved performance, disposition, equilibrium, burn recovery and healing, and relieved pain and allergic disorders; (+) ions decreased performance and depressed disposition or had no effect.¹² Dr. Puharich and others have noted the improved results for bio-

logical radio communication experiments where the receiver was exposed to a (−) ion environment inside a Faraday Cage.²¹

Feasibility tests were performed by the author to determine the effects of 2,000 volt ES (+) field, located 2.5 cm from the top of his head, on the “down-through” clairvoyance ability using the standard 25 card, five symbol, ESP card deck. The proximity of the field generator to the head (normally placed 1.0–1.5 m above head) evidently caused suppression of any clairvoyance ability, i.e., all results during exposure to the intense field were of zero statistical significance (100 card decks—2,500 guesses). With equipment inactive the result for one curve obtained with 50 decks (10 decks per plotted point) was a probability $-.007$; another run of the same type produced a $p-.001$. Based on statements made in Dr. Presman’s famous book *Electromagnetic Fields and Life*, the effects of high intensity fields on brainwave activity are definite; when near the head an increase in frequency is usually noted, at a distance the opposite effect is noted. It may be that a suppression of natural, spontaneously occurring alpha rhythm resulted from the field exposure, thus reducing the number of “hits” when equipment was on during the test (assuming that low frequency 7–14 Hz alpha may be an indicator present during better ESP scores). These tests were performed in 1969 with no monitoring of mind, body and environment; further investigations must be made under more controlled conditions.⁹ There is a 1954 report available indicating a $p-1.3 \times 10^6$ with stroboscopic red light synchronization of alpha waves between sender and receiver in telepathy tests.¹⁷ This is “bio-entrainment”, which will be discussed later.

All bodies of our known physical universe above absolute zero are characterized by the emission of EM radiation. On theoretical grounds (corroborated extensively by experiment) a reasonable amount of energy is emitted in the X-band (9 GHz) microwave region, which falls within the detection capabilities of conventional microwave radiometry. Experiments were performed with an X-band microwave radiometer of the correlation type. The microwave emission shows a large increase from the body relative to the background. Other interesting features have been observed, such as information about emotional, pathological, and physiological states of the system. The radia-

tion emissivity in the microwave region changes with electrical and dielectrical activity of the living system. Communication, for transfer of complex information between biological systems, seems plausible. More study of emission and absorption spectra in microwave regions is advised.¹⁸ There appears to be a possibility for exchange of information over long distances by temporal summation of signals until a "threshold" is attained and the message gets through; the information may be exchanged through some type of sensitive, coupled oscillator phenomena of life.

The recent advent of solid state physics and field effect transistors (FET) have made possible inexpensive, portable instruments, such as ES field intensity meters (or scanners), which can monitor living system bio-fields as well as the local environment. The availability of these instruments should lead to some interesting applications for mind/body/environment research in the near future. The equipment output can be fed into an "X-Y" recorder and area scanning system, which with suitable electronics can produce a two-dimensional plan view of the ES field potentials around the object or person. Selective electronic "gating" can be used to produce shades of grey (or colour, if colour enhancement is used) on the recording to indicate field intensity ranges of interest.¹² This type of application will be slow and cumbersome with available equipment, but feasibility will be established for development of rapid imaging and recording equipment, similar to present infrared medical scanner systems. Results may show that this phenomenon is an ES analogue of what is known as the human aura. At least the ability to observe mind/body environment interactions would be improved and we could become more aware of how the mind affects the body through emotional effects on the electrochemical balance. One potential approach for a more rapid and dynamic imaging system (utilizing hints from reported work on Kirlian Effects in Russia) would be to investigate the ultraviolet components of high frequency, high intensity electrical corona discharge. The subject under test would be coated with a conductive material and the high intensity field applied to a potential just below the arcing point. Ultraviolet corona characteristics can then be observed by a low-light-level-image vidicon television camera tube of high sensitivity, using ultraviolet

transmission filters to replace the tube front.¹⁹ Sophisticated electronic colour enhancement can be used to provide a colour read-out of changes in applied field, caused by amplification of electro-chemical and dielectric bio-system changes (modulation of applied field).

Preliminary investigations into body field variations (since 1920) indicate that the natural body field is (+), while certain types of malignancies are (-); other pathologies produce drastic changes in body potential of an identifying nature.^{20 21 22} Further work remains to be done toward interpretation of the received data, and development of suitable equipment. Consideration of many factors is required so that the very minute signals of interest can be sifted from all the internal, external and emotional background "noise" present, i.e., a standardized series of conditions are required which must consider environmental, geophysical and astrophysical factors, as well as control of psychological attitudes and physiological factors reflecting body and mind states. Studies are now underway to determine which of the multitude of variables are most important to replication of experiments.

The magnetic field of the earth averages about 0.5 Gauss and has continuous pulsations of low magnitude at frequencies ranging from 0.1 to 100 Hz, *peaking at around 10 Hz*; this is known as the Schumann resonance²⁷ where the earth-ionosphere cavity acts as a natural resonator; this was much more powerful during primitive earth development and may have played an important part in the origin and evolution of life).^{24 25} The typical 7–14 Hz alpha brainwave pattern for sleep and dreaming falls precisely in this range, and a relationship between these phenomena has been suggested by many investigators. This is known as biological entrainment of the human brain by low frequency radiation.²³ Note that similar frequencies of light and sound pulses can trigger epileptic attacks, induce altered states of consciousness and cause nausea. The step from external sensory stimuli to subconscious EM stimuli in entraining cerebral rhythms is not a radical concept.^{24 25 26 28} For example, approaching storm fronts appear to have a local E-field variation of 3–5 Hz; the ion balance of the atmosphere and the ES field polarity are also affected by the storm front; in addition to reaction time reductions, headaches, general depression and

lethargy occur in weather-sensitive individuals; paranormal abilities and events decrease. Accident rates of automobiles and aircraft may also be associated with these effects.

The possibilities of bio-entrainment (for enhancement, training, or suppression of psychic ability) are already with us when one considers that medical equipment for treatment of hearing loss is now available for inducing sound into the cochlea electrically by use of audio signal modulation of the 100 kHz carrier frequency. Although those in the vicinity hear nothing, the subject near the antenna perceives sound as if through earphones.²⁹ The ability of many individuals to “hear” radar waves as a “buzzing like bees”, is well documented, as are sporadic reports of “hearing” aurora displays and meteors passing overhead. As one might expect, these reports have until recently been dismissed as unfounded . . . after all, the effects were subjective and not everyone “heard” them. Nurses who work in mental institutions describe patients who are always trying to get away from “the terrible noise”. Certain rooms or areas seem more quiet for them (electrical field null points?). How many people are now in mental institutions or psychologically afflicted because of hypersensitivity to electric fields?³⁰ Russian investigators report that changes in hypothalamus activity can increase the sensitivity to EM fields many times.³¹

A bar magnet at 60 Hz and 8700 Gauss held to the temple gives rise to a visual light sensation known as the “phosphene” effect. This effect can also be induced by electrical frequencies and chemical, fasting, meditation or fatigue techniques. It is not known why, but a person under hypnosis or in a state of mescaline intoxication can often perceive a static magnetic field—through modification of visual images. A flicker effect is associated with a varying field. This is confirmation of Reichenbach’s research with *ill* psychic sensitives in Europe about 1850. Their extreme sensitivity to magnetic fields—pain and visual effects (in a dark room)—was well documented. It appears there may be some potential clues for electronic stimulation (or simulation) of vision in the above areas for aid to the blind.^{2 32}

Viewed as a minute but extremely elaborate electrochemical system, the living cell is subject to the influence of EM fields, both static and dynamic. And these fields may induce not just one but a complex system of currents, as well as act as indicators

of environmental conditions. Small wonder, therefore, that reported field effects at the cellular level (and psychic phenomena at mind level) are diverse and debatable; the effects will depend upon the field orientation, components of the system, its organization, its energy and other variable factors. Indeed, effects are often more apparent in living systems *which are not healthy!* Schizophrenia may be an example of this, and Familial Periodic Disease, a type of periodic paralysis (with preponderant 4 to 6 Hz EEG waves), shows evidence of psychic ability in a large number of cases.³³

The bio-electric field effects, described briefly and inadequately herein, are not to be construed as the cause behind psychotronic and paranormal phenomena. They may only serve, at best, as weak indicators, precursors, or stimulators of some of the higher system effects being generated by living systems. As indicated by Julius Stulman, president of the World Institute, "Suffice it to say that we are dealing in a new science, the *Methodology of Pattern*, which, as we have indicated, should be the direction of our search. We must learn its laws and relationships as it exists in irregular pulsating reference frames in integrated systems so that we may emerge to new understandings in all our concerns."³⁴ Thus, as a product of the Cosmos we are all "tuned in" and our bio-rhythms react accordingly to EM and ES fields, low frequency radiation, ions and other unknown factors.³⁵

Notes

1. Beal, J. B., "Space—For All", Presentation at "Mankind in the Universe" conference, Southern Illinois University, 30 April, 1971.
2. Garrison, Webb, "Magnets and Human Life", *Science & Electronics*, Aug.—Sept. 1969.
3. "Superconductivity Observed at 60 K", *Machine Design*, p. 8, 19 April, 1973.
4. Puharich, A., "Protocommunication", Presentation at "Twentieth International Conference of the Parapsychology Foundation", Le Piol, St. Paul de Vence, France, 27 Aug., 1971.
5. Rhine, Dr. J. B., *New World of the Mind*, William Sloane Associates, 1953.
6. Campbell, John W., "Sense of Security", *Analog Science Fiction/Science Fact*, Nov. 1966.
7. Beal, J. B. "Electrostatic Fields, Electromagnetic Fields, and Ions—Mind/Body/Environment Interrelationships", Presentation at Neuroelectric Society Symposium and Workshop, Snowmass-at-Aspen, Colorado, 18 Feb., 1973.

8. Cope, Freeman W., "Biological Interfaces Behave Like Electrode Surfaces", Summary of Discussion at "Workshop in Bioelectrochemistry", Princeton, N.J., Oct. 1971.
9. Beal, J. B., "Paraphysics and Parapsychology", *Analog Science Fiction/Science Fact*, pp. 68-83, April 1973.
10. Presman, Dr. A. S., *Electromagnetic Fields and Life*, New York; Plenum Press, 1970.
11. Carson, R. W., "Anti-Fatigue Device Works by Creating Electric Field", *Product Engineering*, 13 Feb., 1967.
12. Mizusawa, Kiyoe, "The Effects of Atmospheric Ions on Visual Parameters" (Penn State University, University Park, PA). In: Space-Optics; Society of Photo-optical Instrumentation Engineers, Seminar at University of California, Santa Barbara, CA, pp. 23-26, Sept. 1969.
13. Sugiyama, Dr. Sadao, "A Study on Cycling of the Critical Flicker Frequency by the Application of Electric Fields", Presentation at Neuroelectric Society Symposium and Workshop, Snowmass-at-Aspen, Colorado, 18 Feb., 1973.
14. Schaffranke, Rolf, "Summary of information on the basic causes of the overall beneficial effects of biological DC field applications", Sept 1972. (Enclosure from F. Jones to J. Beal, Nov. 1972.)
15. Brown, Dr. Frank A., "Living Clocks", *Science*, 130(3388):1535, 4 Dec., 1959.
16. Puharich, A., *Beyond Telepathy*, Darton, Longman & Todd, London, 1962.
17. Speeth, Sheridan D., *Alpha Wave Synchronizing and ESP*, 1954.
18. Bigú del Blanco, Dr. J., Romero-Sierra, Dr. C., "Microwave Radiometry Techniques and Means to Explore the Possibility of Communication in Biological Systems", Queen's University and National Research Council of Canada, Kingston, Ontario, Canada; Presentation at Neuroelectric Society Symposium and Workshop, Snowmass-at-Aspen, Colorado, 18 Feb., 1973.
19. Strong, N. G., Davis, N. E., Melville, D. R. G., "Visual, Ultraviolet, and Ultrasonic Display of Corona Fields in Air", *Proc. IEE*, Vol. 117, No. 7, p.1453, July 1970, London, England.
20. Crile, G. W., Hosmer, H. R., Rowland, A. F., "The Electrical Conductivity of Animal Tissues under Normal and Pathological Conditions", *American Journal of Physiology*, 60:59-106, 122.
21. Burr, Dr. H. S., Langman, Dr., "Electronics Detects Cancer with Vacuum-Tube Voltmeter", *American Journal of Obstetrics and Gynecology*, Feb. 1949.
22. Cone, Dr. C. D., Jr., Tongier, M., Jr., "Control of Somatic Cell Mitosis by Simulated Changes in the Transmembrane Potential Level", *Oncology*, 25:168-182, 1971.
23. Dewan, E. M., "Rhythms", *Science & Technology*, Jan. 1969.
24. Graf., Dr. E. R., Cole, Dr. F. E., "Radiation Noise Energy and Human Physiology in Deep Space", American Astronautical Society National Symposium, Document AAS67-322 (EN-2)-1, June 1967.
25. Cole, Dr. F. E.; Graft, Dr. E. R., "Extra Low Frequency Electromagnetic Radiation as a Biocommunications Medium: A Protein Transreceiver System", Presentation at Neuroelectric Society Symposium and Workshop, Snowmass-at-Aspen, Colorado, 18 Feb., 1973.

26. Konig, H., "Biological Effects of Extremely Low Frequency Electrical Phenomena in the Atmosphere", *J. Interdiscipl. Cycle Res.*, 2(3): 317-323, 1971.
27. Schumann, W. O., "Über die strahlungslosen Eigenschwingungen einer leitenden Kugel, die von einer Luftschicht und einer Ionosphärenhülle umgeben ist", *Z. Naturf.*, 7A: 149-154, 1952.
28. Hamer, J. R., "Biological Entrainment of the Human Brain by Low Frequency Radiation", Northrup Space Lab Technical Memo 532-65-45, Jan. 1965.
29. Companies doing research in electrical stimulation of hearing : Laser Sound System, Inc., 438 West Cypress, Glendale, CA 91204 (213/240-0460); Intelectron Corp., 432 W. 45th St., New York, NY 10036 (212/265-5375).
30. Wioske, C. W., "Human Sensitivity to Electric Fields", Laboratory for the Study of Sensory Systems, Tucson, AZ, 1963.
31. Kholodov, Dr. Yu. A., "Effect of Electromagnetic and Magnetic Fields on the Central Nervous System", NASA Technical Translation TT F-465, June 1967. Also see *Foreign Science Bulletin*, Feb. 1967.
32. Knoll, Kugler, Hofer, Lawder, "Effects of Chemical Stimulation of Electrically Induced Phosphenes on their Bandwidth, Shape, Number and Intensity", *Confin. Neurol.* 23: 201-226, 1963.
33. Letter from Neil C. Terhune, M.D., F.R.S.H., Oran, MO, to J. Beal, 1 March, 1973.
34. Stulman, Julius, "The Methodology of Pattern", *Fields Within Fields . . . Within Fields*, 5(1): 36, World Institute Council, New York, 1972.
35. Luce, Dr. G. G., "Biological Rhythms in Psychiatry and Medicine, N.I.M.H. Public Health Service Publication 2088, 1970.

Prototypic Organisms XI: Bacteriophage Lambda

Tim Hunt

Lambda is a virus which lives on *Escherichia coli*, the common intestinal bacterium of man. It consists of half protein and half DNA, and has a head and a tail. The head is an icosahedron about 1/20,000th of a millimetre across, while the tail is a narrow cylinder about twice this length. Lambda's host bacterium is about 100 times bigger in its linear dimensions, and an average human cell might be roughly 1000 times larger. Thus lambda is extremely small and extremely simple—or so one might expect.

Compared with most living organisms, it is simple, and compared with all other organisms, the control of lambda's functions is well-understood. This control seems to operate exclusively at the level of gene expression, and is widely assumed to be a paradigm of the kind of system that must operate in higher organisms too. If this is so, then it clearly pays to study control systems in lambda where they can easily be studied, rather than in higher organisms where their study is extremely difficult. Actually, their study in lambda is no easy matter, for it bristles with difficult terminology, unfamiliar concepts, and a general level of abstraction which makes it hard to grasp. Fortunately, lambdologists are among the most talented biologists of the day, and if the field is difficult it is also rigorous, repaying close attention with clear understanding at the end. I hope that I may be able to convey a sense of the importance of lambda for biologists by describing the history of its study, something of the methodology, and the important ideas about the way its life-history is thought to be regulated.

History

Lambda belongs to a class of bacteriophages (usually abbreviated 'phages) known as the temperate phages. Such viruses can adopt either of two distinct modes of infection of their bacterial hosts. The first mode is a virulent infection, in which

the viruses multiply at the expense of the host's metabolic processes. The viruses escape by killing and breaking open from within ('lysing') the host when their replication is complete. Many phages are naturally and exclusively virulent—the phages T2 and T4 are well-known examples, and as we shall see, some strains of lambda are exclusively virulent. Alternatively, lambda can 'lysogenise' its host. This means that after infection the virus disappears. No virus progeny are produced, but the bacterium, now termed a lysogenic bacterium (or simply lysogen) gives rise to a kind of 'killer' strain. The name implies that these bacteria can lyse other bacteria; this is easily shown by mixing a few such bacteria with a large number of non-lysogenic bacteria and spreading the mixture over the surface of nutrient agar in a petri dish. The non-lysogens grow and spread into an opaque white sheet or lawn, but wherever there was a lysogenic bacterium, a clear hole ('plaque') is formed, because lysogens sooner or later give rise to phage which infect neighbouring bacteria, and the infection spreads like any epidemic. Unlike human epidemics, where the infected individuals are mobile the bacteria are fixed, and hence the circular plaque. One special feature of plaques made by temperate phages like lambda is that they are rarely clear; more often they are mottled or have a colony of bacteria growing at their centre. The reason for this is that a few of the infected bacteria will be lysogenised, and these individuals will divide to give visible, small colonies. They, and their progeny bacteria are immune from further attack by lambda. They can still be attacked by other viruses, even viruses very closely related to lambda, other temperate phages. The significance of this fact, and its explanation will become clear in a little while.

This much was discovered in the 1920s by Bordet and his colleagues. At this point, the nature of the virus was very controversial, and even more controversial was the question of the nature of lysogeny. Did this mean that virus was absorbed onto the bacterium, and leached off slowly, or that it replicated slowly in the bacteria, leaking out from time to time, or was it somehow latent within the bacterium, and occasionally entered its virulent phase, killing that host exactly like sensitive bacteria were killed? The question was not settled until after the War, when there was a great rise in interest in bacteriophage, par-

ticularly among renegade physicists who felt that the time had come to study biology as rigorously as they had been studying physics. They picked on phage as a suitable simple system, but one which was also biologically interesting, and even with some medical implications. After all, many diseases are caused by viruses, but at that time it was not possible to grow animal viruses in culture—a prerequisite for their study. Presumably bacterial viruses would behave similarly, and one could study them in culture, where conditions could be controlled, and effects were reproducible. As it turned out, the bacteriophage system had, and still has fantastic advantages over animal or plant systems because of the possibility of genetic analysis; this will emerge later.

To return to temperate phage; A. Lwoff decided to clarify the nature of the association between the 'prophage' and the bacterium—the prophage being the trace of the virus that was associated with the lysogenic bacterium. His approach was to study single lysogenic bacteria, rather than cultures which contained millions of organisms. He built an incubator in a plastic box which he could look at under the microscope, the bacterium being contained in a minute drop of nutrient broth. He also arranged a system whereby he could manipulate the bacterium—that is remove it, or remove culture medium for assay. Viruses could be detected by mixing the medium with sensitive bacteria, as could a lysogenic bacterium.

Lwoff took a lysogenic bacterium and grew it for 19 generations in his incubator. Each time it divided he removed one of the two daughters and mixed it with sensitive bacteria on an agar plate. Every daughter except for two proved to be lysogenic, and the two exceptions were probably caused by trivial loss during manipulation. This experiment showed that the capacity to release virus was stably inherited by the progeny of the original bacterium, but it was inconceivable that the original bacterium contained enough virus particles to ensure that every one of its daughters contained at least one virus—this would mean that it had contained at least 2^{19} viruses, which is over 500,000; at the most generous estimate the bacterium had room for only about 35,000. Lwoff did similar experiments in which he removed culture fluid to see if it contained viruses, and it never did. However, he sometimes watched the bacteria divide,

and let them go on dividing instead of removing them, and here he was surprised by the complete disappearance of the occasional bacterium within seconds. Whenever a bacterium disappeared like this, the medium did contain viruses, up to 100 per vanished bacillus. Finally, he showed that one could not produce viruses from these bacteria by lysing them from the outside (which can be done quite easily and gently with enzymes). Thus it seemed that the virus must be, as the prescient Bordet had written 20 years before Lwoff, "inscribed into the very hereditary weft of the microbe". Each lysogenic bacterium harbours a prophage, which under certain conditions may become virus which lyses the bacterium from within. What induces the prophage? Here again it was Lwoff who made a genuine breakthrough. He and his group thought that something in the culture medium was responsible for the induction, and after trying all sorts of abuse, they finally discovered that irradiation of the bacteria with ultraviolet light caused almost all the bacteria in a lysogenic culture to lyse and release active virus particles. This showed that virtually every member of a lysogenic culture harboured prophage—this induction did not represent the epidemic kind of lysis found in plaques. It was subsequently found that other treatments of the bacteria, all of them mutagenic (and for higher animals carcinogenic) also induced the prophage.

The next development in the story was the discovery by Esther and Joshua Lederberg that the strain of *E. coli* they had been working with was a lysogen harbouring a phage they called lambda. They performed mating experiments between lysogenic and non-lysogenic bacteria and found that the ability to produce phage was transferred along with the ability to ferment the sugar galactose. Other experiments showed that the prophage behaved just like any other bacterial character; in this it was indistinguishable from the bacterial genetic material. The most likely explanation for lysogeny was seen to be that the phage injected its DNA into the bacterium, and that this DNA could become integrated with the bacterial DNA.

It was not long before the mechanism by which the prophage was held in check within lysogenic bacteria was understood. When a cross between a male lysogenic bacterium and a non-lysogenic female bacterium was made, it was found that the

female bacterium was killed by viral lysis. This result was not obtained if the female bacterium was also a lysogen, whether the male was lysogenic or not. It can be shown that the lambda chromosome has entered the female cell in the latter case, but it is never induced. This is another reflection of the immunity which lysogens enjoy from superinfection by homologous virus. It was therefore postulated that this immunity was caused by the presence of an immunity substance, or repressor, in the cytoplasm of lysogenic bacteria, the repressor itself being a product of the prophage. According to this hypothesis, prophage is induced whenever repressor is destroyed, or in the case of the mating experiment, when the prophage finds itself in a new environment free of repressor. It follows that strains unable to make the repressor should be incapable of lysogenising bacteria. Such viruses were studied by Dale Kaiser; he took mutants of lambda which gave rise to clear plaques instead of the usual mottled plaques (mottled because of the lysogenic clones which arise spontaneously, and are immune from further infection) and mated them with other plaque-type mutants. (This can be done by infecting bacteria simultaneously with a mixture of two phage stocks, isolating the progeny, and determining their plaque-type). He found that three separate genes controlled lysogeny, which were close together on the genetic map. (At this time, few genetic markers were known in lambda; since lambda doesn't have coloured eyes or flowers, one has to use markers like plaque size—minute, small, medium and large—or host range mutations, which determine the ability to grow on certain strains of bacteria, but not on others). The clear plaque mutants had some interesting properties. Although they could not establish lysogeny, they could not infect lysogenic bacteria—so although they cannot make repressor, they are still sensitive to it.

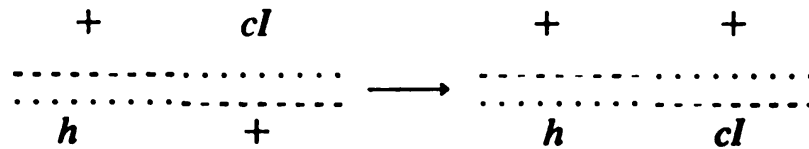
This is an important point. It is essential that the prophage be sensitive to repressor, otherwise it would initiate a lytic cycle. Sensitivity implies that the prophage contains a site or sites which can interact specifically with the repressor. If this idea is right, we should be able to obtain mutants of lambda which lack these recognition sites, either through alteration, substitution or deletion of genetic material. Such phage would not only be incapable of lysogenising bacteria, but would also be capable

of infecting lysogenic bacteria. Such a strain was identified by Kaiser & Jacob, and was termed λ_{vir} (for virulent). Careful analysis showed that this strain actually had three mutations. Two of the mutations were almost at the same location, so that it seemed probable that the repressor bound at two sites, one to the left and the other to the right of the gene that makes repressor. These sites are now known as the left and right hand operators, or O_R and O_L (see the genetic map, figs. 3 and 4).

In 1967 the repressor itself was isolated by Mark Ptashne and shown to be a protein which bound tightly to two sites on lambda DNA. The exact structure of these sites (O_L and O_R) is close to being discovered.

The Nature of the Prophage

As we have seen, prophage behaves exactly like any other bacterial gene, and we know that bacterial genes are made of DNA. We also know that lambda contains DNA, and we also know that the attachment of the lambda chromosome to the bacterial chromosome occurs at a specific, invariant site (this is not true of all temperate bacteriophage; some of them can insert themselves anywhere, sometimes causing mutations in bacterial genes as a result). But is the lambda chromosome truly integrated with the host chromosome, or is it somehow hooked on at a specific attachment site? To understand the arguments, it is necessary to consider the concept of the genetic map. We have already seen that several recognisable 'characters' are found in lambda; for instance, the clear plaque mutant λ_{cl} , the strain that makes very small plaques, λ_{mi} (minute); and a strain λ_h which can only infect some strains of *E. coli*, and not others (because of an alteration in the virus tail). These characters can be recognised independently of one another by appropriate experiments (e.g. one can distinguish minute clear plaques from normal-sized clear plaques). If one infects a culture of bacteria with a mixture of two different strains of virus, most bacteria will get infected by at least one virus of each type, and mating can occur. This takes the form of breakage of the DNA and recombination of the broken ends, so that in the cross, λ_{cl} with λ_h one actually gets the following event occurring (the symbol + means that the normal, or wild-type character is present, as opposed to the mutant):



When these “recombinant” DNA molecules are packaged up into new viruses one has two new types of virus in the mixture, besides the original λcl and λmi , we find a certain percentage of wild-type lambda, and a similar percentage of the double mutant, $\lambda clmi$. This exchange by breakage and reunion can be shown to occur by suitable labelling of the two parental DNA molecules; the recombinant progeny contains both labels.

Now, if one assumes that breaks can occur anywhere in the DNA with equal frequency, it follows that the further apart the genes controlling two characters are, the higher will be the number of recombinants. One can therefore get a measure of genetic distances by measuring recombination frequencies between pairs of markers. These frequencies can be plotted as a linear map, as shown in the figures.

Such ‘maps’ are purely abstract constructions, but they must somehow be reflection of real structures within the virus. It came as a great surprise when it was discovered that the order of the three markers we have been considering was different according to how the experiment was done. In crosses between two viruses, the order of the genes was $h-cl-mi$, but if crosses between two prophages were made (remember that prophages behave like bacterial markers, so they can be crossed by crossing two strains of lysogenic bacteria), the order was different. It was $h-mi-cl$.

This result was brilliantly explained by Allan Campbell in 1962. He pointed out that in order to get a change in gene order, the chromosome had to be broken :



But this seems odd, not to say terribly unlikely; and what is the relationship between establishing the stable prophage and making these breaks? Campbell proposed a neat solution; what if the virus had a *circular* chromosome at some stage, and the circle broke as it joined with the bacterial chromosome?

Everything is explained, and the further prediction made that the prophage is actually part of the bacterial chromosome, which would account for its behaving exactly like a set of bacterial genes. The model is shown in figure 1.

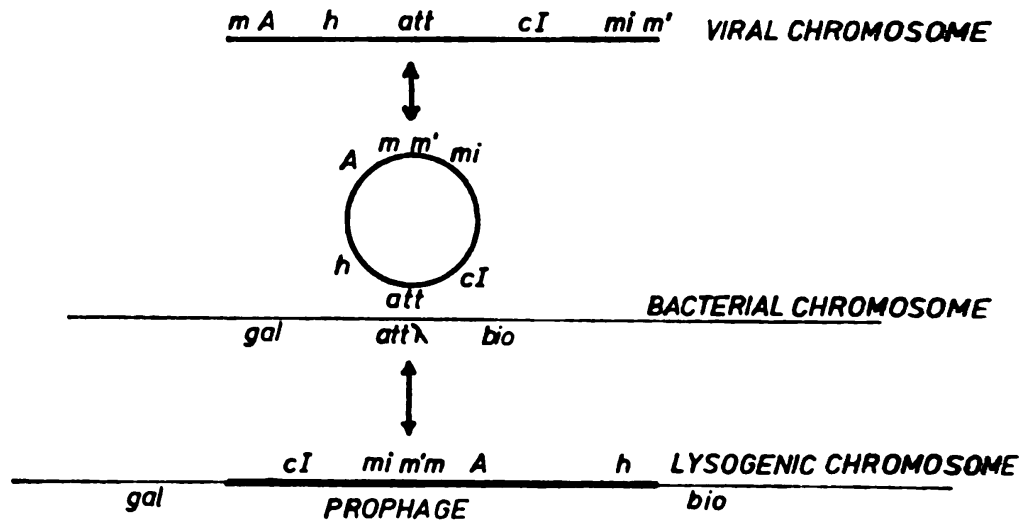


Figure 1. Campbell's hypothesis, showing the relationship between the viral chromosome before and after circularisation, and its insertion into the bacterial chromosome between the markers *gal* and *bio* to give the lysogenic chromosome. Note how the order of the viral markers is changed by the making and breaking of *mm'*, the sticky ends, and the two attachment sites. The attachment sites are often called PP' (in the phage chromosome) and BB' in the bacterial chromosome. The break occurs between the letters (and then P is joined to B' and P' to B, like this:

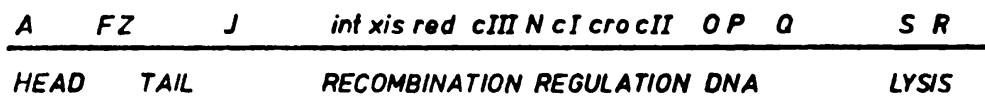
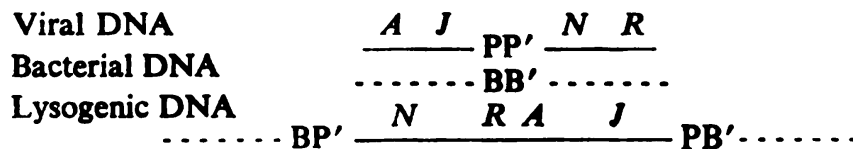


Figure 2. The map of the viral chromosome. This shows the order of the genes in the virus; remember that when the chromosome is active, the ends are joined together, so that the genes under the control of *Q* are contiguous: *Q S R Head Genes Tail Genes*. Notice how the map is grouped so that related functions are adjacent.

This model is now accepted as being perfectly correct, largely because of a discovery made a couple of years later. Hershey, Burgi and Ingraham discovered that, although the DNA in lambda virus particles was a single, linear molecule, it could form circles simply by mild heating in solution; it had 'sticky ends'. Further genetic mapping showed that the point at which attachment to the bacterial chromosome occurred was diametrically opposite the point which was broken to make the mature phage DNA ends, and the paradox of the permuted gene order was resolved. To complete the success of Campbell's model, it was proved genetically that the lambda chromosome was a continuous part of the bacterial chromosome when present as prophage.

There is no doubt that this marriage of genetics, formal and highly abstract, with biochemistry marked the beginning of a new phase in lambda research. At last one could study hereditary phenomena directly, and confidently, using the well-tried methods of the chemist, biochemist and electron microscopist. The virus was beginning to be understood in terms of familiar concepts and operations.

Unfortunately for the ordinary biologist, let alone the layman, the word I chose, "marriage", is all too accurate. The genetics of lambda are crucial to both its understanding and for doing biochemical experiments, and this makes it very hard for an outsider to follow the details. I shall try to give an outline of the important elements in the life-history and control of lambda's growth, giving the interested reader a bibliography. The going is not easy.

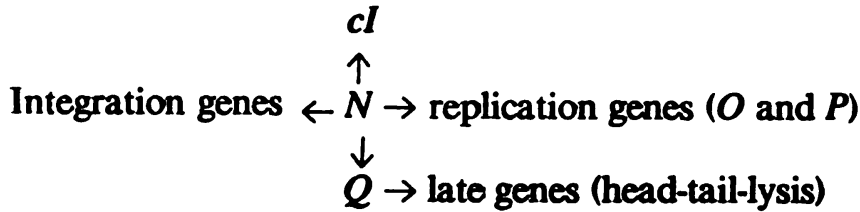
The Development of The Virus.

Lambda attaches to its host by its tail, and injects or inserts the DNA. At this point, the decision between lysis or lysogeny occurs. In general, if the host is growing strongly on a rich medium, the virus will most likely enter a lytic cycle of growth, whereas if the bacteria are poorly nourished and growing slowly, the virus is more likely to lysogenise them. This appears to be an advantageous arrangement for the virus, for if the medium is rich, the chance of finding another host is high. If the medium is poor, there will be few bacteria present, and it is

better for the virus to grow along with the bacterium, waiting for better times, is it were.

If the virus is to lysogenise its host, it must make a large amount of repressor so as to prevent the genes that allow lytic growth being expressed. If lytic growth is to occur, then certain control elements must function before repression sets in. As with most higher organisms, development in lambda is normally one-directional and irreversible. In the case of lambda, one can see how this comes about in terms of genes and proteins, their sequential interactions and functions. The functions are very straight-forward. The virus must replicate its DNA. It must also package that DNA in its protein coat (but not too soon, or vital genes might be prevented from working), and lyse the host so that the progeny virus are released (but not before those progeny are completed).

The genes of lambda can be divided into three groups according to their time of expression; immediate, early, and late. Each group of genes is controlled by either a negative or a positive control element, or by both. A positive control says: if I am present, turn on. A negative control says: if I am present, turn off (or don't start). We have already met the prime negative control, the repressor, which prevents expression of all genes to the left and the right of gene *cI* (see figure 3). If the repressor is inactivated, then genes to left and right of *cI* become expressed, but in order for that expression to spread any distance from its origin, the presence of a positive control element is necessary. This element is made by gene *N*. It is a protein whose function it is to allow the wave of expression started at sites P_L and P_R (see the map) to continue, as far as *int* to the left and *Q* to the right. This control is double edged, because if at any time repressor were to return, *N* becomes inoperative. *N* will only continue what has been started, it cannot initiate anything by itself. Now, included in this "early" wave of expression are genes *O* and *P*; these two genes allow DNA synthesis to begin. But gene *Q* is another control element, like *N* a positive element. Unlike *N*, *Q* can initiate expression of the late genes whether or not repressor is present, and whether or not *N* is present. We can draw a diagram to clarify these relationships:



The important points in this scheme are that each of the control elements has a specific target. In the case of repressor and *Q* the targets are probably sites on the DNA, whereas in the case of *N* it is thought that a protein is the target, a protein which normally serves to terminate RNA synthesis called *rho*. Notice how the repressor holds the system doubly locked, because it both prevents the synthesis AND the action of *N*. But notice also that once *Q* has been made, repressor is power-

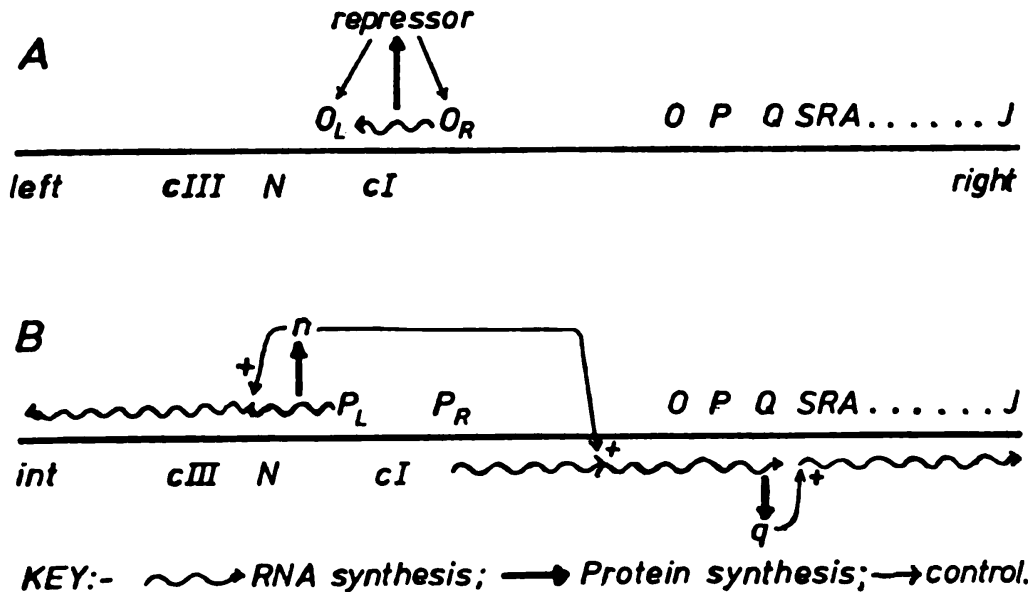


Figure 3. Control of lytic development in lambda.

a. As long as repressor is being made, and is active, no transcription (indicated by wavy lines) can occur. The repressor sits on the two operators.

b. Once repression has been lifted, leftward and rightward transcription occur, but tend to stop on the left just after *N* and on the right before *Q*. As *N* gene product "n" accumulates, however, it permits transcription to extend beyond these points, so that on the left, *int* and *xis* are made, while to the right "q" is synthesised. Once sufficient "q" is present, it can promote independent transcription from gene *S* rightwards. Not shown here is the action of *cro* to shut down *N* after a little while, which results in the cessation of left-ward transcription, but not of genes *S* to *J*, which are now independent of *N* or repressor. (See fig. 4).

less to prevent subsequent events, thus ensuring that the growth of the virus once initiated continues without check. The system cannot go off half cock.

The Establishment of Lysogeny

To complete this account of the life history of lambda, it is necessary to see how lysogeny is established. After the DNA has entered the bacterium, several genes are transiently expressed, including *N*, and *not including cl*. This comes about as a result of recognition of sites for expression on the lambda chromosome by bacterial recognition elements. However, among the products of this early wave of expression are two proteins made by genes *cII* and *cIII*, which act to start up repressor synthesis from a site called *pre* (Promoter for Repressor Establishment). This leads to a rapid build up of repressor, which antagonises the action of the *N* product, so that *Q* does not get made, and the infection is held in check. Two further controls are necessary, however. One acts to shut down this high rate of repressor synthesis once the prophage is established, and after this repressor seems to be capable of maintaining its own synthesis; in other words, repressor is a negative control element as far as other genes are concerned, but a positive control element for itself. However, its positive effects are on a far lesser scale than those of the combination of *cII* + *cIII*. If it were not for this switch, it would be virtually impossible for the virus ever to enter the lytic cycle, because of the high levels of repressor present. Viruses which lack this control, called *cro*, establish lysogeny with almost 100 per cent efficiency, compared to very low frequency for wild type.

The other control is the state of the host; only if adequate levels of a small molecule called "cyclic AMP" are present can *cII* + *cIII* operate. This molecule's concentration within the bacterium is dependent on the nutritional state of the bacterium; if the medium is rich, cyclic AMP is low, whereas its levels rise when bacteria are starved. This control operates through a bacterial control element called *CAP*, a protein required for the operation of certain classes of bacterial genes.

PERSPECTIVES

That is the end of this account, all too brief, of how lambda

works. It is now appropriate to enquire why it is important to know how lambda works; or what lessons have been learned from these researches.

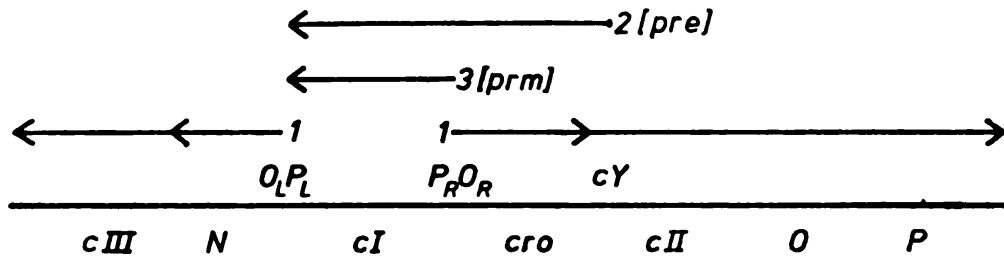


Figure 4. The control of early transcription in lambda.

This map shows details of the regulatory region of lambda. Synthesis of RNA is first initiated from P_L and P_R leftwards and rightwards respectively (1). This allows *cII* and *cIII* to be made; these two proteins combine to initiate synthesis LEFTWARDS from *cY* (2). Notice that this must impede rightward transcription from P_R . This results in repressor synthesis (gene *cI*) which is later slowed down by the action of *cro* (as yet a mystery as to how this works) but maintained by leftward transcription from *prm* (3), apparently catalysed by repressor itself. The whole process takes about 20–30 minutes to complete.

First and foremost, the whole of this field and its high state of development owes a great debt to the small band of pioneers who believed in phage, led by Max Delbrück at the California Institute of Technology. The fruits of their faith are still being harvested; the faith being that biological organisms obeyed laws of physics and chemistry that were well known from studies on the inanimate universe. The logical point to start for them were the simplest known organisms, where the overlaying complexity due to structures and organisation of higher orders might be penetrable, so that explanations of behaviour might be reduced to descriptions of the behaviour of single, or very few elements.

What is astonishing is that so much can be learned about a virus simply by counting plaques. Of course, the plaque-counts are made after extremely cunning manipulations of the experimental conditions, the appropriate choice of host, virus and growth conditions. Modern lambdology depends utterly on highly advanced genetic engineering to construct strains possessing the desired characteristics, which may then enable biochemical measurements of significance to be made. I have hardly touched on this, mainly because it is unnecessarily con-

fusing to the uninitiated. But the strength of lambda lies in this combination of identification of genetic elements with chemical entities. The range of such entities in lambda is wider, and known with greater certainty than for other organisms. We have:

1. *Structural elements of the virus*

- a. Head and tail proteins.
- b. DNA.

2. *Instructions for virus assembly*

- a. "Morphogenetic" genes. (An area of some uncertainty.)
- b. Making the sticky ends of the DNA, packaging the DNA.

3. *How to get out of the host*

Genes *S* and *R*, which make enzymes that lyse the bacterium from within.

4. *How to get into the host*

Genes *int* and *xis*, which catalyse site-specific recombination of the lambda chromosome with the host chromosome; genes *cl*, *cII*, *cIII* which let the phage repress itself.

5. *Recognition/Repression*

The repressor recognises—that is, binds tightly and specifically to two "operators", called the left and the right operator or O_L and O_R for short. *cII* plus *cIII* recognise a site on the DNA called *cY*.

6. *The control of development*

Genes *cl*, *cII*, *cIII*, *N*, *Q*, and *cro* all make proteins that recognise either sites on DNA, or possibly sites on other proteins, or possibly both. *cl* probably works solely by recognising sites on DNA. The timing of development is made possible by the way these genes interact; as summarised by René Thomas, "*cl* operation (repression) tells: 'No initiation at this promoter.' *N* operation ('Extension') tells: 'Extend transcription beyond this terminator.' *Q* operation tells: 'Initiate transcription at this site.' "

Do such elements and operations play a part in the life of more complicated organisms? The idea of operators and repressors certainly applies to bacteria, for similar elements have been isolated; this applies both to negative regulation (the famous

lactose operon) and to positive regulation (the less famous, because more complicated arabinose operon). But what else do higher organisms do that lambda does? Their DNA can be broken and rejoined, for one thing. Proof that this operation accounted for genetic recombination was obtained by different techniques in both lambda and bean-shoots. Both use proteins as enzymes and structural elements. (Lambda head proteins = keratin?) What is not proven is that higher organisms like man use proteins to regulate the operation of their genes. But it is important to recognise that the fact that such specific interactions have been shown to be possible, and have been clearly shown to control sequential gene expression in lambda. This demonstrates that such interactions could occur in other organisms—it is not beyond the physico-chemical capacity of proteins to recognise short stretches of DNA with high precision.

On the other hand, it would be quite misleading to suppose that to understand lambda is to understand all of biology, or even all of molecular biology. It is salutary to examine to what extent lambda serves as a model for other viruses, particularly the viruses that cause human or animal disease. These viruses are not only important in themselves, but they may serve to illuminate certain general principles of life inside animal cells in the same way that lambda reflects the life of its host, the bacterium. Many of the animal viruses resemble lambda very little—rabies, 'flu and polio are all RNA viruses, for a start. Others bear stronger resemblance, the herpes viruses and the RNA tumour viruses, for example. Here there is strong ground for the belief that these organisms can indeed integrate themselves like lambda into their hosts' chromosomes. Once there, they may either be relatively quiescent, like prophage, or may break out leading to disease. A familiar example for most people is simple cold-sores on the lips. The RNA tumour viruses are more complicated, because they are able to get the best of both worlds; they copy themselves into DNA, integrate with the host DNA, and then proceed to shed RNA continuously. This enables them to reproduce without killing the host; DNA viruses are apt to reproduce at the expense of their hosts and take over the nuclei, and escape by breaking out just like lambda. But a virus which has RNA for its genetic material can exploit very neatly the host's own machinery for exporting

RNA from its site of synthesis (the nucleus) to the cytoplasm, where it can be wrapped in protein, lipid and carbohydrate, and get out more discreetly. Unfortunately, this may result in altered surface properties for the host, which leads to a failure to respond to proper growth regulatory signals. The host cells are apt to do something wrong, either divide too fast or fail to die soon enough, and become tumours of the organism. These are mostly mere conjectures; the standards of proof required for animal viruses are nowhere near as rigorous as those expected of lambda, with the result that vague ideas are much more easily come by than hard facts.

Further Reading

There is a book called *The Bacteriophage Lambda* edited by A. D. Hershey and published by Cold Harbor Laboratory, P.O. Box 100, Cold Spring Harbor, L.I., N.Y. 11724. It is beginning to get out of date, of course, but contains nearly 800 pages of information about lambda. The first part consists of reviews of whole aspects of the virus, and many of these are perfectly straightforward. There is an excellent review by René Thomas in *Current Topics in Microbiology and Immunology*, Number 56, published by Springer Verlag in 1971, which deals essentially solely with regulation. For the history of virus research, one cannot do better than to read Gunther Stent's excellent account in *The Molecular Biology of Bacterial Viruses* published by Freeman in 1963. It is sadly very behind hand on recent developments in lambda, which stem from 1967 on perhaps, but is not really the worse for that. Also on the historical side, I cannot recommend too highly the book called *Phage and the Origins of Molecular Biology*, published by Cold Spring Harbor (a paperback edition exists), which is a series of informal accounts by most of the leading phage workers, presented as a Festschrift for Max Delbrück. In it they describe "their most significant contributions to the field". The article by André Lwoff is especially witty and informative.

The recent advances concerning the establishment of lysogeny are described in recent articles in *Proceedings of the National Academy of Sciences*. The paper "Control of Repressor Synthesis" by Louis Reichardt & A. D. Kaiser in the *P.N.A.S.* Vol. 68, pp. 2185-2189 is something of a masterpiece, and particularly clearly written.

Comment: On Justifying “Double Conversion”

Hugo Meynell

Anyone who feels, as I do, that British philosophers have lost something by their neglect so far of the work of Bernard Lonergan will be delighted at the sympathetic but critical discussion of his ideas by Dorothy Emmet in *Theoria to Theory*.¹ I intend here to comment on what she has written, and also to allude briefly to some remarks on the same topic by Professors Ronald Hepburn and Charles Davis.²

I take it that Dorothy Emmet’s criticisms of Lonergan may be summed up as follows: (i) Lonergan’s theory of knowledge, impressive and flexible as it is, is not really open-ended enough to accommodate the radical revisions which have characterised advances in philosophy and the sciences up to now, and doubtless will do so in future. It is all very well to say that reality is nothing else than what is to be grasped intelligently and affirmed reasonably. But what is thus grasped and affirmed at one time and place is very different from what is so at another time and place, when different evidence is available; yet surely we would wish to say that our conception of reality, and not reality itself, has changed. (ii) There is a central metaphysical problem of how one can bridge the gap between a general idea of Being or reality on the one hand, and the world as one actually finds it to be from observation and experiment on the other. Lonergan in effect simply leaps over this chasm. Similarly he jumps from the unexceptional *conception* of an “unrestricted act of understanding”, as the ideal towards which all human inquiry tends, to assertion of the *real existence* of a being so describable whom he identifies as God. But, as Kant has shown, one ought not to confuse ideas which have a part to play in our understanding of

1. “The Double Conversion of Karl Rahner and Bernard Lonergan”, *Theoria to Theory*, April 1973, pp. 9–16.
2. *Theoria to Theory*, July 1973. Cf. also Charles Davis, “Lonergan and the Teaching Church”, *Foundations of Theology*, ed. Philip McShane, Dublin, 1971, pp. 60–75.

nature with things which are constitutive of nature itself.
(iii) There is another seemingly unwarranted assumption that this being is personal, and so can send his Son to solve the problem of evil; and yet another in Lonergan's specifically Roman Catholic conclusion that one ought to submit to an authoritative body supposed to have the tasks of proclaiming the good news of the solution to the problem of evil and of determining its theoretical and practical consequences. With regard to this last matter, Lonergan appears to invoke standards of truth and reason quite different from and indeed contrary to those implicit in his basic theory of knowledge.³

Lonergan would not at all disagree with Dorothy Emmet that what is intelligently grasped and reasonably affirmed on the evidence available at any one time and place is bound in many respects to be false. But he insists all the same that "Being", or reality, or the concrete universe, is nothing other than what increasingly comes to be known as we attend to more and more evidence, and revise, extend, and if necessary radically change our theories in deference to it.⁴ Dorothy Emmet doubts whether Lonergan takes sufficient account of the revisions which may be necessary in our successive accounts of the world, and of the degree to which, in the light of fresh evidence, we may be compelled to reject as error what we had previously assumed to be certain.⁵ But in fact Lonergan has, in his account of what he calls "inverse insight", given careful attention to just this feature of ongoing human inquiry. An "inverse insight" consists in the realization that a whole series of assumptions implicit in the kinds of question which one has

3. I have some minor doubts about Dorothy Emmet's presentation of Lonergan's views, which seem best relegated to a footnote as not relevant to the main trend of her argument. Potential readers of Lonergan might be put off by Dorothy Emmet's attribution to him of a doctrine of "Pure Being" (12, 15). I would not like to state dogmatically that the phrase "Pure Being" never turns up anywhere among the 1150-odd pages which make up *Insight* and *Method in Theology*; but it is not at all characteristic of Lonergan, as one might suppose it was from Dorothy Emmet's article. Also, I hope it will be fairly clear from my exposition that Lonergan's theory of knowledge is an account of how we come to know "our actual environment", and not merely "an expanded state of our consciousness" (15).
4. *Insight*, pp. 348–50.
5. *Double Conversion*, p. 12.

been wont to ask about the world are unjustified.⁶ A notable example of inverse insight is the discovery, made around the beginning of the present century, that the notions of absolute motion and absolute rest, which are so firmly lodged in our common-sense apprehension of the world, are mere excrescences from the point of view of a fully-developed cosmology. Lonergan also accepts, in common with Karl Popper, that it is characteristic of our scientific beliefs that they are no more than probable;⁷ but he would insist that the very fact that we know what it is for some theories to turn out to be more probable than others, and that some proffered revisions of accepted theories are more appropriate than others, demonstrates that there are at least some permanent features in the human activity of acquiring knowledge. At least, the very notion of “valid revision” could hardly be subjected indefinitely to valid revision.⁸ An immense amount of evidence yet unknown to scientists will doubtless become available within the next few centuries; and the scientists of the future may well discover mistakes in the theories by means of which twentieth-century scientists account even for such evidence as they have. Yet it is difficult to see how an advance in science could be an advance at all, unless it were justified in terms of more intelligent grasp and more reasonable affirmation—in non-Lonerganian jargon, of the formulation and verification of hypotheses—on the basis of the evidence available in experience. *That* much in science, Lonergan argues, is not merely probable, is not up for revision. If his epistemology and theory of science were much more “open-ended” than this, it is difficult to see how they could provide any criteria for distinguishing between scientific advance and the merely arbitrary exchange of one theory or collection of theories for another.⁹

The real world, according to Lonergan, is nothing other than what is to be known by asking and answering questions about all the data provided by sensation and by consciousness. Scientific knowledge consists in what has been found out up to now by a

6. *Insight*, pp. 19–26.

7. *Ibid.*, pp. 301–4.

8. *Ibid.*, pp. 335–6.

9. Such a theory of the development of science has actually been proposed by Thomas S. Kuhn in *The Structure of Scientific Revolutions* (Chicago, 1962).

sustained process of putting questions to the data of sensation. By reflecting on these two propositions, we can see how science and metaphysics are related to one another. Since we know what it is to come to know, we have an inchoate conception of all there is to be known; and it is the metaphysician's task to spell this out clearly and distinctly. Scientific inquiry can fill out the details of the outline of possible knowledge thus provided by the metaphysician.¹⁰ This conception of the relation of science to metaphysics, and of both to the theory of knowledge, expounded in detail by Lonergan, seems to me to be basically clear and not obviously erroneous; I cannot see that any "jump" is involved, given the validity of the basic theory of knowledge.

I have tried to sketch how it is that Lonergan thinks that the basic and permanent elements in the knowledge available to human beings can be distinguished from those that are liable to be merely temporary; and how the "cognitional theory" invoked can provide the foundation for a comprehensively critical metaphysics and theory of science. How is it that Lonergan can persuade himself that there are grounds for positing an "unrestricted act of understanding", not only as a kind of ideal for science, but as a really existing being? Lonergan does not accept any version of the ontological argument; he admits that even if a clear notion can be obtained of a being who understands all possible worlds, and wills the one that actually exists, the real existence of such a being does not follow.¹¹ However, he argues that if the universe is nothing but what may be intelligently grasped and reasonably affirmed, it would seem to be intelligible through and through; and God is the real intelligence which accounts for the real intelligibility of the world. Theories of knowledge that are less than comprehensively critical tend to conceive of human understanding as an attempt to impose an intelligible structure on a world which is not in itself intelligible; however, all attempts to characterise this world, from that of crude realism to the subtleties of phenomenalist "sense-data", or of Kantian "things in themselves" which impinge inscrutably on human sensitivity,¹² dissolve into incoherence when closely

10. *Insight*, pp. 508–9.

11. *Ibid.*, pp. 670–1.

12. It has recently been fashionable to maintain that Kant did not really hold such a doctrine; but cf. P. F. Strawson, *The Bounds of Sense* (London, 1966), p. 250.

examined. The intelligible fact which is the universe is ultimately only to be explained, Lonergan maintains, as due to an intelligent will. If this explanation is jibbed at as being too anthropomorphic, it may be replied that there cannot but be an intimate relation between the human mind on the one hand, and the universe and its ground on the other. "For what is the universe and its ground but the objective of man's detached, disinterested, unrestricted desire to know?"¹³

Professor Hepburn, in criticising Lonergan, has laid emphasis, in Kantian fashion, on the contrast between what is or may be constitutive of the universe itself, and what is regulative in our understanding of it.¹⁴ He also remarks that, while it is of the essence of scientific investigation to work towards the removal of all opacities in our understanding of the world, this does not entail that there cannot in reality be opacities that can never be so removed, as would not be the case if the world were wholly intelligible as stated by Lonergan. I think that Lonergan would counter by asking Hepburn what conception he has of the world that remains over and above those parts and aspects of it that we now understand. Is it that which is capable of being grasped intelligently and affirmed reasonably, but has not yet been so? If it is, it seems that the world which is not yet known, as well as that which is already known, is intelligible. If not—if there are things or states of affairs which are not to be known by intelligent grasp and reasonable affirmation—however could we or any other kind of intelligent beings ever come to know of their nature or their existence or occurrence? And if we or they could not, is the conception of such things or states of affairs coherent at all?

It is clear from the concluding chapters of *Insight*¹⁵ that Lonergan would perfectly agree with Dorothy Emmet that to assent to the existence of an unrestricted act of understanding is one thing, and to be a Roman Catholic Christian another; and that to that extent a "jump" is involved between the one

13. *Insight*, p. 657.

14. *Theoria to Theory*, July 1973. Professor Hepburn's article "Insight and Method" (*Philosophy*, April 1973) raises questions which go to the heart of Lonergan's metaphysics and theory of knowledge. There is no space to discuss the article here; but I would argue with its central contentions along the lines sketched in this paragraph.

15. *Insight*, chapters XIX and XX.

and the other. This he acknowledges in effect in his distinction between “general” and “special transcendent knowledge”. But he thinks that the move from acceptance of the former to acceptance of the latter may intelligently and reasonably be made. How is this? Lonergan’s argument here involves a lengthy discussion of psychological, social, and ethical theory; I will do what I can to summarise its drift. There is a moral evil which corrupts human life both individually and socially. This is largely caused by and always fatally reinforced by a “flight from insight”, which refuses to admit to the wrongs and injustices perpetrated or condoned by oneself or by the group to which one belongs.¹⁶ What would be the solution to this universal moral and social problem, given that the human privilege of freedom which gave rise to the problem in the first place is not to be abrogated? The solution could be an over-riding hope and a primary loyalty, sufficient to hearten each man not merely to acknowledge the existence and universal influence of “individual” and “group bias”, but to set himself to counteract them and their effects in spite of all the anguish attendant on doing so.¹⁷ There is another aspect to the matter. Men have a permanent need for “mystery”, for a way of relating themselves in feeling as well as in thought to “the known unknown”, to all they know that they do not know. It is this that has given rise to the great myths of the past, and to the modern political enthusiasms which present so curiously close an analogy to them. Is there any conceivable way in which men’s need for mystery might be met, without their having to sacrifice or compromise their intelligence and reason? The solution would be the occurrence of a real history, which met the human needs which have given rise to the falsifications of myth.¹⁸ Given the existence of an infinite understanding and omnipotent will responsible for the universe, one might expect a solution to have been provided along these lines; if we survey nature and history, we find (it is claimed) that such a solution has been provided. It remains for each man to embrace, apply, and proclaim to others the solution.

Lonergan’s conclusion that a comprehensively critical philosophy can issue in Christian commitment may seem bizarre in

16. *Ibid.*, pp. 199–203; cf. also chapters VI, VII and XVIII.

17. *Ibid.*, pp. 696–703.

18. *Ibid.*, pp. 531–549, 723–4.

the extreme; but it finds indirect support in the work of scholars in many different fields. R. C. Zaehner has written of a world-wide hunger for an incarnate God, which has expressed itself within the most unpromising religious traditions, in such a way that Muhammad and the Buddha have been divinised by many of their followers in flat contradiction to what they wished or intended; whereas the incarnations of Vishnu have no foundation in historical fact.¹⁹ Mircea Eliade has pointed out the recurrence in primitive religion of tension between, on the one hand, belief in a high God who has created the earth and is the ultimate promulgator of the moral law, and, on the other hand, devotional preoccupation with something more active, dramatic, and humanly available.²⁰ Konrad Lorenz maintains that four factors are required if militant enthusiasm, which has been productive of so much of the best and so much of the worst in human actions, is to be released and canalised: a cause, a group identified with the cause, an enemy, and a leader.²¹ Are not all these needs met if the Son of God has lived a life which seems a kind of compendium of the great myths; and if he has summoned mankind to be his allies and instruments in the conquest of evil by good?

If such a solution has really been provided, there remains the task not only of identifying and living it, but of setting out clearly and distinctly what it consists in and implies both from a theoretical and a practical point of view. Dorothy Emmet reproaches Lonergan with effectively abandoning the best elements in his theory of knowledge when it comes to religious doctrine.²² Lonergan would answer that there is on the contrary a close correspondence between the advance of science and the advance of theology as he conceives them. In science, one moves from mere description of phenomena to explanation of them, testing one's theoretical explanations by observation and experiment. Similarly, in theology, one moves from the direct response of the biblical authors to revelatory events, through the preliminary *ad hoc* use of theoretical distinctions to meet difficulties which one finds in the Councils from Nicea onwards,

19. R. C. Zaehner, *Concordant Discord* (London, 1970), p. 433.

20. M. Eliade, *Patterns of Comparative Religion* (London, 1958), pp. 46–50, 52, 54.

21. Konrad Lorenz, *On Aggression* (London, 1966), pp. 234–5.

22. *Double Conversion*, pp. 15–16.

to the thoroughgoing theoretical recasting of the content of Christian belief which was the achievement of the great mediaeval scholastics. The pronouncements of the *magisterium* are precisely analogous to crucial experiments in science; they ensure that theology should progress in the course of time, and not simply oscillate between biblical fundamentalism and unbridled speculation—as might not implausibly be said to be the more or less inevitable fate of those kinds of Christian theology which do not acknowledge any such authority. It should be added that there seems no reason *a priori* why this kind of theology should not be perfectly compatible with that reflection on the riches of one's mystical tradition commended by Dorothy Emmet.²³ Many of the most notable mystics, indeed, have had at the centre of their devotional life meditation on the mysteries of the Trinity and the Incarnation or analogous doctrines of other religions; and it is according to Lonergan the primary function of the *magisterium* to determine, through all the changes and developments of human culture, what does belong to the content of faith, what does not, and what is incompatible with it.

This brings me to Professor Davis, whose views seem to have changed somewhat between his article on Lonergan in *Foundations of Theology* and his contribution to *Theoria to Theory*. In the earlier paper he appears to retain the idea that there is a specific content to Christian belief, but maintains that its nature and limits should be determined otherwise than by the *magisterium*.²⁴ In the latter, he has succumbed to a relativism which is inconsistent with the conception of any truth, let alone relating to religious matters, having a meaning and content which transcends the point of view of any particular culture. This seems to me a curious position for one who claims to have learned much from Lonergan; since one of Lonergan's most important concerns and achievements, to judge both from *Insight* and from *Method*, is to show how one might come by a "pure" formulation of any truth which is not itself relative to any one culture, and which enables it to be transposed accurately into the conceptual frameworks of men of every possible culture and degree of intellectual attainment. I have no space here to discuss the well-known paradoxes which are entailed by rela-

23. *Ibid.*, p. 15.

24. *Foundations of Theology*, p. 64.

tivism; suffice it to say that, if it is really true that Professor Charles Davis contributed to the issue of *Theoria to Theory* for July 1973, then no one at any place or time can truthfully deny he did—a proposition inconsistent with a thoroughgoing relativism. The proposal in the earlier paper, that the content of the Christian proclamation ought to be fixed on something like the “one man one vote” principle, suggests several interesting points.²⁵ The complexity of the issues concerning the content and meaning of Christian doctrine, and the fact that, since the Gospel is to be preached to all nations, it has to be couched in a form which transcends the limits of particular cultures, demand a special knowledge and a technical training which puts the determination of its disputed questions outside the range of ordinary people. Not that the belief of ordinary people is irrelevant—far from it—in matters of doctrine, but *how* is it so, and the nature and range of its implications, needs a good deal of technical knowledge to assess. For example, the ordinary layman does not really know what it means to say that Jesus Christ is consubstantial with God the Father; but he may have a degree of love of and commitment to Jesus Christ which would be blasphemous if he were not.

In these rather fragmentary remarks, I have tried to suggest that Lonergan’s two roles, as promoter of a highly sophisticated theory of knowledge, and as Roman Catholic dogmatic theologian, are not quite as alien to each other as one might at first suppose.

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25. Davis, *loc. cit.*: “Nowadays public judgements are—at least ideally—made in a democratic fashion with authority coming from below.” I wonder how far Professor Davis would be prepared to apply the moral to questions of historical scholarship or scientific theory.

Sentences: From Daisetz T. Zuzuki, “Foreword” to *Zen in the Art of Archery*

If one really wishes to be master of an art, technical knowledge of it is not enough. One has to transcend technique so that the art becomes an “artless art” growing out of the Unconscious.

In the case of archery, the hitter and the hit are no longer two opposing objects, but are one reality. The archer ceases to be conscious of himself as the one who is engaged in hitting the bull’s-eye which confronts him. This state of unconsciousness is realized only when, completely empty and rid of the self, he becomes one with the perfecting of his technical skill, though there is in it something of a quite different order which cannot be attained by any progressive study of the art . . .

Here we come to the connection between Zen and Archery, and such other arts as swordsmanship, flower arrangement, the tea ceremony, dancing, and the fine arts.

Zen is the “everyday mind”, as was proclaimed by Baso (Matsu died 788); this “everyday mind” is no more than “sleeping when tired, eating when hungry”. As soon as we reflect, deliberate, and conceptualise, the original unconsciousness is lost and a thought interferes. We no longer eat while eating, we no longer sleep while sleeping. The arrow is off the string but does not fly straight to the target, nor does the target stand where it is. Calculation which is miscalculation sets in. The whole business of archery goes the wrong way. The archer’s confused mind betrays itself in every direction and every field of activity.

Man is a thinking reed but his great works are done when he is not calculating and thinking. “Childlikeness” has to be restored after long years of training in the art of self-forgetfulness. When this is attained, man thinks yet he does not think. He thinks like the showers coming down from the sky; he thinks like the waves rolling on the ocean; he thinks like the stars illuminating the nightly heavens; he thinks like the green foliage shooting forth in the relaxing spring breeze. Indeed, he is the showers, the ocean, the stars, the foliage.

When a man reaches this stage of “spiritual” development, he is a Zen artist of life. He does not need, like the painter, a

*canvas, brushes, and paints; nor does he require, like the archer, the bow and arrow and target, and other paraphernalia. He has his limbs, body, head, and other parts. His Zen-life expresses itself by means of all these "tools" which are important to its manifestation. His hands and feet are the brushes and the whole universe is the canvas on which he depicts his life for seventy, eighty, or even ninety years.**

Daisetz T. Zuzuki

* From the Foreword to Eugen Herrigel's *Zen in the Art of Archery*.
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