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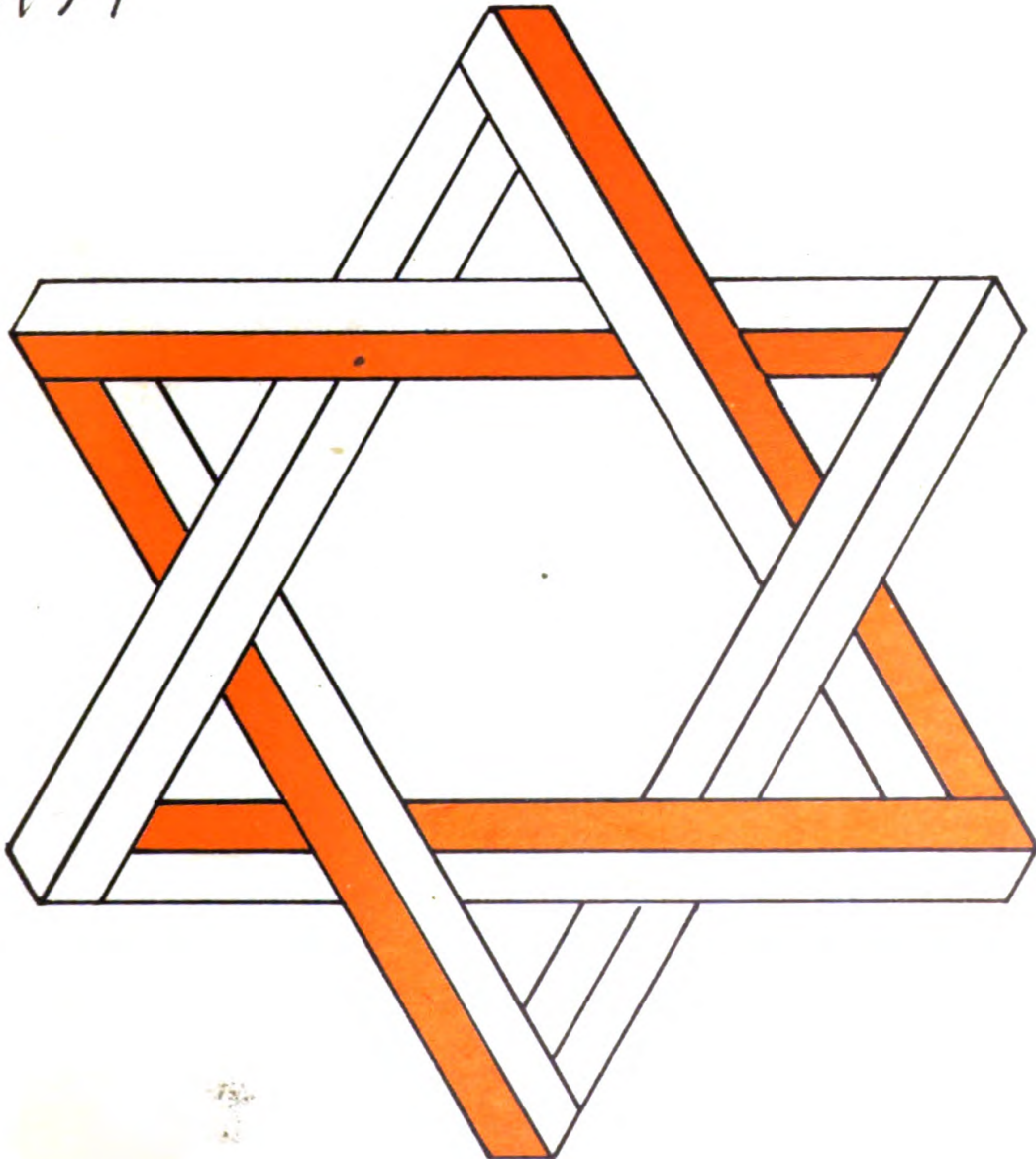
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THEORIA TO THEORY

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Editorial

A general theme of this number is to suggest that the *cycle* may be a more adequate theoretical primitive than the vibration; the concepts are linked, it is true, but their theoretical fields are importantly different. We publish an article by Arthur Iberall in which he stresses the importance which the idea of a cycle plays in thought about the nature of organic systems – whether living or not. We also publish a less technical paper by Mary Scott, who comments on the recurrence of the idea of a cycle in *The Parable of the Beast* by John Bleibtreu who wrote for us in a recent issue. In later issues we shall try to get further papers from writers who are experts in some relevant field – even though they may have to “unbend” considerably, as Iberall has done, to get the right sort of compromise with technicality for our purpose.

People writing from within the mystical tradition, whether of the East or West, and particularly those with healing gifts, have felt the need to connect healing powers with some scientific (or proto-scientific) concepts. They have used terminologies about “vibrations”, suggesting theories of heat and sound, and also analogies from electricity.

There is, for instance, Maud McCarthy (Swami Omananda), who died last year. She drew particular attention to the use of sound and singing (she had been a famous concert violinist) for purposes of healing organic diseases and psychological disturbances. Her general experience was that she was able to put the diseased organ, or system, either back into its natural distinctive mode of operation, or directly into touch with some universal system of the same character as the organism in question, which would again induce correct functioning of the former (it is not clear which alternative expresses her view better).

Testimonies exist from a large number of patients that this kind of healing actually took place. Moreover, such accounts are in fact common in the healing literatures, and what distinguishes Maud McCarthy is her highly intellectually self-conscious appraisal of it, as we shall see presently.

Another case of a person, this time in the Christian tradition, with remarkable healing gifts is Agnes Sanford from whom we take the following quotations. The first is an account of a healing.*

* See *The Healing Light*, p. 101 (quoted with permission of the publisher, Arthur James).

“I found Mr. Williams on a chair in the living-room, humped over a table, unconscious and breathing in a very strange way. I could not see his face, as it was buried in his arms. I sat down on the arm of his chair and placed my hands above and below the heart. It was beating . . . insistently, irregularly, terrifyingly. (I found out later that the heart had swollen until it filled almost the whole chest and that every valve had burst and was leaking like a sieve.) However, at the time I needed no doctor to tell me that his condition was serious, for my own fingers reported it to me.

“As soon as my hands were firmly upon his heart, I felt quite serene, in control. Forgetting the man’s heart, I fixed my mind upon the presence of Our Lord and invited Him to enter and use me. Then, Mr. Williams being quite unconscious, I talked informally to the heart, assuring it quietly that the power of God was at this moment re-creating it and that it need labour no longer. Finally, I pictured the heart perfect, blessing it continually in the name of the Lord and giving thanks that it was being re-created in perfection. Soon I could feel the heart-beats becoming more quiet and regular. I could even feel the strange inner shifting that reports the rebuilding of flesh and tissues. The heart would become for a moment almost normal in its beating. Then again it would shake the unconscious form in agitated pounding. Whereupon I would quiet it again as one would quiet a frightened animal feeling it almost as a living thing with a certain intelligence capable of responding to suggestion – as indeed it is. ‘All right, now,’ I would think. ‘Just take it easy. Easy now – easy does it. Just beat quietly and slowly. You don’t need to labour. You’re going to be all right. Easy now – easy.’

“Any doctor could learn to do this. He could control the heart of a patient without even explaining his method. ‘Be quiet,’ he could say if the patient were conscious, ‘I want to listen to the heart.’ And he could place his two hands upon the heart, bend his ear over it, and ask God to use him as well as his medicines for the healing of the patient”

The second quotation shows in a typical way this writer’s need to try and give a quasi-mechanistic explanation of the forces at work.

“A natural impulse when God first sends His ‘electricity’ through our hands is to attach too much importance to this outward and visible sign of an inward and spiritual grace. I found myself at one time watching eagerly for this new current of life that flowed through me, feeling disappointed if it did not come and pleased if it

did. This distracted my attention from God and focused it on myself, which was wrong. It also caused me unconsciously to command my nerves and try to force a healing vibration from the level of my own mind. Such a vibration can indeed be forced, but it has no healing value whatsoever and only tends to exhaust the one who prays. One must learn therefore to forget oneself entirely and think only of God. If he feels the life of God in a definite flow through his arms and hands, he rejoices in this evidence of a real power, but reminds himself that the tingling of his fingers is not the healing current of God. It is only one of the ways in which he registers a life-power that comes from beyond him and is able to function in many different ways. Possibly if his nerves were stronger and more harmonious, he would not register it in this way at all. If he does not feel the presence of God in any physical way, he rejoices that God is not limited to any one way and is at that moment working with him whether he perceives that fact or whether he does not".*

As in this passage, Agnes Sanford regularly uses metaphors from electro-magnetism (one could say that her interaction model is the Fourier wave analysis). Her dependence on electro-magnetism for a language about the healing-interaction process is (a) almost universal among Western wowsky† writers and (b) evidently inadequate to the task it is being made to perform. Basically the Fourier theory is no good because it gives an account of an interaction process between mechanical systems ("mechanical" here including electro-magnetic effects), each of which has its own periodicity. In these healing situations, however, there is an essential appeal to an external all-embracing system which must have its own specific frequencies but which has no material framework to define them. Maud McCarthy saw the need for a model of a new sort, and did in fact always insist on the part played by "absolute frequencies", though her knowledge of this kind of absoluteness was experiential rather than theoretical. In the context of the present discussion it is probably legitimate to interpret these absolute frequencies as cycles. To locate these absolute frequencies she balanced the *evolution* of physical sense organs with an *involution* process using elements from the traditional esoteric picture. She warns us – in terms of the idea – that we get a distorted picture of the world of organism if we simply think of the development of life

* *Ibid.*, p. 123.

† wowsky: origin obscure: used by the editorial staff to mean "on the edge of the occult and may be phoney and may not".

from the primordial organs to the more fully developed senses and mental powers of man, because there exist a sequence of stages which in the Eastern tradition have been known in terms of “glorified bodies”, and for which there are correspondences in the Western mystics. The primal energy at the first stage is stepped down, and the stages determine a scheme of numerical relations which serve as a basis for modulated signals on which the healing process relies.

Maud McCarthy found it necessary to postulate this cosmogony with its numerical characteristics to make sense of her healing, and again we see that some sort of background model seems necessary for the healing process.

(This sort of tradition has more content than we have indicated here because the traditional aspects of human personality in the West, e.g. in St. Augustine – imagination, memory, will – are brought in through our subjective description of the higher levels.)

Most scientists who desire a synthesis of scientific knowledge yet reach for their revolver when they hear the word “vibration”, which is a word which abounds in the work of writers with an occultist interest, who seem unaware that if they are describing the effect of one organism or system upon another, then that effect will almost always be naturally describable as a periodic function of time, or a superposition of more than one such function, and that therefore their talk of vibrations is misleading because it does very little more than to reassert the existence of the effect. It does not describe it.

There is usually also a reference back to some pre-scientific cosmogony that goes with “vibrations” such as the use of astrology as a system at least of classification if not actually of causation. The scientist reading this usually judges that the vibrations are not going to be carefully enough specified to make it worth his while following any further, and he is usually right.

It is, however, necessary to understand what makes the reasonable traditionalist thinker compromise with occultism, for the mere fact that he needs his vibrations shows that he is at heart scientifically serious. He wants to understand the facts to which tradition alludes, and is not content to comment academically on the traditions as on things having existence *per se*. Such a person is likely to find himself in a condition of considerable tension. His knowledge of mystical traditions leads him to believe that one general type of world picture is probably along the right lines: his knowledge of the picture which it is reasonable to infer from the currently up-to-date scientific knowledge is quite different.

Moreover he will marvel – seeing it from the outside – at the existence of a cohesive force which seems to cause the scientific world

as a whole to identify truth with what can reasonably be inferred from current knowledge, while remaining quite content to accept the revolutions this “reasonable inference” goes quite rapidly through. In astrophysics, for example, let alone in the obviously more controversial cosmology, very major changes seem to come about each decade. And the vital point to see – though it is a point that the average scientist seems astonishingly conditioned never to see – is that the changes do not by any means always amount to a growing body of knowledge with jumps. They are often fundamental reassessments of the significance of all the knowledge and they are exceedingly sensitive to detailed new significant discoveries, both mathematical and factual.*

What is true of large scale physics is much more true of the areas of knowledge which impinge more directly on our understanding of the human organism. Particularly in these areas, Medawar’s summing up of science as “the art of the possible” cannot provide the whole content of a guide to living and looking at the world. Adherence to convention is hardly satisfactory, either, as the missing component that enables one to ride comparatively smoothly over the turmoil of current scientific opinion resulting from the essential arbitrariness inherent in always doing what is possible. It is clear that one has to think, and think beyond the safely scientific limits of vision.

Analysis of our environment and of organisms (including ourselves) in terms of cycles, which seems to incorporate real traditional vision, affords a good example of this persistent dilemma. The cycles afford numerical relationships which can be interpreted in terms of wave-frequencies or “vibrations” but we can now see a possible reason why doing this – the only thing that seemed possible – had always such unsatisfactory results. A new mathematics proper to cycles and different from the mathematics of wave-motion and resonance is becoming evident as a branch of algebraic topology and having strong connexions with computer science. This new mathematics may be more appropriate to the study of organisms (including extra-biological organisms) than was Fourier theory, just because the real traditional insight was of the importance of processes renewing themselves in repetitive patterns – cycles – and only indirectly and unnaturally of waves.

If this suggestion turns out true to any extent, certain morals will follow. It will show first how deep was the need of the traditionalists for any scientific concepts seeing that they were prepared to use the

* Consider for example the ramifications of the various possible solutions to the problem of gravitational collapse – a thoroughly technical astrophysical problem.

wrong ones. Secondly it will show how much better they would have done to understand the Fourier theory properly and roundly declare its detailed inadequacy to the description of aspects of the world of which they had knowledge. Thirdly it will be an example of the function of vision (theoria, if you like) in forcing the unwilling attention of scientists to phenomena which they have no concepts to deal with.

Science may be the “art of the possible”, but scientists have to be prodded with a continuing vision of the impossible, and this is true even though, without a detailed (and possibly mathematically articulated) theory of the sort that any Medawar will require, a vision is distorted and soon becomes sterile. A dilemma, perhaps, but at least an honourable position to be in.

* * *

There is an article in this number on “Living with Leukaemia”. This subject has been extensively publicized in America through an article in *Life* magazine of 8th December, which reports a photographed interview with a 22 year old woman suffering from leukaemia. The interview was part of a series of seminar meetings in which patients in terminal illnesses discussed their situation with selected members of the University of Chicago Medical Faculty. The seminars had been held over a number of years by Dr. Elizabeth Kübler-Ross. The current attitude to death has been evasive. Dr. Ross is quoted as saying, “Death is viewed as taboo, discussion of it is viewed as morbid . . . dying becomes lonely and impersonal” and she questions “our increasingly mechanical, depersonalized approach”. “Is this approach our own way to cope with and repress the anxieties that a terminally and critically ill patient evoke in us?” and “our lack of omnipotence, our own limits and failures, and last but not least . . . our own mortality”. She found that in fact patients welcomed the opportunity to talk, and the thought that their efforts in doing so might help other people. The members of her seminar were people professionally concerned, but if the wider interest in the article is not just “for kicks”, it means that more people are seeing that the euphemisms and covering up of death won’t do, and that there can be a dignity in dying.

The analysis of her findings claims that people in terminal illnesses proceed through five emotional stages: denial, anger, bargaining (often), depression, acceptance (a pattern recognizable in any frustrating crisis). These findings are too rigid: persons are persons, and don’t always exemplify systematized processes, but have their own resources and ways of coping. Our writer’s article, which is entitled “Living with

Leukaemia”, not, as the other article might be subtitled, “Dying from Leukaemia”, shows that the experience of facing death can lead not just to a resigned kind of acceptance, but can make one better appreciate people, things, happenings, and even make one more alive. And in any case, people don’t always die as doctors arrange.

* * *

Since our last number Fraser Darling has given his Reith Lectures on “Wilderness and Plenty”, and has described the threats of dereliction and pollution with a splendid sense of urgency. His main emphasis has been on the dangers of upsetting natural ecological systems. In this “Conservation Year”, when lots of people are thinking about these questions from different angles, as we announced in our last editorial we are having a series of articles (of which John Walker’s appears this time) concentrating on how people with engineering and technological knowledge can see specific ways not only of conserving the environment, but also of enhancing life in it.

Dialogue between Joan and Simon: Communities and Commitments

(Joan Harvey, caravan dweller; Simon Mein, Prior of the Society of the Sacred Mission, Kelham.)

SIMON: I gather that you, Joan, live in a close group which is a kind of community, and that my main job as representing a religious community will be to analyse and account for the differences. Of course we shall find that there are wide similarities, but it will be the differences that interest people.

I suppose that a religious community is made up of people for whom the reality of the situation involves first of all the complete commitment of one's life to the worship of God. This implies a commitment to one another and for Christian communities to the Christian gospel. In our own community the sharing of the common life is to enable us to work together as a team but also to enable each individual to deepen his own vision. In the preface to our community rule it says "It is not easy to live well in a religious community, but there is one rule that will fit you as well for the community of the brethren as of the angels 'that you love one another'".

JOAN: You've got a lot of stuff there. I should like to hear what it is about your community life that is conducive to what you call worship of God, and how that aim decides things about the kind of community that we do not find we need in ours.

SIMON: As yours is the less formal kind of community, could you describe it first?

JOAN: Much of my motive about communities is simply on the level of facilitating the mechanics of living; I don't have much difficulty in interacting with people and making friends and things like that.

SIMON: But you do on the whole think that you have got to experiment in different ways of living together, and you have not got to go on taking for granted the "one family, one house" set up.

JOAN: Oh rather; I think real complaints can be made against "one family, one house". It is convenient to call it the nuclear family.

SIMON: I should be interested to hear what you are actually doing at the moment. Have you got a group living with you?

JOAN: No, it isn't like that, but it lets people in, it lets friends in, it let in a small succession of lovers after the children's father was killed. That was an extremely good relationship, and he was killed in a motor

bike accident when the youngest child was four. What do widows do? All they often do is to shut themselves up in their little boxes, terrified of gossip if there is some man in their lives. I didn't do this at all – I included in our caravan group anyone who was willing to be included; consequently all the time there was a sort of flux of people coming and going. You move them out if they don't fit, sometimes against their will, and sometimes people wanted to stay, but I and the children didn't want them in any more, so we've gone through lots of subtle interactions of this sort. During Jack's time there were interactions with the people who were employed with him in the forestry, where it was possible to be a community. Some couldn't take it like this at all. There were lots of variations in that, so in small ways there has been a lot of experience. Without any basic principles about it the children came first. I found that if the children didn't like those who were close to me I didn't like them much either; I saw through the children's eyes too. This was because of the difference between voluntary members and those who were involuntary members. Involuntary members – in this case children – have certain rights, I think. So are we talking about voluntary communities or involuntary communities? I do think they are quite different propositions.

SIMON: Well, of course, communities can be voluntary in some ways but not others. Ours is entirely a voluntary community, in the sense that nobody is forced to join it, they come because they find something that they are looking for. In the beginning it is voluntary; one comes to live there, one has a period of trial, up to at least two years, it might be three years, and then one makes a formal act, and becomes a full member of the community, what we would call a professed brother. But now, to get back to your basic questions, I don't know what I can say about the type of life we try for and why we are committed to it by our desire for worship of God except by appeal to central Christian doctrine.

I think I would say that in personal relationships the paradigm is the acceptance of man by God seen in the Crucifixion and Resurrection. My understanding of the work of Christ is that this is the love of God operative among men and that as so often happens when people are offered love, they don't like it.

JOAN: They may have very good reason. It is very difficult in practice to know how far it is right for people to merge their personalities, which is what your "love" may easily amount to. It may be a good thing to do this or it may be very bad: I don't see how you can make any general rule.

SIMON: Of course I see the difficulty, and the easy thing for me to

say is that one has always to struggle to be disinterested. I suppose in practice this means a harder thing and that one has to be prepared for the offer of close relationship and sharing of burdens, and so on, to be rejected. The Crucifixion is a complete parallel of this, that the ultimate love is ultimately rejected, and the Resurrection is the belief that God's love is such that however much we reject it, it is still there, and this is the paradigm for Christian love and Christian communities. Speaking from a Christian community context, love is the determination to go on accepting people as human beings in spite of what they do, whether they want it or not.

JOAN: I can't see any "determination" about this, one just does. We are all human beings and therefore have no option.

SIMON: Do you find a time comes when the situation forces you to involve yourself deeply with another person, either when they are in a really confused state of mind or where their behaviour is detrimental to themselves and the community? Do you tell them so with the onus that you will help them to put it right?

JOAN: I don't accept the onus. It seems part of our culture that if you criticize someone you help them to pick up the pieces afterwards. I don't accept the onus automatically and therefore I don't feel guilty about it.

SIMON: But if you are in a community can you avoid this onus of responsibility for each other? Let me give an obvious example. The community to which I belong has a nucleus of members who make a promise for life but there is a wider community which contains students and novices, that is, those who are testing their vocation to the religious life. A community of this sort has its tensions and resentments appear. A student may be unsure about his vocation, whether he should go on with training for the priesthood, and this uncertainty may be projected as resentment against authority. So often a student in this situation needs to feel accepted and somehow it is necessary to get over to him that there are people who are willing to go on accepting him however uncertain he feels and whatever resentment he shows. For such people this must be very much a therapeutic community; what they have lacked is anybody they can accept and trust. You have to get over to them that here at last is a person who is going to accept them whatever they do. The problem is though, how far do you let them take you for a ride.

JOAN: I don't think it does people good at all to think they can take us for a ride, I really don't think this is therapeutic. What they need is to see the realities of the situation for themselves. My example of this is teaching kids to cook a meal properly. This takes years, but

they know when they have cooked it properly. It doesn't need praise from anybody else. So I think what Paul Goodman in *Growing up Absurd* calls "for real"* is important and has to be introduced somewhere. Apart from the interpersonal acceptance and non-acceptance, there are *tasks*. I am distinguishing between the children as persons and their ability to cook a meal. But I think the sense of security comes from knowing they are able to perform some tasks, even quite simple ones, adequately.

SIMON: But isn't it possible to make it clear to someone that they have failed in a task or in responsible behaviour, and yet to say "you are forgiven".

JOAN: No – forgiveness presupposes authority-patronage. Also it may obscure the fact that the consequences of the act remain. As I don't have morals or principles I can only judge an act by whether or not its consequences are what were intended and by whether I like them or not. One may understand and help others to understand the mistakes, or one may understand the intention to harm. Is that forgiveness? But I do see that there is a distinction between hating the offence and hating the offender, and that you are concerned, as I am, not to hate or reject the offender. This is not difficult for me with my view that mistakes are what we learn from.

SIMON: You have to make a person recognize that he has failed in this task or in responsibility to the community, but somehow you have got also to get that person to feel accepted. On the one hand irresponsibility just isn't on, on the other hand he has got another chance, and another chance, and another chance.

JOAN: This goes for all of us.

SIMON: You have probably got to eat a lot of poor meals before you get to the good one. But if you just say this is an awful meal, and the child feels it is no good trying, that's the end –

JOAN: Yes; you do say this was not a good meal, and you made this and that mistake, but you also say "next time you can do better".

SIMON: It involves an awful lot of acceptance and in fact painbearing.

JOAN: It means a high level of risk, but because we put ourselves at risk this may help them to realize that they are at risk. This brings up whether failure is sin and something bad; I don't think failure is bad, I think it is a way to learn that you can do better next time. This concept makes things non-arbitrary, but not guilt ridden. Increasingly people do need to be able to measure themselves against achievements, and against the reflection of themselves in other people, and if we give them a kind

* See Paul Goodman: *Community of Scholars; Growing up Absurd* (Gollanz).

of love which is merely unqualified “acceptance and painbearing” we don’t in fact give them a fair reflection. We need to be honest. I think honesty is with what some people mean by love and loyalty. At home we can take each other seriously and really listen to what the other person feels, but one can only do this if one hasn’t made a rigid demarcation between failure, sin and virtue. Without this concept of good and evil we can I think be much more genuinely accepting.

SIMON: To come back to the therapeutic aspect of the community situation; if someone has psychological problems, he is going to be able to damage other people, and the community has somehow to help that person; when he begins to feel what his action has done to others, then you begin to make some progress with him.

JOAN: I have nothing to do with therapeutic communities.

SIMON: Some communities are therapeutic by intention, but all communities have a therapeutic element.

JOAN: Being expected to accept responsibility for our brother is becoming the disease of our time,* and it is something I reject. I want not to accept a total obligation towards people though in practice I may sometimes choose to, but it is in my gift as it were – it’s up to them to co-operate in some sort of way.

SIMON: By saying that it is in your gift, do you mean that you would withdraw it if they got too awkward?

JOAN: Yes, but I can’t even say under what circumstances. If I think it a genuine demand I do often find time to do something about it, but I react very definitely against it if I think it is a trick or a blackmail. Although of course living at risk is at the basis of the situation – we all live at risk – we live at risk of hurting each other and making mistakes.

SIMON: I feel any kind of obligation, particularly the sort of commitment one makes in a religious community, involves enormous risks and on the human level I agree there can be no guarantees. It is precisely here that the “reality of the situation” for such a community must be total dependence on the grace of God. I suppose I ought to try and say what I mean by that. You spoke earlier of the dangers of two personalities being too completely merged in each other or dependent on each other. The Christian believes that there is a personal power in the universe which both gives us our existence and enables us to relate to one another. This grace or gift, the Christian believes, is seen most clearly in the way in which Jesus related to the people among whom he lived and worked. It enables something quite new to come out of very

* See Szasz: *The Myth of Mental Illness* (Secker & Warburg, 1962).

dangerous situations; this gift of the personal God can generate a new kind of good, something extra in our experience of the world by which honest sacrificial love enables personalities to be linked very closely together in mutual support. At the same time the Christian does not think in terms of absorption of individual personalities into the one "higher Personality". Rather this power of God enables individuals to stand the strains of total commitment to one another which involves pain and sacrifice, but which also enables people to be fully individuals.

JOAN: I don't believe any of that, but for those who do believe it, it seems to give them a kind of security. When people speak of "security", they mean guarantees against these risks. And then I say with Watts in *The Wisdom of Insecurity*, that we don't begin to live our lives until we give up demanding this guarantee, and what I understand as a sense of security is the discovery that we can survive risks and learn from them, and this is a way of becoming mature.

SIMON: I think one of our problems with living within the community, is that we have begun to realize that we have wanted to be treated as children; superiors have been the big father figures and your work is what you are told to do and you make a promise of obedience and this involves your accepting whatever job you are given to do. But the overall effect has been to produce an awful lot of immaturity. During the last year or two we have tried meeting together in groups of about a dozen. The meeting is purposely unstructured in an attempt to counter-balance the fairly strong structuring of the normal daily life in the community. The groups have provided opportunities for people to open up to each other and the fact that one of the professed brothers is a member of the group has enabled authority problems to be discussed. I met with one group once a week for a whole term and after a while it became clear that there were some fairly strong antagonisms in the group. It also became clear that I was one of the major factors in generating some of the antagonisms. I was seen very much as a father figure and as someone who could make or mar their career. As time went on we were able to talk very much more freely about this; it became clear too that I depended very much on their regard just as they depended on feeling that I accepted them. In one meeting a student said that this had been the most remarkable evening of his whole time at Kelham, because for the first time he was able to see me as a human being who had feelings and not just as a stereotype. This is where experiments in unstructured groups have been helpful. They have enabled us to look at the rigid structures of the community from another standpoint and have led to more freedom of expression. This can lead to actual relaxing of unnecessary rules which don't help our

central purpose. For instance, five years ago when I took over as prior, brothers still had to come to me and say "may I use the telephone?", which I think is absurd, and it is in ways like this that we try to say: look we are a group of brothers, obviously there will be times, for instance if you want to make a 'phone call to America, when you may think it right to go and ask, but if you want to ring up your aged mother who lives in Brighton, it seems very reasonable to do this, and we have all got to be responsible about how we use the telephone. We had to ask permission for so many little things, and I think there was a lot of this father-child situation, and the children, the brothers, often wanted it that way.

JOAN: One of the things I think happens in that sort of relationship is that it is possible for the children to harbour resentments, and I am singularly unwilling to be the butt for resentments like that. This had a lot to do with my anti-authoritarianism, but then I get taken for a ride over such matters as telephone bills. I make it clear that I don't want to carry very much of this, but also one has to make it possible for them to be self-responsible. There is a continual dilemma here. I think there are real conflicts of interest between people at times, and the main thing is how to resolve them in such ways that everybody benefits. This is where problem situations occur in communities.

SIMON: An important difference between your community and ours is that people can opt in and opt out of yours at will, whereas with ours once the core of the community has been established, there isn't any easy opting in and opting out. Presumably if a person is a misfit in your community they just push off.

JOAN: Or are pushed off. I am leading a seminar on communities, and when in the course of it I asked what they meant by the closer personal relationships which they hoped for in communities, someone said that he wanted people to be generous and reliable. This comes very close to asking of others the commitment that you offer. I asked him what he offered. It seemed that we all want to be able to say honestly, "Go away, I want to be alone, and I also want to be able to rely on others listening when we want to talk". We haven't resolved the contradiction. This is one of the real conflicts of interest which are interesting to explore, and I hope that communities, larger groups of people who are sharing something, may spread the load so that there can be mutual benefit instead of head-on conflict. One can hope that someone will be interested in what we want to say.

SIMON: There is another point that occurs to me listening to your account. I think that, as in your group you are the permanent one, you probably determine the shape – as well as provide the

inspiration – perhaps more than you would wish. I think that you are sensitive to this tendency when you disclaim responsibility for other people quite as vehemently as you do. Now I am far from criticizing this sort of set-up, only I want to make clear that at Kelham (perhaps more definitely than in other religious societies) we insist on there being a multiplicity of “permanent” personalities and consequent sources of inspiration. And when you do this you take on a new dimension of difficulty.

JOAN: It is very perceptive of you to have spotted that. Of course that is why I am so keen to pass decisions back to the person whose they properly are. By contrast you say that your people ought to undertake the obligation to keep the community going, and once you have “ought”, then the concept of sin comes in, doesn’t it? Now, I think you can have love without an “ought”, but once you have “ought”, then sin comes in.

SIMON: Well, I think within a Christian community you could define sin as a failure towards God or other people in the community, or you could define it as that action or mode of behaviour, or cast of mind even, which disrupts the harmonious working of the community, such as the refusal to do a job properly. Someone might feel they would rather go back to their room and read than scrub the floor properly, and that is ultimately a loss to the community because that bit of the floor has not been scrubbed. It is something one knows one ought to do.

JOAN: Ah! One *feels* one *ought*, and therefore refusal is sin, and this is entirely subjective. Can you link that with the reality of the situation?

SIMON: Yes, I believe so, because I think that the basis for most of the constraints which members of my community are asked to accept can be deduced from the commitment of which I spoke at the beginning, to the worship of God. How this works out in practice is not only in a lot of praying but in everything we do being offered to God. It is in prayer that things emerge about our vocation, about our relationships with one another and about the common work we are to do. We are committed to a life of prayer and action which together are considered as the worship of God. You might ask if there is any way of discerning true from false inspiration and I think the only answer is that the way of life which emerges can be the only test. It is a feature of preparation for this particular commitment that trainees are helped to continue for a long time to live in a very structured situation (a situation which would look very rigid to you). But experience has shown that it takes a great deal of patience and discipline to allow the

supernatural within us to take shape and produce a characteristic way of life.

JOAN: I see the case you are making, but at crucial points in your argument you vacillate between having a God which is defined in the context of prayer and inspiration and decision and a God who is a sort of extra and uncomfortable member of the community to “whom” you refer back when it suits your argument. My objection to this confusion is that it permits you and communities like yours to get away with making important decisions and imposing them on other people.

SIMON: In actual fact, I don’t think anyone within the community sets himself in a position of deciding what is absolutely best for the other person unless, as for example in the case of severe mental illness, a doctor or someone has to decide anyway that this person must be sent to hospital. This would be true in any community, such as a family, but in other cases there is mutual discussion, and there is really no question of one deciding absolutely for another. There is in fact a system of consultation within the community.

JOAN: Profitable consultation depends on everyone being realistic rather than generous.

SIMON: Isn’t it possible to be both realistic and generous?

JOAN: Yes, but it puts the person to whom one is generous in a rather awkward situation. In fact I often give more than I offer; whereas you may find you offer more than you can sometimes give.

SIMON: Yes indeed, it is clear to me that you are yourself exceedingly sensitive to the needs of others and all your disclaimers of any mechanical sort of responsibility only emphasize this. In a way, our rules protect us from the inroads of other personalities more than you are protected. In general, you see, I am not really in disagreement with you about rigid moral codes. (They have a place in training which is generally misunderstood but which I tried earlier to explain). Ultimately what I think is that the Christian has to try to be the instrument by which *God* does the giving, and in particular situations I find myself forced into prayer, saying “this kind comes not out by prayer and fasting”.

JOAN: I don’t have to worry about difficulties over obligations because my own thing is taking risks; it seems to me that one can have a sense of community within which there are interactions: but there are no guarantees.

The School as a Therapeutic Community*

G. A. Lyward

I am anxious that what follows shall not fail to leave it quite clear that throughout 57 years of work I have kept in close and active touch with all branches and aspects of education, and I would ask that no value be attached to my comments if they appear as those of someone who has drawn his conclusions merely from 40 years of work with maladjusted adolescents of high or good intelligence.

Perhaps I should be a little biographical. I came to my present work from 16 years as a schoolmaster, having at one time organized the English department in a day school of 600 boys and served subsequently as a housemaster and sixth-form master at a public school. Unless my testimonials lie I was not a rebel. The point, however, that I wish to make here is that I came to therapeutic work largely as the result of many years' exploration of how best to teach subjects. The history of that exploration goes back to my university days, but it was not until somewhere around 1925 that it began to dawn upon me that my previous and current success (as a teacher of subjects, I mean) was due to the fact that I was engaged in liberating the pupil as a person.

I used to be surprised at the discussions about laziness, inattention, indifference, and so on that I heard among certain colleagues. Frequently a boy with a reputation for all these showed a lively interest within a group I was teaching. How had this come about? I would not discount the interest inherent in any subject of the school curriculum; nor that my own interest may have been infectious. But there seemed more to it than that and I do remember being asked by a colleague somewhere in the 'twenties what my secret was; I could not tell him.

It had something to do with the "general atmosphere" that developed within the classroom, created by me but not by me alone – created by everybody in the room by virtue of his being allowed to be a person. That remark takes me back as far as 1912 when I first stood in front of a group of children and the thought came to me, almost like a blow, "These are people – we are all people together in a room – that is the most important fact about this situation". That

* From *Psychiatry in a Changing Society*. Edited by S. H. Foulkes and G. S. Prince. Tavistock Publications Limited, 1969, reprinted by permission. The article was sent us by G. A. Lyward, who writes: "As a reader of *T. to T.*, I find myself continually sharing it with members of this community (Finchden Manor). Its articles and Dialogues tie so closely with their intuitions and problems and our way of life, which is one of reconciliations and acceptance of the mystery".

they were my pupils (with emphasis on both words) was a secondary fact completely dwarfed by the first almost alarming realization.

I am sure that many nursery school teachers and primary school teachers would know what that experience meant to me. But how many other teachers retain, if they ever had, that order of values? There are in secondary schools teachers who do, but what percentage do they constitute of the total number of those who teach? For how many is it but lip service? (And if there can never be many, what can be hoped for?)

In 1961 I received a letter and a signed menu card from a group of men in their fifties sitting together at an old-boys' dinner. From 2B 1916: "We wish you to know that we will not forget – ever – former years. All of us (at the annual dinner) had one thing in common – a profound respect for your teaching and your influence on all our lives". That was very humbling. I quote it because I am trying to say that there is a link between my teaching of subjects (or the atmosphere within which I taught them – the derivative place I gave to them) and the therapeutic work in which I have been engaged during the past 40 years. What am I justified in concluding from that? At the least that I was prepared from the start to take into account the possible fears, guilt, perfectionism, self-pity, and so on that so many of the pupils brought with them to school from their homes and their earlier lives, and that affected their approach to the subjects of the curriculum. They were sometimes unable to believe that mistakes were not minor crimes, unable to ask questions which might betray weaknesses, unable to plunge in. There were more subtle problems than these: actual aspects or points in a subject that baffled or revolted them for reasons connected with their personal lives. Specific difficulties in specific subjects turned out to reside not in the subject but to be related to specific emotional disturbances in the pupil.

I am concerned here with what I have called the total atmosphere; for me in those days it was that of my form-room, later also of a house; in these days it is the total atmosphere of a therapeutic community of about 55 people, 45 or so of them boys and young men sent as seriously maladjusted.

The way of life which is Finchden Manor has had many encouraging things said about it by numerous visitors. May I quote two of the most recent, because words occur in their letters which I have so far not used. A visitor from Switzerland who stayed a fortnight wrote about

" 'the living together' in the deepest and truest sense of the words and not in the superficial and materialistic meaning of its use nowadays. I am sure that this is one of the main differences between

Finchden Manor and most of the other places, as e.g. hospitals, where there is always an enormous gap between staff and patients . . . [where] the well-defined roles help to build up new and more defences. . . . This lack of rigid structure of your community opens the way to the very heart of each personality and breaks down all the wrong defences. . .”.

A visitor from a university wrote of Finchden Manor that

“its outlook and values acknowledge another dimension of life that is often overlooked . . . it is a pity that all the students on our course are not able to come to you for a while. It would be much more worth-while than many of the placements: affecting one’s whole understanding of, and relationship with, other people rather than merely extending one’s knowledge of how institutions are run”.

I would ask you to remember that those comments were not made by me and that there have been, I think, hundreds in a similar vein.

Note these words and phrases: “relationship”; “institutions are run”; “living together in the deepest and truest sense of the words”; “enormous gap”; “lack of rigid structure”; “another dimension”.

I will take the expression “how institutions are run” because that brings us straight to the first question I expect to be asked: “At what point does organization become inevitably important?” “How unstructured can a group be or remain once its size has passed a certain number?” “Have you a contribution to make to education as a whole over and above any you may have to make to the group treatment of adolescents who are deemed maladjusted?”

At Finchden Manor we do not have rules and sanctions. I believe I have said somewhere that instead of strict rules we have stern love. This is a possible alternative only where members are disarmed. For those disarmed people can be allowed a latitude that they will rarely abuse. But who, you will say, could disarm every member of a school of a thousand girls and boys? Anyhow, are they armed, most of them?

I think that a very large number of them are. *The Times Educational Supplement* contained a review of the book about Finchden Manor in 1956 and concluded that there were hundreds and thousands of girls and boys in need of “Mr Lyward’s Answer”. Dr. James Hemming stated fairly recently that one out of every ten children is rejected by his or her fellows.

And we live in strange new times, times in which, to quote Herbert Agar (*A time for greatness*), “The world wide attack on civilization is forcing us to choose between a worse evil and a better good than mankind has ever known before”.

The growth of the empire of man over himself does not keep step with the growth of the empire of man over nature. There is tremendous mental exploration and control of matter and alongside it a reduced sense of personal values. These thoughts are widespread and they keep us in mind of the fact that we may well need education which is real nourishment and not the competitive pressure from which our young people suffer. (I could tell you of a school which has day boys as well as boarders and of how the mothers of these day boys talk incessantly about their sons' successes in "O" levels and the like.)

Nourishment (*educare* means "to nourish") may well be theirs only in so far as their group life helps them to realize that contract, however much it must be the basis of political and commercial and industrial life, is not the basis of political and commercial and industrial life, is not the basis of human relationships at all levels. People can very soon become things, objects. They can very soon "learn" to traffic in friendship, in all the imponderables, to value a gift without awareness of a giver. Mechanization and the abstraction of science – all impersonal – have played their part in reducing the power of sentimental religion and that kind of projected egocentricity which encourages an absolute taking of sides with virtue and a failure to realize that it is possible to be in bondage to that – "Mummy, why are the good people so horrid?" – fortifying self-centredness.

In the midst of a mechanical age when the religious solution was often seen to be projected egocentricity, it was the psychologists who came forward with their solution to the problems of personal relationships – their solution, an approach in depth, may perhaps now be interpreted as pointing to new kinds of group life.

Unlike sentimentality or dialectic conflict – the "third solution" would be one in terms of imaginative, enlightened love. It would not leave us helpless as the result of self-conscious man's having been clever enough to spit the atom.

I once summarized, in a paper I read about Finchden Manor, its need as follows: "The energizing discipline of non-contractual living together without labels, formalized sanctions, or superficial fairness makes for play and recognition and for awareness and the genuine 'please' and 'thank you' that reveal non-face-saving health". This was not my way of saying "permissive".

A well-known historian gave us the phrase "from status to contract" to describe the change from medieval to modern history. I feel that our young people by the thousand need the kind of group experience that will free them from fear, guilt, and the sense of inferiority induced by early untimely contractual encroachments upon natural rhythms and

rates of mental and emotional growth, so that they have status without an itch for status symbols, which are bankrupting. Surely that reflection will touch a responsive chord in all who are disturbed by the international scene as portrayed to us and our young people so continuously.

A psychiatrist who visited Finchden Manor recently wrote about the "very relaxed attitude and behaviour of the boys and the interest and concern they seemed to have for each other". A sixth-form boy, on the other hand, told me some years ago that "everyone in my form is bluffing everyone else". The psychiatrist added that "in a period when statistics and 'success' rates count for so much the tendency must be to try and alter behaviour rather than let it grow and change through growth".

Change through growth. I am far from denying that many children do develop emotionally but I wonder whether the time is not overdue for approaching young people in such a way that their schooling does not drive nails in the coffins of possibly the majority, by which I mean does not leave them at the mercy of infantile emotions, advertising, propaganda.

I tried earlier to make clear that such an approach would not cause a deterioration in academic work but the reverse. For one thing, the young who are experiencing group life at a deeper level than I believe to be true of far too many schools become concerned with quality rather than quantity, become more relaxed and therefore more able to concentrate and will the means with the end. They are also more co-operative. I have a letter by me in which the writer says of Finchden Manor:

"I have never come across such spontaneous enjoyment of work and learning for its own sake anywhere except at Oxford. I hated teaching because I had to teach things people didn't want to learn at a time when they didn't want to learn them . . . but I can see in your methods how wonderfully satisfying teaching can be".

I may talk later about "my methods" but the point I want to emphasize is that all our energies at Finchden Manor are directed in the first place to maintaining group life at depth. That depth is vital to its members. It lies behind the sense of security, the initiative, the co-operation, the avoidance of cliques or gangs, the concern for the truly moral – and behind scholarship.

Parents and society press for premature crystallization, for the locking up of children in success and economic security, regardless of the war within and the war without. I suppose civilization would

collapse if enlightened self-interest were suddenly to disappear. But as I think of the people (for instance Children's Officers) who have pleaded, without response, for time, tolerance, and greater hospitality to experience, I wonder how far education is free of the charge of actually furthering the opposite danger, to wit, collapse into chaos as we go our clever but self-willed way and moralize our mechanization: paying homage to the cortex, a cutting-tool of later development, further removed from the source; confusing the discrete analytical mind with the mind as measurer.

I am not quarrelling with technology or with any of those things necessary in an industrial society but only with the effects of wrong timing, with the dangers of producing people who are schizoid, people for whom reason is detached from the orb of consciousness so that it becomes ratiocination and is always involved in antinomies.

And where relationships are concerned, I want more people to be able to distinguish between "knowing" and "knowing about". I am concerned with living together, which can span time and space where necessary. "Knowing about" is important, but where other people are concerned "knowing" is all-important. Knowing makes it possible to dispense with much that is usually called discipline. So many children suffer to some extent from the effects of a moralistic and legalistic discipline that is lazy. I do feel that the *spirit* of the discipline that I have to maintain as prerequisite for healing is vital to the total education of adolescents, when science can lead astray and humanism cannot release a powerful enough spiritual force to counter the destructiveness of our times; for planners are liable to forget that it is people who will have to maintain their organizations and that the task of education is to help in creating the men and women of elasticity and courage and reverence who will create the new society.

Inner processes take time, growth, and inner consolidation; and over and over again nothing seems to be happening – and nothing can happen if pressure and judgement are maintained as they are by society and by so many parents who cannot abide uncertainty. Spontaneity is lost if young people respond, say, to angry words and fall back on rules of duty, politeness, philanthropy, and so on, missing the living moment. T. E. Hulme said: "Clarity is not the truth; science is not reality". Standards applied indiscriminately, deadlines which are not lifelines – these can prevent young people thinking clearly. Let no one imagine that I am not all in favour of clear thinking. A poet once told me that he thought that the spirit of Coleridge hovered over Finchden Manor. Well, it was Coleridge who said: "It ought to be our never-ceasing effort to make people think, not feel". To think is to be

released from the tyranny of feelings. Heart and head together is the way to fuller life and richer relationships.

Can we distinguish between four kinds of group life? There is the quasi-hotel; then the group that is governed largely by rules and regulations and sanctions; then group life which is involvement; and, lastly, membership one of another.

Freedom is a subject that young people like to discuss. Many of them want to turn the place to which they go into a kind of hotel, where they can come and go at will, without much regard for other people and without having more than a peripheral relation with them. They are not very interested in what I will call centres. They live on the edge. Ironically enough, those who have not referred to a centre are the ones who want a reference later. I would like this word centre to remain mysterious – there is a real place for mystery in human relationships within the group. When I say not this nor that (its apparent opposite) but a third, I am not pinpointing the third.

Peripheral relationships may be exciting in the sense of providing “kicks” but they do not show much play, movement backwards and forwards – concerning which the mother rocking the child in her arms offers a clue, as do children’s games: peep-bo, see-saw, hide and seek. This backward and forward movement, which is virtually weaning, is a way to security, emotional security, and towards a life lived in freedom of spirit. I am not going to dispute the fact that life is a challenge – see-saw is also a preparation for that. But because it is a challenge, we must make sure that the early challenges are made within security. Some of these challenges will actually help to create security, but they must be made to someone who feels that he “belongs” and that he counts for himself, not because of what he can do or does do or because of what he has done. Conversely, security is a great challenge – because once you loosen the texture of your community life and allow for movement, the patterns begin to quiver and the child or young person is not any longer able to lock himself up in them (except temporarily) or manipulate people and situations in terms of them. Then he is forced to internalize, is unable to escape into his blind or semi-blind pushings outward. He develops a proper sense of self-protection and then creativeness. All this is movement away from diminished responsibility.

Loosening of group life allows true incentives to operate. The word incentive is connected with the word incantation. The teacher’s joy is to keep free enough to have time to sound for each member that note which is his note, the one to which he cannot help responding because it is his note. Those teachers whose eyes are on their syllabuses can

rarely sound a variety of notes.

And what do they meet with? Resistance. I sometimes wonder why so little attention is paid to the total amount of resistance that must dog and fog the teacher/pupil relationship up and down the country and leave so many young people without experience of true scholarship – once again, I am relating group life to scholarship or loss of scholarship. And I had better interpose here that I do not ignore the number of boys and girls who win scholarships under our present system of education. But my contention is that in a certain kind of group at depth, every member becomes in his own way a scholar capable of communication. Subliminal advertising and artificial insemination – these two can stand as indicating the kind of way in which real communication and communion are being, as it were, cut across so that it is extremely easy for people to be denied creative relations with others while hardly knowing that this is taking place and without themselves being known. This seems to me to be a current problem in cognition and recognition.

The resistance that I have to remain aware of in my work, and would have more teachers aware of, is not what it can appear to be. It is not a refusal to accept specific challenges so much as an inability to change, at the bidding of another, a total emotional condition which has perhaps years of repetitive behaviour behind it. The resistant ones – I nearly said the “lordly ones” – are like squirrels in a cage. They have been hugging a particular and limited and finally negative set of thoughts and feelings, largely related to self-pity. Self-pity has come to replace true self-love, which manifests itself primarily as self-preservation, and then as self-control, which is part of expansion of consciousness, and as creativity.

Just as it is easy and common to mistake his nuisance value for the child himself, so it is common at a later date to confuse him with an external success, a rapid return to good behaviour, or what could be called the passing of an examination. The human nuisance is then, as it were, liquidated or shut up in this examination success. What if most of those whose reports state that they could do better would do better if there was more recognition of the nature of such resistance as I have tried to outline?

What kind of resistance does the teacher so frequently put up to confuse the pupil? I suggest that it is the rigid standard.

Mothers are accustomed to wean their babies from milk to (say) meat. But other matters, surely they are different? Whereas a child cannot be blamed for not holding a cup at the age of one month, we know that quite little children can be convicted of fibbing and slapped

for it and we know that older little children can be threatened or persuaded or seduced into behaving well. So why not always “deal” with the child’s “bad” behaviour or the young person’s shortcomings in his or her work without more ado? Why leave parents and teachers lost – without standards?

Suppose it is suggested that the “whole baby” is engaged when he drinks the milk and that it is not always the whole child who is engaged when he is acting bravely or being well behaved or learning French verbs? How much does it matter if a child is honest, well mannered, thoughtful, up to scratch with only one part of himself? What may be happening to the rest of him? This, asked in very untechnical language, is a question to disturb.

Is not the vital question: How far is the child doing what he does with his whole self – his “heart and mind and soul”? Is his heart in his work and play, is he co-operating in freedom of spirit, is his homework spoiling the quality of his sleep, are his friendships free? Or is there a serious gap between the part of him that is answering a challenge and the rest of him? Is he implicitly asking us to get between him and that fear or seduction that is compelling him to be unreal in his bravery or politeness or success, as he makes a dangerously partial response?

In the olden days of not so long ago, we were not awake to the dangers of the partial response, partly because we knew it sometimes could not be avoided. We were concerned, perhaps, with what neighbours were thinking, with how much trouble the child was causing us, or with a lifeless picture of “what ought to be”. Some of these and similar concerns are quite important but they are not as important as a person’s capacity for learning from life, for tolerating the existence of others, staying the course, “dying daily”.

A child can give and take only after or while he is being nourished. Some need to take more and for longer than others. Taking will look dishonest or selfish to those who have expected it to cease. Yet the wrong kind of stricture by parent or teacher with a child who is taking may deflect him into taking in still stranger ways, and then he will be labelled and it will take more time while he is restored with the aid of those who are willing and able to stand between him and whatever is compelling him to remain unfulfilled and partial in his response to challenge. As things are, however, he is often being forced to live on credit.

All subjects of the curriculum of a school can minister to the child and his society. It is an irony of my life that I came to healing through a discovery of how to use “subjects” to release and emotionally re-educate young people, but that now I frequently have to plead or

insist that they should be protected from formal subject-teaching so long as it can hold up the emotional liberation of the seriously maladjusted.

I hope I still appear to be talking about the atmosphere in which children and young people can be helped as people in schools – and, I would add, in universities.

When bluff is not needed and there is willingness to say and write what is “felt and thought” rather than what the teacher wants (or what the university library will tell us about what somebody said about what somebody wrote), there come an alertness and honesty and sensitiveness that make every talk and other activity personal, ensuring that there is no serious and traumatic lack of the experience, “It dawns on me”.

If one ponders over standards as they are only too frequently applied by teachers one soon finds oneself asking how often a child attacked or criticized for failing to reach a rigid standard has developed or suffered from an increasing sense of insecurity and painful separation. Recall how hard it was to “make it up” when as a 14-year-old you had quarrelled with your friend. Recall the lesson following the quarrel and the teacher who hit out at you for not paying attention. Remember the person who made you completely sure that he would not laugh at you or alarm or over-challenge you when he was teaching you to swim. Contrast him with the person who merely said, “You can trust me”, but never managed to convince you that you could safely let go. Note how, even now, you can make all the difference to somebody from whom you have had to borrow a £1 note if you say convincingly, “Now don’t be at all shy about reminding me if I forget about it. I really shall not mind”. And, while with the word “forget”, acknowledge how hard many people find it to say simply “I forgot” instead of “I was about to . . . but just at that moment . . .”.

In my community I must resist attempts to persuade me into trying to make the best of two incompatible worlds, the shallow and the deep group life. I would say, after 57 years’ experience, that basic skills develop and cultural and academic advance takes place in a sort of inverse proportion to much that is ordinarily considered essential. I suspect that what I have found to be vital for those who are intelligent but emotionally and socially retarded is not without significance for the so-called normal and those who teach them. I know many teachers who are not content to measure and praise and reward a merely partial response in their pupils. They know that it is only within a group living in depth that the drag of the herd can be recognized for what it is. They know that it is better to make challenges intuitively than with an eye

fixed on standards. But the intuition must develop out of the deep level of group life. Academic and other efforts which actually replace membership one of another by contract and sap energy are suspect, however satisfying the immediate results may appear to be to the individual or to the community. Academic advance should as far as possible be an aspect of personal development which enables people to give to the community and makes them (to quote Professor John Danby writing about Finchden Manor) “capable of being alone – alone with the truth and for the truth’s sake”.

Our age needs such people. Neither smatterings of knowledge nor intellectual prowess nor unfocused idealism make inevitably for that “better good” which Herbert Agar wrote about and to which I referred earlier. Is it possible that what is found to restore the maladjusted would make for the nobility of the so-called normal?

In recent years adolescents have been claiming to be a new race. There is now something of a mythology of adolescence. Headmasters and headmistresses are having to wrestle with problems created by the more rapid physical maturing of their boys and girls.

It might be easy to point only to the destructiveness of the age we live in (the essay I wrote for my degree some 50 years ago was “We are now entering a new dark age”).

Modern man is at his wits’ end, beyond exhaustion point. Those who have been brought up during what is probably the end of the Renaissance era will note with piety the decadence. They will find it hard to believe that we may well be at the end of an era – that era which looks back to Greece and Rome. But there are not so many of those people living now and they with their authoritarian attitude clash with those others whose attitude is existential.

At Finchden Manor we try to bring about a melting of these two groups, keeping in mind that, as has been said, “those who dogmatize . . . insult the wind as it blows”. Often when I am confronted by a clever sixth-former who has come to grief he will try at first to defend himself and his “new race” with such statements as “What is wrong with self-indulgence?” Then I hope that I am perhaps surveying not decadence but what I have heard called “procreant putrefaction”. Latin law and Aristotelian philosophy seem to be “out”, as is *Homo ethicus*. These young people seem to be agreeing with Nicholas Berdyaev when he says that “among the ancients Heraclitus is most close to me”. The art and literature of this period show affiliations with the pre-Plato period, which is, I suppose, not strictly European at all, but rather middle-eastern.

Personalism and modern psychology itself show these same

affiliations. Heraclitus said, "Travel over every road, you cannot discover the frontiers of the soul – it has so deep a logos". He emphasizes tension as the true norm of existence. That is modern, surely; but it is also a reverting to the womb of our civilization. It has been truly said that when instincts are more sure and significant than conscious mind and will we must be in a period of extinction or rebirth. Reversions to origins more remote than Plato may bring about a renaissance more radical and rich than that which is surely now coming to an end.

What I have just said and that which immediately follows was first conveyed to me 20 years ago (in a Burning Glass Pamphlet – Channing-Pearce) but came to mean more when I began to meet beatniks and found myself being patient with them, believing that it is not loving nor wise to throw out the baby with the bath water. Their attitudes may be "rooted in blood rather than brain, of the spirit rather than of the intellect, mystical rather than moral". All this is foreign to my own upbringing, but I am one of those who have been compelled to accept these young people who claim to be a new race, knowing that I cannot hope to be accepted by them if I shut myself off from their hunger for relationships such as they claim (with varying degrees of conviction) to have experienced; relationships that are often puzzling but certainly not always wholly despicable. They are out of sympathy with the typical European Renaissance man who set out to master the world. These young people are having to come to terms with death, the death of the age that we older people only very tentatively questioned, as well as with the bomb. They go undefended by dogmas and they are self-pitying or creative according to whether they experience shallow group life or group life in depth.

Is it possible that, with some more continuous recognition that children (so-called because of their physical immaturity) are human beings in their own right, facing their own destiny and unfolding their soul-inheritance within the limits of the psycho-physical vehicle the parents have partly provided, a new and wiser attitude towards the younger generation might arise? Wisdom is not merely intellectual acuteness – it includes reverence and sympathy and a recognition of those limitations that bound all human endeavour.

I hesitate, more than I may seem to do, to reiterate the point I am making today, namely that perhaps our educational system is out-of-date in this nuclear age. Granted that we need scientists – we must nevertheless keep in mind that the laboratory-trained are peculiarly liable at present to be cut off from the world of subjective values, thereby preferring large-scale enterprise to small-scale, and

falling through panic into totalitarianism of one kind or another. How easily we can forget that our highest most creative moments are those of feeling and direct knowledge.

We should teach to the feeling for the sake of thinking, for the sake of the subject, and still more for the sake of the child. It is only what he makes his own that helps him to think clearly; to live not possessively. To make it his own he must see, synthesize, and seek and find unity. He must not merely analyse or accumulate and so lose gradually the power of keeping alive to the “mysterious, threatening soul-searching realm of being which lies behind and within the sphere in which organization achieves its ends” – not now in 1969 – or social reform, for example, will express his personal entanglements and be carried out largely in fantasy.

May I now return briefly to the question of teaching technique? It should not be too consistently sequential or linear. Preparation, or “prep”, as it is called, should be preparation (preferably with the teacher) that whets the pupils’ appetites so that they can come to the next lesson eager to discover the answer, the solution, the question that emerges from previous answers. There must be play, a certain looseness. What a number of boys and girls have told me how they have been bored by the man or woman who walks round the room dictating history notes and how they have been fatigued.

Seeing, with the eye or inner eye, must take precedence over “think, think boy, think” (I hope I have made it clear that I am not disparaging thought). Man refuses nowadays “to trust his eyes, to rely on his senses or to allow what he sees to loosen the bonds that confine his spirit” (Osbert Sitwell, *Noble essences*). Do you remember Robert Bridges in his “Testament of beauty”:

*... and that the poet guarded this
showeth in his lyric, where of Sylvia 'tis enquired
why all the swains commend her, and he replyeth thereto
Holy fair and wise is she, thus giving to Soul
first place, thereafter to Body and last of the trine
Intelligence: and thatt is their right order in Love.*

These reflections on teaching are relevant to any attempt to plead for group life at greater depth. They are themselves a plea for an unafraid, more leisurely atmosphere, which can keep together all those who are physically together in a classroom. The same adults who appreciate this will be concerned with ethics but will not forget that “ethics are a means to the attainment of an end which surpasses them”. They will not believe that eight “O” levels will inevitably protect

anybody from the poisons that as a society we administer through our mass media to the most precious part of it, or at any rate the most tender part of it, those who because they are so eager are most easily seduced. They will recognize the danger of perpetuating an unreal "tradition of fair play which sustains a false idea of social justice and accredits the boy with a slave's mentality craving equality under the tyranny". Those words were said about schools by a distinguished philosopher writing about Finchden Manor. He added that at Finchden Manor "the boys learned to trust the staff personally and actively instead of lazily relying on a set of uniform and calculable reactions".

The welfare state, welcome as it is, presents its problems. We may enjoy a sharing but be in danger, to quote Laurence Hyde, of developing a race of "under-individualized people sharing inferior experience".

We cannot and should not wish to turn back the clock. But our schools could go much further than they do in ensuring that depth of group life which would make for lasting creative experience.

I recall that the late Dr. G. H. Stead, a wise and much-loved Director of Education, wrote of the 1944 Education Act that it might turn out to be "in effect an excellent structure but one which might fail in its ultimate content".

An American experiment in 30 schools contemplated the urbanization, specialization, and standardization that are changing the world which once "was waiting outside every child's front door". The experiment aimed to help children "to cultivate a happy and effective home life, to choose friends wisely and to co-operate cheerfully in worth-while group activities"; "to face squarely the problems that arise in everyday living and to work out their solutions with an intellectual and emotional balance"; and "to develop increasing ability to make choices in the light of consequences".

This involves concentration. Concentration depends upon relaxation. Both are vital to education for leisure – automation is on the way. Neither those whom the French would call *têtu* (many the result of our considering adolescence as primarily a thinking rather than a feeling period of life) nor those whose only hope for their leisure is bingo are ready for more leisure.

The 14-year-old school-leaver used to enter the industrial world suggestible rather than teachable (teachableness is the real goal schools should have for their members) and either identified himself with it, losing his play as he became an industrial personality, or became a machine and constructed for himself as compensation a pleasure world which was just as mechanical; or he made of "service" a refuge from

life. What will our 16-year-olds do with their leisure?

I should like to conclude with a reference to what I call “the third”, not this nor that but a third, holding together the two apparent opposites as contraries. This third must remain unnamed in so far as it belongs to a new dimension. Its reality constitutes depth in group life and all that derives from it. I was pondering over the possible words that might hint at what is so difficult to convey. I found the following summing-up by myself of a discussion (at London University Institute of Education) between those who taught maladjusted children in day schools:

“ ‘Without the added strain of removal from home’ – that is the sentence that has lingered in my mind. The disturbed children about whose rehabilitation we were hearing had had strains and had then been removed from those strains for ‘easing’. The attempt to ease might involve strain.

To envisage ‘strain-easing-strain’ was to recognize a third possibility hidden within the second. This kind of recognition marked the talks. . . . This is the kind of thinking which the heart finds easy. It is born of love rather than of logic. Is it possible that only those who accept the statement ‘the key to all deeper insight into human behaviour is not technical proficiency but simply love’ can know what is meant by ‘depth of group life’ and ‘deep relationships’?

The speakers were describing atmospheres in which child and adolescent were not above all subjected to rules and regulations nor to a certain kind of linear teaching. This latter can easily assist a child to be not ‘all there’ and because it lacks depth can play no small part in producing a schizoid generation.

As so often nowadays, I found myself pondering upon how the needs of the disturbed child and the approach to him reveal the inadequate nature of so much so-called education elsewhere.

When the study of subjects does not take place within a group life of depth, allowing deep relationships (reducing bluff, bluster, face-saving, and snobberies to a minimum), then there is a danger of young people suffering from what is now a possible plea in the courts, namely ‘diminished responsibility’. These can often see what they are doing as clearly as – shall I say you or I? – but it is as if somebody else was doing it. Their seeing is not effective to give them a sense of self-preservation and a freedom from punishing consequences, let alone freedom for satisfying the demands of a deeper self. They can hardly fail to produce strife or bring into

existence a laborious organization which has to try to bring about from without what should develop from within.

Likewise they can, some of them, win scholarships but they are not true scholars. Every child can be that; it is not a question of quantity.

The 'quiet presence' of the teacher; non-rejection of the child as he is; freedom to experiment; these play their part in producing an atmosphere of relaxation in which one-time frustrations become challenges such as are welcomed by living *people*. People *living* together are indeed 'joyned with an holy boond', as Professor L. C. Knights, quoting Chaucer's Boethius, points out. And we should agree with the comment he makes in his lecture on Shakespeare and Politics: 'The love that is in question is not of course simply a matter of feelings; it includes a neighbourly tolerance of differences and a sense of mutual need; and in its openness to life, its willingness to *listen*, it is allied to that justice which gives each man his due, looking towards what he is or can become; and there is delight super-added' ”.

Power relations, however disguised, are not enough. Richard Church, after a chance encounter with a child, writes of "candour which makes the world go round and gives the lie to all that Machiavellian protocol through which the human race pursues too much of its social and political articulations".

Cycles, Time, and the Pineal Gland

Mary Scott

In *Theoria to Theory*, Vol. III, no. 2, there was a discussion of John Bleibtreu's book *The Parable of the Beast*. I understand that there is to be a series of articles on our psycho-physical nature and its environment which will owe much to Bleibtreu's approach. I have been asked to discuss his chapter on cyclical time and the endocrine system, and particularly the pineal gland, in view of the way he brings out possible links between the work of scientists and part at any rate of ancient religious tradition, which sees the human organism as essentially a unit integrating its own biological rhythms in response to wider cyclical rhythms in its environment.

The notion of "cyclical time" is contrasted with what is to most of us the more familiar measuring system of linear time. Linear time – sequences thought of not only as irreversible, but as ones in which each moment occupies an analogous position to every other moment – is a technologically useful abstraction out of our total experience of time which has become second nature in the West, with many injurious results. Biological time is rhythmical being based on recurring processes such as the procession of the seasons, the round of day and night, the phases of the moon, the pulsation of the heart, the menstrual cycles, and so on. Primitive man, those who work close to the soil, and all animals and plants, live within cyclical time, and so may non-industrialized orientals.

Western scientific interest in cyclical time and in particular circadian rhythms (from "circa diem" – approximately a 24-hour period) began in the botanical field with the observation that plants appear to have a built-in responsiveness to the 24 hour light cycle. Because plants have no nervous system it was at first thought that the origin of cyclical, biological time was cellular.

The study of diurnal and circadian rhythms has since spread, and Bleibtreu summons a wide range of fascinating researches which show conclusively that animal as well as plant life responds with precision not only to the 24 hour cycle of the earth's rotation, but to the 28 day lunar month. He also discusses a series of experiments which show that many lower animals have inbuilt mechanisms whereby they can orientate themselves, by the use of sun or moonlight or the directional pull of the earth's magnetic field in a spatial environment often bare of landmarks.

Humans have for the most part lost this "instinct" because the immediate environment can provide sufficient clues to their whereabouts without their having to resort to a wide environment for guidance. The need for orientation by reference to a wider environment in terrestrial wastes is however demonstrated by the behaviour of seamen and aviators when confronted by the sort of barren landscape that is the natural milieu of, for instance, the sand flea among windswept dunes. Primitive men, such as Van der Post's Kalahari bushmen, seem still to have a sense of their cosmic context and how to use it, suggesting it is a gift we have lost rather than one we have never had. Its exercise depends on sensitivity to cyclical changes in the position of the sun, moon and stars, and their effects upon our biological rhythms.

The importance for health of a renewal of our sensitivity to the body's rhythms, its responsiveness to its total environment, is at last being understood by doctors who have been as subject as the rest of us to closed-system linear thinking, thus treating us inadequately and in an artificially narrow context. The effect, for instance, of air travel, and even more of space travel, on our bodily rhythms and the differential rate of adjustment of the various organs and systems to violent and continued accelerations including changes in gravity is now being seriously studied in those asked to perform athletic feats at the end of a journey, as well as in those who have to make important technical decisions in space, or diplomatic or business decisions on the ground.

The close relation of psychological states and the biochemical processes of the body makes it difficult to believe in a separation of mind and body into separate compartments. The major philosophical upholder of a dichotomy of mind and body was Descartes. But although Descartes held that the mind was a spiritual substance and the body a complicated machine, he found himself bound to look for some point through which they interacted in order to account for sensation and memory. He located this point in the pineal gland, and generations of his commentators have laughed at the naivety of this suggestion. Did he not know that the pineal was only an obsolete eye? Now however, his suggestion appears less silly after all.

The pineal body is a small greyish asymmetrical structure located at the top of the spinal column and weighs only about a tenth of a gram. In the West it was for a long time regarded as vestigial and functionless and it was referred to not as the pineal gland but the pineal body. The Greeks, perhaps influenced by Indian philosophy, had the notion that it was in some way the regulator of thought and the Romans regarded it as a superior gland. The Hindus, however, got on very early to the idea

that it was in some sense an eye, a light-sensor, and for centuries have associated it with spiritual insight calling it "the Third Eye of Enlightenment".

Zoological studies have shown that there is such a central third eye in certain fish and lizards, but it has no nervous connections and was thought not to function optically. However later studies showed that, though the pineal eye in lizards seemed to have no connecting nerves, it was not useless but seemed to make the creatures in some way more responsive to their environment. The responsiveness of the pineal to light seems to be the link between those who looked on it as a kind of eye (the Hindus, if this indeed was their "Third Eye") and those who regarded it as a gland. The early Latin anatomists thought of it as such, calling it the "glandula superior", and the pituitary the "glandula inferior". In terms of modern science, however, knowledge of its function has only enlarged through a number of different lines of research, done in different parts of the world over the last ten years. It appears that stimuli conducted by the optic nerves to the brain are processed by it and in some way this gives rise to a sensation analogous to sight. Mammalian pineals do not of course, respond directly to light, but their secretions are indirectly controlled by the amount of environmental light. In amphibia however, the pineal does respond directly to light which regulates the production of a colour-changing hormone in pigment cells, which is important in camouflage.

Of the hormones secreted by the pineal one, melatonin, was found to restrict the production of dark colouring in the pigment cells of reptiles. This is not so in mammals where its main function seems the control of normal sexual maturation and the regulating of reproductive cycles. Deficiency produces over-growth in the genitals. For example, a young boy with precocious puberty was found to have a tumour of the pineal gland. Following-up research showed that after pinealectomies the size of the gonads increases whilst the weight of the prostate and seminal vesicles, though not of the testicles, can be reduced again by injection of melatonin. Parallel experiments, subjecting rats to continuous artificial light showed a decrease in the secretion of melatonin, and an increase in growth of the gonads. Reproductive cycles were so thrown out of rhythm, moreover, that the female rats became sterile. It appears therefore that the pineal in response to external diurnal light changes synthesizes a hormone necessary to the normal sexual growth and regularity in the functioning of the reproductive cycle.

Melatonin is manufactured in darkness and expended in light which may provide the clue to the organism's responsiveness to the diurnal

rhythm of day and night. This may also account for the ability of non-pinelectomized lizards to survive better than the pinelectomized ones so long as there is daylight, but not once night falls. There is also the possibility that the insects which use sunlight and polarized light to find their way about can do so because of some inbuilt mechanism associated with melatonin. Perhaps research along this line has not yet been undertaken. Certainly of the two secretions associated so far with the pineal, melatonin seems the most likely to control metabolic rhythms though of course it can only do this in association with the pituitary and the whole endocrine complex.

Serotonin, the other pineal secretion so far discovered, seems to act very differently, though the research described by Bleibtreu makes it clear that melatonin manufacture requires its presence in the brain. It was discovered independently in two separate medical fields. In the first case it was found to be present in the intestinal walls of vertebrates where it caused contractions in smooth muscle and was therefore associated with peristaltic movements of the intestines. It was then found to cause blood clotting by constricting blood vessels. When chemically analysed it proved to be a commonplace chemical in nature, being found in many fruits and vegetables and interestingly enough in a particularly rich concentration in the *ficus religiosa*, the fig produced by the Bo tree, the tree under which the Buddha was sitting when he found enlightenment.

As blood clotting is not always desirable, chemists experimenting in search of an antidote for serotonin found it in L.S.D. which, though very similar in structure is a strong antagonist of serotonin. The main function of serotonin thus seems to be to defend the organism against those effects now made familiar to us by writers on L.S.D. These are primarily experiences of boundarilessness, a sense of ecstasy of flowing into the universe. Euphoria and oceanic states of tranquillity and bliss are frequent and there is an accompanying sense of radiance, a brilliance of light and colour suffusing everything "All sight and sounds" as Bleibtreu writes, "all sensations external to the Self, become incorporated into the Self. The sense of alienation which is so much a part of human existence was annihilated". And he goes on rightly to point out that this sort of experience while ecstatic for some is quite terrifying for others. It is a characteristic symptom of schizophrenia.

David Wooley of the Rockefeller Institute is cited (p. 72) as writing in 1954 that among the various chemical antagonists of serotonin which he investigated some were mentally disturbing, and this suggested to him that "naturally occurring mental aberrations... which are mimicked by these drugs may be pictured as being the result of a

cerebral serotonin deficiency arising from metabolic failure rather than from drug action”.

This, of course, gave rise to the hope that doses of serotonin might provide the cure for schizophrenia but this hope has not been fulfilled. Serotonin would seem to be secreted very idiosyncratically. Its concentrations cannot as yet be measured in the living brain. Work has however been done which shows that pineal levels of serotonin are tremendously higher in primates than in other animals. Within the human race there is great variability in levels compared with, say, bovine pineals where levels remain relatively constant. One chronic schizophrenic, for instance, had a postmortem weight of 0.59 micrograms in his pineal, while a sufferer from delirium tremens possessed a total of 22.82 micrograms. These are individual differences of unusual, and, as yet, inexplicable magnitude. Hard clinical correlations between the serotonin content of the brain and states of mind or emotions are yet to come. They can only become possible if and when its fluctuations within living tissue can be measured and the introspection and bodily responses of patients can be assessed alongside. Even the way L.S.D. alters consciousness is not well understood as yet, and so the sense in which it acts antagonistically to serotonin in human beings, as opposed to test tubes, cannot be properly interpreted. The work of Freedman and his team, cited by Bleibtreu, has however thrown some useful light on the cerebral areas in which the inhibition of serotonin occurs.

Freedman used radioactivity tagged to L.S.D. molecules (and I quote Bleibtreu) and found “that L.S.D. achieves its effects by entering into special ‘receptor sites’ in certain brain cells. These cells normally take in serotonin through these receptor sites, but when these sites are blocked by L.S.D., the brain is effectively deprived of serotonin. So far, therefore, all that we really know is that minute quantities of serotonin affect mental states and that new dimensions of conventional reality accompany changes in the level of serotonin in the brain” (p. 75). Minute quantities of L.S.D. can equally grossly modify our perceptions of what is normally called reality. Serotonin must therefore be crucial to what is conventionally considered as “rational” thought.

The relation of ecstasy to the action of the pineal gland in terms of its secretions is an interesting one. The biochemical analysis of reality does not seem to confirm the suggestion of Freud that all real ecstasy is sexual and any religious form of it is an intellectual perversion of a primordial drive and must therefore be regarded merely as “sublimated” sex. In Bleibtreu’s words, “Unlike Freud’s the reality of the biochemists is totally objective. It is becoming more and more

difficult to avoid concluding that, if ecstasy has any material biochemical basis in being, the biochemical substances controlling both its sexual and transcendental manifestations are probably manufactured in the pineal gland" (p. 78). In other words, our sexuality is secondary to some much wider metabolic pattern and our biological creativity within the universe is in some way derivative from our place in it and our responsiveness to cyclical rhythms in general.

This fact, only now astonishing us in the West, has been known to the Hindus for centuries. Bleibtreu refers to Kundalini Yoga and its placing of our most vital centre, "the highest Chakra" in the space between the eyebrows. Actually there is some difference of opinion here since many would call "the thousand petalled lotus" at the top of the head the highest chakra but there is no argument about the Hindu teaching of the importance of the Third Eye.

The chakras are centres variously sited in respect to the body and are focal areas where, according to Eastern teaching, the forces of mind and body meet. Bleibtreu quotes verses from a sixteenth century Yogi which stress the sensation of light associated with one of the higher chakras, possibly the Third Eye (? pineal). On pp. 79-80 Bleibtreu writes of "the brilliance of the unearthly radiance which seems, from Western mystical literature as well, to be an essential part of the religious ecstatic state. The light is described as being lustrous as ten million suns but in another part of the poem he writes that it is also "soft like ten million lightning flashes". Light – the lovely mysterious effects and sensations of light pervade both the religious, mystical literature and the scientific. Light and the Third Eye; the puzzling connection persists and the great holy days of all religions tend to cluster round the dates of the solstices and equinoxes: those times of the year when natural environmental light alters its intensity and duration. Is it possible that certain susceptible individuals are more likely at these light-changing times, through altered pineal gland secretions, to experience transcendental, or mystical states? Do these holy days signify a cultural-historical recognition of this increased incidence? Is the pineal gland in part responsible for "spring fever" and the springtime surge of human sexuality?"

If we answer these questions in the affirmative, and I think we must, the implications for the Western Church need serious consideration. The closed-system, utilitarian and materialistic values of our technocratic society are loosening their hold on biology and medicine so that we are being forced by science to become submissive to cosmic forces and cyclical time. But what about tying Easter and Whitsun to commercial and administratively convenient fixed dates? Should not

religion also use science to maintain a tradition more soundly based in nature and the true relation of man and cosmos than some of the more rationalistic among us realise nowadays?

Bleibtreu has done a valuable work in summarizing these researches and speculating about their religious implications. He makes it easier for those of us who are interested in finding a common context for science and religion to make connections which may lead to ways of thinking about ourselves which do not abstract injuriously from our totality and alienate us from the wider environment within which our lives are, in fact, set.

Bleibtreu's writing on the pineal and his reference to Yoga can be usefully read in connection with *Beyond Telepathy* by Puharich*, who is studying the Yogi in terms of E.S.P. Both writers bring out a polarity between sex (its maturation, its rhythmic functioning or its control) and unusual states of consciousness, between the chakra or centre at the base of the spine where the primal energy called Kundalini "rests" and the centre in the head to which it is "raised". Bleibtreu shows both sexual activity and certain mystical states as connected with the activities of the pineal gland, which Puharich does not in fact mention. Puharich is concerned less with ecstatic experience than with being able to project consciousness through what he calls its Mobile Centre in order to obtain knowledge at a distance. However, whether the Yogi is seeking objective knowledge or mystical union in the state of Samadhi, his basic training is a matter of controlling the body rhythms, and presumably the pineal must therefore be closely associated with both kinds of Yogic experiences.

Investigations such as those of Bleibtreu and Puharich can play a useful part in linking traditional and scientific accounts of the causation of mystical and paranormal states. This in turn would prepare the ground for a new biological approach to human behaviour. The scientific study of the body in a wider context may prove the best way, moreover, of closing the Cartesian gap between mind and body by unifying our knowledge of the inner life of man and his experience of the outer world as objective and distinct. His rich responsiveness of the body may cover a wider range of stimuli than science has so far assumed.

* *Beyond Telepathy*. A. Puharich. Darton, Longman & Todd, 1962.

Periodic Phenomena in Organisms seen as Non-Linear Systems

Arthur Iberall

I would like to put before the reader the following physical hypothesis. To maintain their viability*, systems must exhibit oscillations in their fundamental process chains which are either externally cued, or autonomous.

I wish to probe at this thesis first in the biological system.

There is a usually unstated but prevailing assumption about the operation of physiological systems, namely that most of a system's parameters come to a constant state when outside disturbances cease. A recent article by Morley and Stohlman [1] is symptomatic of a trend to challenge this dogma.

To introduce their work on the periodic nature of red cells concentration, they state: "Many body parameters are known to be actively controlled in such a way as to oppose disturbances and result in a more or less steady state. A commonly assumed and expressed corollary to this concept of active regulation is that a perfectly steady state results when no external disturbances are acting. However, clear exceptions to this corollary exist. . .". The authors go on to suggest that oscillating steady states are rare, and refer to a few instances known to them as introduction to their own work.

My colleagues and I have been actively engaged in attempting to create a scientific revolution around the thesis that the living system, and in fact all systems, can operate in no other way but through epochs of periodic "steady states" and aperiodic switch states. (We are well aware that cyclic theories of systems are as old as man's written thought; that investigators like Huntington in the social sciences, van der Pol in the physical sciences, Gjessing and Jenner in psychoses, the Foundation for the Study of Cycles, circadian rhythm investigators, etc., have all actively pursued the importance of particular periodic phenomena.) However, other than the investigations of Richter, we know of few besides our own which have tried systematically to extract a variety of extensive cyclic data from the biological system; and to put forth, before technical people, theories, hypotheses, and fancies about

* Viable – having attained form and development of organs (i.e. internal parts) as to be normally capable of living outside the uterus (i.e. outside of the "laboratory", "crucible", or environment, in which the system had its start-up).

the underlying causes of these cycles. We found such investigations essential, when we realized that in most physiological studies there is a shocking poverty of information about sustained unperturbed normal operation of living organisms. In short, there has been virtually no systematic observational spectroscopy.

Biophysical Preliminaries

The reason for the temporal cycles (or at least for our belief in them) will not be clear without at least some brief introduction to the organization of the biological system.

The following logical outline is offered for our speculative view of the biological organism. Its apparent tidiness does not wholly represent the paths by which we arrived at our description. Our interests and outlook are those of physical scientists, newly come to biology. Thus our effort has been directed at constructing a biophysical model of the biosystem, that attempts to be based on as well-founded physiology findings as we could assemble both from countless other investigators and our own limited added efforts.

1. Understanding of the biosystem may be usefully organized around the following levels:

- (a) the biochemistry at the molecular level;
- (b) process maintenance and exchange at the cellular level;
- (c) process maintenance and exchange at the organized level of the individual organ (kidney, heart, liver, etc.);
- (d) internal process organization and logic for the entire system (i.e. systems analysis for the macrosystem);
- (e) "factory" operation of the biosystem in its total environment (i.e. both internal and external dynamic systems behaviour);
- (f) genetic and epigenetic coding for reliable reproduction of biosystems that are operative in their total ecological environments.

We selected the exposition of levels c, d, and e for our first long term task. Our experimental-theoretical program, predominantly limited to levels c and d, namely, organs and total systems, led us to the need for formulating a position for level e, namely, the operation of the factory [2].

2. The preferred tool for systems analysis of a gross system and its major subcomponents, treated at that structural-hierarchical level, is the dynamic systems analysis of its response, both steady state and transient, i.e. the determination of the temporal and spatial course of

the salient identified fluxes and potentials, and the modes of motor actions (that is via its actuators, e.g. switches, valves, pumps, motors, vasomotors and constrictors, etc.) that the system exhibits. (We will loosely refer to this process of analysis as “biospectroscopy”, since it really relates to physical-chemical spectroscopy.) If these are well identified, then the “chains” of causality, as these fluxes and modes course through the system, may perhaps be identified by physical-chemical hypothesis.

3. The two great logical divisions regarding the nature of flux (i.e. flow) are the division into power and informational fluxes. While modern electrical engineers may favour the information fluxes (which is indeed evidenced by the attention that those interested in biology have given to the brain and the CNS), a more classically oriented physics would tend to start with exhibiting the nature of the power fluxes.

4. We choose to define the human, as our prototype complex biosystem, operationally as a self-actuated motor system (“automobile”) that intermittently roams through its physical environment in search of food. Its principle dynamic properties are that it hungers, feeds, and moves about so that it can continue to hunger, feed, and move about. At the right unfolding (aperiodic) time, it couples and reproduces so that the newly formed unit can hunger, feed, and move about. We thereby imply that by his very fundamental nature, man must involve one or more major internal thermodynamic engines, and thus thermodynamic engine cycles (else he couldn’t move). This, we submit, becomes straightforward power engineering. (Fuel food is being taken in, energy is liberated and made available for work.)

5. Our first choice, therefore, was to explore the dynamics of the metabolic processes, and then as we found the ubiquity of internal biochemical oscillators (or periodic rhythms) to begin to explore some additional variables.

6. Having found a near stationary spectrum for the many biochemical parameters that we explored (although the cycles varied in frequency, i.e. they warbled and exhibited considerable noise, their power spectra indicated large amounts of energy tied up in these spectral regions), we formally identified the chains in which they were involved as nonlinear limit cycles, ever-beating in the internally lossy system*, independent of the starting conditions. Since it seemed clear to us that the mean state of these variables were those regulated

* “Lossy”: significant loss of energy as heat by friction and its electromagnetic counterparts [Ed.].

parameters identified with homeostasis*, we were forced to propose a modification of this central biological concept. For regulation of the mean state, by dynamic regulation, we proposed the modified name homeokinesis. It denotes a mediation, mainly by inhibition or release from inhibition, of a manifold of oscillatory (or rhythmic) processes which make up the many biochemical chains in the organism.

7. Having demonstrated thermodynamic consistency in some of the basic metabolic processes, and having postulated causal chains involving hormone interaction for a number of the identified chains, we proceeded to the behavioural logic of the entire system. The biosystem is not an idiot thermodynamic system that sits or moves in a routine path doing its “thing” over and over again. We pointed out that the system has indeterminate gain at zero frequency. The system is essentially marginally unstable.

Roughly speaking this means, that if the system is put down, it will not stay at rest indefinitely. If in a turbulent disturbed state, it will calm down in time when put into a confined region. We, therefore, postulated a large number of modalities of performance in the biosystem. Because of its inherent instability, the biosystem threads these modalities, its “hungers”, into a satisfactory pattern. This we put in our first position paper [2]. It represented a proposed extension of physiological to include behavioural homeokinesis.

8. However, this scheme is still not sufficient to stabilize fully the unstable biosystem. We were led to postulate, in addition, a hierarchical nature to the total system’s behavioural regulation. Regulation is achieved by overlay of system upon system. A preliminary outline, in the case of thermoregulation, was put forth in a note on thermoregulation [3]. A second descriptive model is in progress for cardiovascular system regulation. However, having put together these pieces, we have been better able to formulate an overall scheme [4].

Illustrating Dynamic Limit Cycles in Mammals – The Experimental Foundation for Our Belief in Homeokinesis

I bring to your attention the existence of the following kind of spectral data which supports our position. (To be assembled in a forthcoming paper; also see Richter [5].) A common feature that we find in biological oscillator chains is a relatively slow cycle which suggests that its dynamics are not single rate governing steps at the cellular level; yet the cycles are quite fast for the amplitudes exhibited

* Bernard, Sechenov and Cannon’s concept of the constancy of the internal environment independent of external change (e.g. temperature, pH, salt, sugar, other material concentrations, etc.).

(in that one must visualize that it represents large power that these linearly unstable but nonlinearly stable oscillators put into transit). The amplitude ranges tend to be near-normally (Gaussian) distributed but with finite cut-offs. Typically, their cycle to cycle maximum to minimum amplitude ratio range over an observation of many cycles is 5-6 to 1. Thus we are not discussing small changes.

The following is representative of pertinent spectral data (the heartbeat, breathing, and brain rhythms are obvious).

1. Ventilation rate (minute volume) and oxygen consumption.
 - (a) Five hour segments of quiescent human breathing. Large amplitude cycles of 100 seconds, 7 minutes, 30 minutes, 3½ hours were found.
 - (b) Breath by breath analysis was performed to demonstrate the reality of cycles, the freedom from aliasing errors, and the noise level.
 - (c) Hours segments of quiescent dog breathing. Similar cycles.
 - (d) Independent study (by L. Goodman) on human; computer analysis of autocorrelation and spectral density. Similar cycles were found.
 - (e) Independent study (by Lenfant) on human. Shorter test runs; the same 100 seconds, 7 minute cycles were found. The pO_2 and pCO_2 cycles are also shown. Ventilation rate and oxygen consumption are in synchronism.

Therefore, there is a real spectrum of metabolism as determined from gas uptake.

However, the oscillations might be due to gas storage lags. We go on to a second proof.

2. Thermal power. While gas constituents may be stored or held as transportation lags without revealing a thermodynamic engine cycle, heat power cannot be hidden.

Source Loss Instantaneous Storage

$$M \quad - K(T_s - T_o) \quad = \quad WC_p \frac{d\bar{T}_B}{dt}$$

Loss is nearly constant if ambient temperature is constant, and near equilibrium arrived at (i.e. skin temperature doesn't change amplitude wildly). Thus

$$M \propto \frac{d\bar{T}_B}{dt}$$

or a change of 1 unit met $\equiv 1.5^{\circ}\text{C/hr}$, $= 0.03^{\circ}\text{C/min}$. Experimentally the harmonic content of body average was not different from the temperature at any one station.

(a) Human data on temperature change at 20 body stations.

(b) Single station temperature data on man, guinea pig, mouse.

Findings: The change in metabolism is comparable in amplitude and frequency to the fluctuations in oxygen consumption.

If we hypothesize that the engine for both heat and work are the skeletal muscles, they should be warmer than their surrounding tissue.

(c) Muscle temperature relative to above and below in guinea pig. The muscle is warmer.

(d) Heart rate in dog (i.e. essentially proportional to blood flow, if stroke volume is assumed nearly constant). The blood flow, which supplies the oxygen for metabolism, was found to show similar periodicities.

3. Metabolic balance. A metabolic power balance was tested in a body zone, the hind limb of the guinea pig, used as a calorimeter. Measurements of surface temperature for heat loss; femoral arterial and venous temperature for net heat production; sugar consumption; blood oxygen levels; blood CO_2 levels; blood lactate levels.

(a) pO_2 , pCO_2 data (low quality data). Spectrum – pO_2 : 40 seconds, 210 seconds, 450 seconds. pCO_2 : 2 minutes, 7 minutes, 20-40 minutes.

(b) Blood sugar data. Oscillations of ± 10 -15 vol. per cent. in the guinea pig, with 40 second cycles.

(c) Blood sugar data – human (Hansen).

(d) Blood sugar and insulin data – human (Anderson).

(e) Blood sugar data – human. 40 seconds, 100 seconds, 400-500 seconds cycle.

4. Metabolic events at the microcirculation level. Since we have postulated mechanistic chains for our various cycles, for example, a chain for the 100 second cycle in the muscle engine, we went searching the microcirculation in muscle to find the energy release.

An oxidative engine can be run by:

(1) Metering fuel to the engine;

(2) Metering oxygen;

(3) Metering a combustion by-product to regulate the reaction.

Fuel is regulated at a high level in the blood; CO₂ is regulated at a low level, i.e. they have independent regulators. Therefore, we expected oxygen to be the potential regulator. We found a 100 second cycle in red cell flow, not in plasma flow, not in the opening and closing of capillaries, and not in precapillary sphincter action.

(a) Red blood cell counts in mice capillaries (2-5 μ lumen), and guinea pig capillaries.

5. Water-weight regulation. Not only are there fast cycles.

(a) Weight variation due to water – human – 3½ day cycle.

(b) Fragment of some data from Newburgh.

6. Sex data. Some privately amassed sexual activity data on humans show a cyclic variation that agrees with data of Michael on human and primate. Humans show strong rhythm keyed to menstrual cycle. Post menopause, it becomes free running with a 15-20 day period (i.e. shorter than menstrual period).

7. Circadia. The literature is enormous.

8. Activity.

(a) Oxygen consumption and heart rate on start-up of long term tasks. Time constant 2 minutes for oxygen, 7 minutes for heart – human (Brouha).

Thus a fairly strong experimental case exists for various relatively slow large amplitude dynamic processes that are coordinative throughout the entire system.

There is also a more limited amount of circulating hormone data to be noted.

Our views on macroscopic spectroscopy in biology are outlined in more detail in [6], and more recently extended in [4].

The sharp issue that lies ahead is not an anecdotal dispute on whether few or many systems are known to vary up and down, but a fundamental point of view of how regulation in the biological system is achieved. The current general belief is that the system reacts to wipe out the cause of disturbances. We propose instead that active non- but near-equilibrium thermodynamic processes are involved in a large spectrum of autonomous oscillators in the living system, and that the regulated average state emerges from parametrically mediating the operating points of these oscillators.

Kuhn, in *The Structure of Scientific Revolutions*, states that difficulties exist for the investigator in any scientific field whose “paradigm” (we have long preferred “metaphysics”) is not of the latest

style or fashion. However, a new era is possibly dawning. The 1969 Bowditch lecture of the American Physiological Society presented a comforting introduction to physiological dynamics. A number of participants in the 1969 International Biophysics Congress, such as Prigogine, Katchalsky, Morowitz, Dewan, Landahl, and even students of ganglia in the nervous system (Strumwasser), stressed the possible existence of macroscopic periodic phenomena (in the form of limit cycles), the conditions for their emergence, their ubiquity, even their relevance to the origins and organization of life.

Having thus briefly introduced our views on biological systems, we can proceed to a broader formulation for all systems.

An Outline for the Dynamics of all Systems

The following is offered as an introductory formalization for a general science of systems. It proposes to view systems within the context of nonlinear mechanics and statistical thermodynamics.

1. There exist A.C. active atomistic systems* that are capable of absorbing and emitting energy. They may be regarded as autonomous oscillators.

2. However, such open thermodynamic systems with active properties cannot exist unless they are locally dissipative and inhomogeneous.

3. Their necessary theoretical foundation is linear instability.

4. We postulate that conditions exist under which these systems develop rhythmic alternations in state, which when long persistent although not necessarily rigid, may be viewed as limit cycles.

5. Their dissipation "shear" these systems down to the nearest possible limit cycle, rather than permit indefinite wandering, which would occur if only conservative collisions existed.

6. We postulate that limit cycles occur, hierarchically, at all levels of organization of physical entities. It is possible that out of the very hierarchical ordering of systems, time itself emerges pulse by pulse.

7. There are illustrations of how the instability that leads to "quantization" comes about.

(a) In a hydrodynamic system, for some simple turbulent field spectrum, we can deterministically illustrate the instability.

(b) In a meteorological system, one can illustrate with some self-consistency how tidal oscillations come about, and thus how the dynamics of weather may begin.

* An A.C. active network or system, using electrical engineering terminology, is a network or system containing a fluctuating source of power, such as a generator.

- (c) In the cosmological system, one can show semi-theoretically the stellar cycles and the “beginnings” of the current cosmological cycle.
- (d) In the social system, we can trace man’s civilized past to cultural beginnings under Australopithecus and to civilization in Neolithic times. “Causality” for start-up is not well defined.
- (e) In the atomic and nuclear case, the quantization is describable, but there is no theory for origins.

8. These atomistic oscillators do not arise in isolation in large space-time vistas, but are found most often bounded and re-occurring within an extended field. It is generally in interaction with the boundaries and each other that the atomistic properties – of limited extension, and quantized fluctuation – arise. Not all regions of the space, nor all interactions are freely accessible. Yet the fact that these entities were formed out of common substance, and common causality roughly makes them alike. When nearly alike and interacting, then their dynamic patterns resemble each other. This is generally described by Gibbs’ ergodic hypothesis (preferably in quasi-ergodic form). All portions of accessible phase space are occupied with roughly equal probabilities by members of the ensemble. Averages in space and time approach the same limit upon sufficient sampling.

9. Extensive collections of such active atomistic particles make up a continuum. The conditions for continuum-like properties are that the ratio of the mean free path of an atomistic particle inserted into the collection to the dimensions of the field should be small; and the ratio of the particle relaxation time (both for external relaxations and relaxations of internal degrees of freedom that are not frozen out) to the shortest period of interest should be small.

These relaxational properties, indicating physical degrees of freedom associated with the atomistic elements, create transport coefficients in the continuum-like ensemble. The types of transport may be identified as delays in momentum transport (e.g. viscous relaxation – shear viscosity associated with translational momentum, and bulk viscosity associated with all other forms of internal momentum); delays in energy transport; delays in the transport of mass species. The collection is then described by continuum equations of change.

10. A well-defined formalism, based on Onsager’s linear theory, exists for nonequilibrium thermodynamics. It indicates the foundations from which various kinds of interatomistic coupling forces can lead to transport coefficients.

11. One result which comes out of this formulation is the

significance to be attached to the bulk viscosity, and to the elastic modulus.

The existence of the property of high bulk modulus is the gateway toward rigid structure (i.e. to the solid state). At low values, a collection of atomistic elements acts fluid-like, with rapid lively relaxation (through shear viscosity). The ratio of bulk viscosity to bulk elastic modulus defines a time, in this case for internal relaxations.

If now this relaxation time is high, then these internal degrees of freedom are “frozen out”.

12. The results of interatomistic association are particularly accentuated by atomistic density itself. Formally, the laws of association of ensembles, groups, populations, civilizations begin to emerge.

13. The basic distinction in characteristics between continuum systems of low and high bulk modulus is the difference between form and function. The mobility of ensemble elements creates function. When impaired by densification and increased interatomistic forces, function is frozen out and becomes formed structure.

14. The specific nature of the transport properties depends on the interelement forces. These forces may depend on or may be independent of interelement distance. The classification of such forces is one of the tasks of physical science. However, one salient force, that is apparently fundamental to quantization, should be stressed. This is the exchange force. In quantum physics, it is said to have no classical analogue. We propose one. It is a binding force of configuration. In an ensemble arrangement in which elements can hardly be distinguished, an exchange can be imagined by which they interchange position (somewhat independent of their location, if not too far apart). These two arrangements, thereby degenerate, somehow have an energy associated with the exchange, representing an instability within which the system can fluctuate. This binding energy and fluctuation is proposed as the foundation for quantization. What is likely required is coupling of more than one kind of force field.

15. Such ingredients are sufficient to construct statistical mechanics and nonequilibrium thermodynamics for continuum systems. They suggest the behaviour of an ensemble placed within a bounded milieu. In time, the system may approach an active statistical mechanical equilibrium. Interactions – “collisions” – will take place until whatever energy is associated with boundary exchange will be distributed among the available degrees of freedom.

16. A system should be examined with a spatial and temporal “box”, with a scale extending from a minimum to a maximum time,

from a minimum to a maximum size. Unless its relaxation spectrum too extensively overlaps the ranges of this box, a bounded system will be found to “quickly” relax, to where it freely wanders within the phase space available to it. Frozen out degrees of freedom will not be invoked.

17. Characteristically these near-continuum ensembles will display a motion in modalities. These modalities are of two distinct types, diffusive and wavelike.

18. As the continuum-like collection increases in size, it ultimately becomes linearly unstable again at a Reynolds number-like criterion. The characteristic motion is a sustained combination of the modalities permitted by the continuum. A new society appears composed of a space-time motion of larger super-atomistic elements. Each of these is itself made up of a near-continuum of previous atomistic elements.

19. Thus, the hierarchy of general systems consists of a line . . . atomistic element – continuum ensemble – atomistic element – . . .

20. The Reynolds number depends on the ratio of the velocity to the propagation velocity in the medium, and the ratio of dimensions of the field to the mean free path. The propagation velocity measures the rigidity of the system. A continuum thus breaks down if the velocity of any of the dynamic processes in the medium gets too large, if the field becomes too large, if the medium is insufficiently rigidly coupled, or if the mean free path gets too short.

21. There are transitional configurations whose relaxations do not take place rapidly enough to qualify the states as being fully ergodic (e.g. plastically yielding materials, or grainy fields in which some degree of condensation may take place). Such systems tend to relax more slowly and exhibit a much more restrictive kind of equilibrium. This does not prevent, it only complicates, their description.

Their important property, which is difficult to deal with, is that they exhibit emanative (emergent) evolution. It is difficult to estimate when a new relaxation process may take place from a temporarily frozen out degree of freedom (e.g. when a catalyst may appear for the process).

The evolution generally takes place through a number of steps toward more equilibrium configurations. It is as if a very slow-motional relaxation process is in progress.

The time scale of relaxation is then set by the bulk viscosity (i.e. internal relaxations), or the time scale of atomistic clustering or diffusive evaporation.

22. The sequence –A–C–A–C– is not a simple one because stability, in a nonlinear sense, is not necessarily sharply defined. For

example, the stabilization may not be fully completed in just one particular domain. Thus, there is a hierarchy of efforts at stabilization.

Stabilization begins around a focal centre forming space-time orbits. Most often there is an individual element which captures or directs a considerable amount of energy. As such, we shall refer to it as an elite, or key element.

Thus, for example, the condensation of an ensemble of atomistic particles may take place into an ordered array. At first glance, this array might be thought of as being indefinitely repeated. However, for dynamic reasons, it is unstable. An individual element, a dislocation, “keys” the structure. The dislocation, which may be the site of an “impurity”, acts as an elite to fix the level of stability of a rudimentary crystallite. A collection of such elements, locally inhomogeneous, but macroscopically more homogeneous, now begins to extend toward continuum size. The border “elites” made the mating configuration possible.

23. Having a universe of space and time to play around in, a discrete density of material, A.C. active elements, and radiative “action-at-a-distance” energy transfer, one can intuitively see that the only potential motional states are a uniform distribution, or singular condensations. Apparently, the uniform distribution is less stable. Thus motion tends toward condensations, i.e. expansion away from one region, condensation around an “elite” focus. Elements tend to cluster.

From a more general point of view, the grand scheme of things appears to be cosmic “dust” condensing to form new stars, the stars clustering in galaxies which also go through a birth and life process, the galaxies tending to form clusters, these galactic clusters than “filling” up space, and thereby closing space. Thus, under the action of interatomistic forces, in this case gravitational, a sequence of levels is required to stabilize the structure.

In any local domain (the argument repeats) the only potential motional states are a uniform distribution or condensations. The uniform distribution appears to be less stable. Thus motion tends toward the condensations. The dynamic stellar processes continue – main sequence to red giant to white dwarf. Condensed material, such as planetary objects may go through a life phase, as on earth. “Unstable” dynamic processes lead to a geophysical solid, liquid, and gas state, and a fourth category of chemically reactive change. The argument repeats again. Apparently, some chemistry is self-replicating, i.e. unstable in the same sense, so that it creates dynamic limit cycle processes – “life”. Life evolves, becomes unstable, forms new patterned structure, etc. This appears to be the continuing chain of thought in the

science of general systems.

24. Summarizing, a system has three phases: First is a start-up from the local milieu, arising by design, or by incidental assembly. It does not represent a contradiction of thermodynamics, just the development of a local inhomogeneity which is locally unstable. The second phase is the normal life phase. The common negentropic pump is "convection", whether the convection of a turbulent hydrodynamic field in which organization is propagated into the field by unstable eddy formation (the eddies are discrete local elements that draw energy from the constant potential field) or an algorithmic "convection" in which the living system stuffs "energy" into its gut. The third phase is the deterioration phase.

To understand the birth, life, and death of limit cycle systems, emerging from the large scale degradation promised by thermodynamics, regard the matter-energy-space-time cosmos as a giant pinball machine. In the current cosmological phase of natural processes, the thermally ordered processes are running down. However, the cosmological matter-space-time milieu is not homogeneous. There may always occur local pockets in which a relatively long term "life" process will form and lock up. Galaxies, stars, elements, solar systems, geophysical and geochemical processes, life, social organization – all have formed.

Are these foreordained? This is not clear. If we could see the entire inhomogeneous continuum, we might guess at the density of pockets, or if we had experience with many such cosmologically expansive, thermodynamically degradative process phases, we might see a more general answer. But we lack experience. Thus we only note the processes as essentially stochastic. Whatever grand design exists is not apparent to us. Nevertheless, we can be certain that pockets exist, and systems form – for a time! These are not in a strict sense "evolutionary" as much as they are temporary "stases" of a dynamic sort.

25. What makes the systems colourful is the many different kinds of internal modalities within which they may operate.

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Pipes for Peace and Profit

John Walker

Four thousand years ago Knossos, the capital city of the Minoan civilization in Crete (perhaps having learnt from the Sumerians) built water conduits and sewers, and this art has slowly extended into Western civilization until 20 years ago it reached the village in Northamptonshire where I live. The last decade has seen applications which open up new fields of usefulness.

As a way of conveying fluids (including gases) from one place to another a pipe is secure – things once inside cannot get lost, inflammable or poisonous fluids are made harmless, the contents are not easy to pilfer and the transfer is silent and free from smell. The pipe itself takes up little space, can be led round awkward corners and through small holes, through dangerous places, inside furnaces and under the sea; pipes can be flexible, durable and strong. Their uses range from the ancient water conduits of wood, metal and stone and sewers to the flexible pipes through which one aircraft in flight can refuel another, the pipes which convey the energy from the nuclear reactors or “Pluto” and the familiar roll of firehose. But it is with pipelines used for the conveying of solids that this article is concerned.

Gas, water and oil pipelines are familiar enough, though the great distances they traverse are perhaps not widely known. Solids suspended in fluid, or “slurries”, have recently been pumped with surprising ease over distances of 50 to 100 miles at costs which are only a small fraction of the cost by road or rail. For a given pressure the transporting capacity of a pipe is proportional to the $2\frac{1}{2}$ th power of its diameter, while its cost is approximately proportional to its diameter, so the cost of transporting materials falls rapidly as the quantity increases (road and rail haulage costs in contrast do not change greatly). An eight inch diameter pipe will carry solids such as ground limestone or iron ore at the rate of about 1,500,000 tons a year at a cost of about one third of a penny per ton-mile (one quarter of a penny for capital costs and one tenth for electric power and maintenance). A 16 inch pipe would convey nearly 8,500,000 tons at a cost of less than one fifth of a penny per ton-mile (less than one tenth for capital and one tenth for maintenance) – that is about one twelfth of the cost of rail or one twentieth of the cost of road haulage. This property of cheapness immediately opens up the possibility of moving large quantities of material for long distances. Nottingham’s pitheaps could be moved to

build sea defences, or fill excavations in Bedfordshire for two or three shillings a ton – not so much more than it costs to dump the spoil in heaps. Surprisingly energy can be carried more cheaply as oil or coal slurry in a pipe than as electricity in a wire.

Besides its cheapness the pipeline has other important advantages. It is easily buried so as to create no loss of agricultural land, or disfigurement of the landscape. It is silent and odourless. It requires very little manpower to operate or maintain – 25 men could operate an 8,000,000 ton pipe the rail freight of which would be enough to pay nearly 8,000 men's wages! The pipeline is hardly affected by weather, national holidays, external strikes, or hijacking, and is remarkably resistant to landslides or earthquakes. It can run over mountainous country, desert, or under the sea, and can negotiate steep gradients.

There are few technical limitations. Perhaps the greatest is that, like a railway, a pipe can conveniently only carry from one fixed place to another, albeit sometimes with intermediate "stations" (gas pipes are a somewhat expensive exception).

Wayleaves are easier to obtain in practice with professional help than one might expect. External corrosion can be inhibited quite inexpensively by wrapping the pipe with an insulating coating of fibreglass and coal tar and impressing a small electric potential to ensure that it is "cathodic" in relation to the surrounding earth; only very small electric currents are needed – a few thousandths of a watt for each mile or pipe.

Depending on the material to be pumped abrasion or corrosion may be important. Coarse sands and gravels have to be pumped at high speeds to prevent them from settling and choking the pipe, and this causes abrasion. Where the material can be finely ground abrasion becomes slight. Coal slurries can release corrosive sulphuric acids; small doses of alkali – potassium hydroxide – can be used to neutralize the acid and avoid corrosion. Limestones tend to be slightly alkaline and non-corrosive. In extreme cases rubber or plastic linings can be used to reduce wear and corrosion.

The American petroleum industry uses a great deal of pipe, and has developed useful standard specifications for pipe in ordinary and high tensile steels. Suitable pipes are therefore easily obtainable and the test pressure of 3,000 lbs./sq. in. adopted permits a convenient and economical safe working pressure of 2,000 to 2,500 psi. The oil industry has also developed pumps used for drilling oil wells which are very well adapted to pumping slurries.

The same pipe can sometimes be used to carry more than one product. It is common practice to pass different petroleum products

along one line, sometimes separated by a piston or ball, sometimes by a "plug" of water, or sometimes not at all if a small amount of mixing can be tolerated. The succeeding fluids are diverted, using sensors or careful timing to control the diverting valves, to the appropriate storage tanks or pipes. Examples of industrial pipelines in use are the Cornish china clay industry and I.C.I. who have recently built a pipe across the Pennines from the North East coast to carry a product from one factory to another, and a former coal pipeline in Ohio is even being used for the disposal of garbage.

It is perhaps instructive to consider one way in which pipelines could be used to transform the coal industry and our balance-of-payments position, if only the political difficulties were faced boldly. If coal were to be mined with due regard to economical working (as it would have to be had the British people not been so unwise as to nationalize the industry) the costs to the power stations would be perhaps one quarter of what is currently charged by the National Coal Board and British Rail together. It works like this. Coal in the Nottingham collieries costs even now only about eight shillings a ton by the time it has been mined and carried to the end of the working face, including the amortization of the development costs of the colliery. Another 25 shillings or so is added in handling it to the surface, a pound to subsidize the less efficient collieries, ten shillings to pay for the head office, 15 shillings (on the average – the figure varies considerably from place to place) to the nationalized British Rail for haulage and a modest five shillings for handling and pulverizing at the power station. In all it costs about 83 shillings a ton or $4\frac{1}{2}d.$ a therm. Similar costs apply to other large users, for example cement works, aluminium smelters and steel works. Now suppose the coal were crushed and mixed with water at the coal face to make a slurry which was pumped to the surface and then direct on to a power station using 6,000 tons/day. The costs would then become: eight shillings (as before*) at the face, three shillings to crush to slurry, threepence for water, sixpence to pump to the surface, two shillings to pump to the station, three shillings and sixpence to dewater and about three shillings to dry and pulverize (less to grind than raw coal because it has already been ground and less to dry because the cost of heat for drying has been quartered). Total 20s. 3d., i.e. 1d./therm, or a little less than a quarter of the present cost.

The consequences would be considerable. The cost of electricity

* It would in fact be less economic to mine so much dirt as is customary, so that this cost per ton would tend to rise. On the other hand the efficiency of mining would be increased so compensating by an approximately equal fall. The cost per calorie would not change much.

would fall by about one third. Oil fuel instead of costing less than coal would cost about three times as much and natural gas would cost four times as much. Nuclear power would only be able to compete if subsidized for some years. The consumption of coal would grow (rapidly) instead of falling, and the coal industry would start a new life instead of dying in the 1980s. Even Lord Robens' most optimistic forecasts would turn out to have been justified! The balance of payments would be bettered by some £200 million a year and indirectly in lower manufacturing costs for exporters by well over £300 million a year. The present difficulties of the heavy electrical industry would be solved for the next decade; and the thermal efficiency of boilers would not need to be so high, so the cost and complication of the power station itself would be less. As a final bonus the colliery would have solved its waste disposal problem – or at least passed it on to the power station, but the latter in turn by pumping its waste for some three shillings a ton could dispose of it where it would be useful – as pozzolan for sea defences, to form a causeway across the Wash, or to consolidate the Maplin sands ready for Foulness airport.

There would of course be a price to pay. Some five out of every six coal miners – nearly 250,000 – would no longer be needed and would have to be redeployed. However the economy contrives to sustain a million immigrants, so it should not be impossible to support a further million of native miners and their dependents. Phased over the six or seven years that would be necessary, and allowing for the temporary extra employment the pipelines would create while being constructed the redeployment rate would amount only to about one and a half times the redeployment rate for the coal industry were it simply allowed to die on its feet. More serious certainly, but not impossibly so. And at the end we should have one of the best coal industries in the world, with an assured and prosperous future for the remaining 50,000 miners. The price surely is well worth the paying, even if it means admitting that nationalization was a mistake.

Smokeless fuel costs might be reduced, though less dramatically, and small industrial boilers could be supplied with coke at rather less than present prices. Traditional lump coal as a domestic fuel would become completely uncompetitive at £20-£30 a ton and would cease to be used. But natural gas and cheaper electricity would be adequate replacements, and the protective oil tax of 33 per cent. would no longer be necessary. On balance the cost of domestic heating should fall a little, and those who like a flaming fire (and happen not to live in a smokeless zone) could burn wood for the pleasure of it.

I choose this example because of a sentimental notion that one of

mankind's earliest inventions is still his best friend, because there is no good reason why it should not be implemented forthwith, because it illustrates how much harm can stem from a wrong political choice, and in the hope that someone who cares may feel inspired to help us all to help ourselves.

Living with Leukaemia

This article was originally given as a talk on the B.B.C. The author has given us permission to publish it, but does not want her name printed.

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.

The Unpublished Works of Teilhard de Chardin: II

Jerome Perlinski

Pantheism and the Mystic Sense

These themes form the skeleton beneath the third group of unpublished articles in which Teilhard explains his pantheistic sense – a concept for which he has been and continues to be roundly criticized in so-called orthodox circles – and sees in an expanded and revitalized (or even, more radically, a “transformed”) Christianity, the hope of a conjunction between the principal thrust of the East and of the West.

“The Church has never understood as we do now beautiful human pride or the sacred passion for research – these two fundamental elements of modern thought” (“Le sens humain”, Ceylon, 1929). Not only, in fact, does the Church not understand, it seems opposed to that “faith in the world” which Teilhard described as the human sense. Invigorated by the discovery of Time and its profundities as well as by effervescence coming from the influence of science and its explanations of cosmic energies, the human sense has grown among men so much that it seems clear that the world has chosen “par l’ascèse, vers l’extase” (“La route de l’oest”, 1932). The world is now convinced of evolution and its direction toward a more perfect future.

The Church’s rejection of this type of humanism stems in great measure from its misunderstanding of the pantheist note inherent within it. In “Panthéisme et christianisme” (1923), Teilhard expands the ancient notion of pantheism by defining it simply as the religious perception of the whole. It is a feeling shared by poets, artists, mystics, a “sort of cosmic awareness, more diffuse than individual awareness, more intermittent, but perfectly defined (*caractérisé*), a sort of sentiment of the presence of all beings at once, these being perceived not as multiple or separated, but as making a part of a same unity, at least in the future”. This pantheist sentiment is, moreover, or seems to be, fundamental to the human spirit.

Eastern religion and philosophy has fully accepted this cosmic awareness; but in so doing has denied either the existence or sometimes only the effects of the multiple world of which all are also aware. We may say here that Teilhard caricatures oriental thought when he summarizes it as a “suppression of the Multiple” (“La route de l’oest”). Greater sensitivity, however, is shown in “L’apport spirituel de

l'Extrême-Orient" (1947) where Indian, Chinese, and Japanese thought are distinguished. Nevertheless, the sum is always the same: the eastern method is an over-simplification for Teilhard. Yet it is vitally necessary to the west which has lost itself in the multiple and has forgotten or not yet learned the sense of the All.

Once the waters of eastern thought can fecundate our own western approaches – once the loveless collectivist system in which ultimacy is reached when all things are identified with the common ground, is transformed to a super-loving concentration of each upon all and with All ("Quelques remarques 'pour y voir clair' sur l'essence du sentiment mystique", 1951) – then man can live with the "new religion", a "Religion of Evolution or of the Future". This transformed christianity will have a "new" God; a god not limited to simple redemption of our planet, but extended to the whole universe-in-growth; a god which is not offered as a rival summit for human progress, but which in fact is coordinate and concomitant with human natural perfection (cf. "Le Dieu de l'évolution", 1953).

Along with this "cosmic convergence" is the "christic emergence" – themes which run through Teilhard's last essay, "Le Christique", written in New York, March 1955, a month before his death. "Let us admit it. If the neo-humanisms of the twentieth century dehumanize us with a heaven that is too low, on the other hand, the still living forms of theism . . . tend to underhumanize us in the rarified atmosphere of a heaven too high". But with the Christ-universal, wherein the christian God is extended to all of the biological and psychic reaches of the universe, the Christ of Revelation becomes the same as the Omega of Evolution. "Truly, Christ saves, but must we not add immediately that he is at the same time saved by Evolution?"

Special Questions: Original Sin

Searching for the root of contemporary disillusionment with christianity, Teilhard focused on the ancient doctrine of original sin and the fall, a focus which in turn caused his exile in China and left him languish in the suspicious light of the Vatican's Holy Office for decades. For Teilhard rightly suspected that "*the history of the Fall paralyzes before our very eyes the necessary establishment of a fully human and humanizing christian 'Weltanschauung'*" ("Réflexions sur le Péché Originel", 15th November 1947).

He saw very early that the origin of the problem lay in attempts to explain evil, particularly death. In the earliest available document on the subject, "Chute, Rédemption et Géocentrie" (July 1920), Teilhard notes the churches' reliance on the Pauline doctrine of the introduction

of evil into the world through the sin of a single individual. The historico-dogmatic tradition teaches that the whole universe was changed by Adam's sin; thus the necessity for a universal redemption through the Second Adam, Christ. Here and "Notes sur quelques représentations historiques possibles du péché originel" (August 1924 – the article which probably was the immediate cause of his Chinese exile), Teilhard clarifies his objections to the traditional interpretation of original sin. Evil could not have entered the world through Adam, since it certainly existed before him. Furthermore, the biblical Adam is scientifically a monster: there is no evidence that either he or the paradisiac state could have actually existed. The conclusions seem to force themselves: original sin is not something specifically human, but rather it symbolizes the evils necessary in non-finite existence. ("Chute. . .") "Original sin expresses, translates, personifies, in an instantaneous and localised act, the perennial and universal law of error which is in Humanity *by virtue* of its situation of being '*in fieri*'" ("Quelques représentations. . ."). The whole drama of Eden, therefore, is the symbolic movement of humanity toward God, and Paradise is the salvation offered to all, but rejected by many.

The documents on original sin give us clear evidence concerning Teilhard's intellectual method. First is an attempt to understand the historic tradition, in theory and then in fact. Then, there is a critique of its weaknesses in the light of modern science. Finally, he attempts to devise possible explanations which will take all of the facts, both religious and scientific, into account. In the matter of the Fall, Teilhard in fact presents us with three distinct possibilities: the "Aiguillage" in which the Fall belongs to another superior sphere of reality of which we are unable to have any certain knowledge (Quelques représentations. . .); the "Refonte" in which the Fall actually diverts and remakes the whole primordial direction of the universe ("Réflexions. . ."); and finally, his own option, the "modern idea" or "evolutive creation and the statistical origin of evil" in which there is no individual Adam (the problem of monogenism and monophyletism he covered in the as yet unpublished essay "Monogénisme et Monophylétisme", 1950), no initial historic fall (that is, "no moral crisis at the appearance of intelligence"), but in which both the Fall and the Rise (that is, Redemption) are seen not as two epochs, but as two constant trends in the evolutive history of the universe. Original sin, then, is about the *nature* or *state* of man, not about his *history*.

Many of these ideas have already been incorporated into the works of eminent theologians, in particular the Dutch teachers Smulders and Schoonenberg. Sufficient to say that these concepts were controversial

enough at the time to allow their interdiction and the denial to their author of a public university chair in France. Whether in fact the doctrine of original sin is as central as Teilhard thought it was, we can at least agree with the general tenor of his statement that "Christianity will not refind its power of contagion until, finally rejecting the last traces of manichaeism and platonism, it sets itself to thinking about Original Sin in terms, no longer of Fall, but of Progress" ("Mal évolutif et Péché Originel", extract from a letter, 19th June 1953).

Special Questions: Chastity

Not so central to the Teilhardian synthesis nor so crucial to the future of religion is the problem of chastity. Nevertheless, in a world-view where creative power is seen as energetic dynamism, the problem of sexuality could hardly be avoided. Segments of "The Evolution of Chastity" (Peking, February 1934) have already been published, particularly in Mlle. Jeane Mortier's recent volume *Vues ardentes* (Paris: Seuil, 1968). As in many of his essays, Teilhard divides the work into three parts: first a critique of traditional christian teaching on chastity; then, the proposition of a new morality based on evolution; and finally a statement of the theoretic ideal.

The double rule which christianity seems to have laid down in the realm of sexuality is (1) the union of the sexes is holy, but (2) outside of reproduction, it is to be reduced to a minimum. This has resulted in a near-manichaeism attitude and a restrictive morality based upon penitence and privation. In short, maximum sanctity with minimum use of matter. But there is the growing awareness that matter can be used as a means for sanctification – a theme which every reader will recognize as central in all of Teilhard's works. Thus, for man, the flesh is the terminus of the spiritual power of matter, and if sanctification is to be reached, man must come to terms with his own flesh, symbolized for Teilhard in the Feminine. Hence, a new ethic would read: not to minimize, but to capture and transform the manifestations of love. This new ethic ascends toward the unifying, transforming effects of love, or descends toward egoism.

If such an ethic of transformation is true, it holds good even on the level of the sexual. Thus, chastity ought not be regarded as a fragile crystal, but rather as a flame which assimilates everything it burns.

Finally, Teilhard approaches the very difficult question of virginity: is there any natural sense to virginity? Teilhard's answer is ambiguous and defensive: giving oneself to God through a woman (or man) might cause a kind of "short-circuit" in the pathway to God, that is, part of the soul's energy may be absorbed in the purely human. A possible

solution may be the withholding of the sexual self, achieving a convergence on other ("higher" according to Teilhard) levels, transforming human love to a degree worthy of final convergence between God and the couple. Teilhard holds this as a theoretical possibility, but is aware that even most of what he had to say on sexuality would be regarded as "naiveté or madness". He leaves the problem an open question, and ends with perhaps one of his most forceful and beautiful phrases: "Some day, after the ether, the winds, the tides, gravitation, we will capture for God the energies of love. And then, for a second time in the history of the World, Man will have discovered Fire".

General Summaries

Teilhard was fond of summarizing his thought in epigrams, outlines, short and long essays. Among the longest and most important of these is "Comment Je Crois" (Peking, 28th October 1934). It was directed towards "non-believers", that is, non-Christians, and attempts to spell out as succinctly as possible the evolution of Teilhard's own thought and his attempt to unify religion and science.

"To believe", he affirms, "is to make an intellectual synthesis". "To believe is to develop an act of synthesis of which the first origins are inaccessible". His belief is four-fold: faith in the world and in matter, including belief that the world is a whole; faith in mind, discovered through a study of man and his place in the universe. Mind or spirit moves toward the more spiritualized, without however there being any opposition between matter and spirit. Third, faith in immortality, that is, the irreversibility of what has already begun. The first step toward the immortal is action, particularly the fructification of human action – love. And fourth, faith in personality, the culmination of life, that which continues, united in a larger centre through differentiating union.

This is the picture of the universe in which Teilhard believed, while religion is man's response to that universe. There are three types of religion for him: oriental which emphasizes the cosmic and universal; humanitarian pantheist which emphasizes the dynamic and progressive; and the Christian which underlines the personal and loving. All of these can converge in belief in the universal-Christ described above.

These themes are again developed in another general summary, "The Heart of the Matter", written in Auvergne and dated 15th August 1950, that is, 16 years later. Here there is simply a triple division into the cosmic or evolutive, including the discovery of the goodness and power of matter, its universal and evolutive nature; the discovery of the

human or convergent, including the awareness of the noosphere and its culmination in Point Omega; and the discovery of the Christic or centric, with its explanation of Christ-universal and the divine milieu.

A more scientific approach is taken in three other summaries. The first of these, "Three Things that I See" (Paris, February 1948), simply asserts man's approach to a maturation point which coincides in fact with the parousia. A new energy or new faith is required to make the final convergence. It is in this essay that Teilhard's now famous diagram of the diagonal of a new faith – avoiding both the extremes of horizontal materialism and vertical spiritualism – appears. The same thoughts are reiterated in a very short essay, "My Intellectual Position", written at the request of Père d'Ouince, S.J. in New York, April 1948. Here Teilhard divides his thought into a Physics, an Apologetic, and a Mystics – all points which he spells out at great length in what is perhaps his best summary, "Comment Je Vois" (Paris, 12th August 1948) where he expands somewhat on the attributes of Point Omega, elaborates his original philosophy of union, and beautifully defines "communion" as "a passionate participation in universal Action".

The general summaries add but little to the content of what we already know of Teilhard. But they are extremely important as indications of the Teilhardian synthetic method, about which all too little is said. For not only did Teilhard advocate the use of synthesis rather than mere analysis in the solution of life-problems, but he also made use of the method in his own writings. The summaries also manifest Teilhard's drive to simplify and clarify his thoughts, to make them intelligible to more and more persons. Sometimes in fact, he only succeeded in becoming more abstract and obscure since few of his concepts are simple and the logical development which he endeavoured to follow does not lend itself to outlines and briefs, unless one is already familiar with the fuller content. We might note also that most of these summaries, as well as the short line summaries in his journals, date from about 1948 when he became more aware of the approach to an end of his labours.

On 12th January 1949, Teilhard noted a five-line summary of his "point of view", a summary by which we may well conclude this survey of his as yet unpublished essays. This new world-view is

"A Metaphysics of Union
A Physics of Complexity
An Ascesis of Purification
A Mystics of Love
A Hominisation of Rapprochement".

Student Revolt and the Study of History

Ursula Henriques

What has student revolt to do with the study of history? In this country, at this time, very little. In the future, perhaps, more. If the current unrest among a minority of students continues to spread, especially in arts faculties, it can hardly fail to influence the study of history within universities, and perhaps outside them. This has already happened in the United States. Five months teaching experience in a great American state university with a history department of some 800 undergraduates and 550 graduates suggested to me the theme of this essay.

Disturbed by the colour problem, harried by the draft, American students have solid reasons for being, on the whole, more revolutionary than their British counterparts. Moreover, while the New Left in Britain seems to be led mainly from social science departments, in America, possibly because of their huge size and their large numbers of insecure and impecunious graduates still, in their late twenties, running the academic rat race, history departments seem to produce much of the revolutionary leadership. From these departments comes the typical revolutionary demand, the cry for "relevant studies". In the social sciences, which focus on current social situations and institutions, and teach the young to turn the world upside down before they well know what it is made of, the desire of the restless to integrate their academic studies with their political aspirations may be partly forestalled. But history does not obviously lend itself to such integration. How does studying the character of feudal society, or the Reformation, or the origins of World War I speak to the condition of the politically-conscious student? In American universities this question has been asked, and the result is the demand for "relevant history".

The meaning to revolutionary students of "relevant studies" in general and of "relevant history" in particular needs some explanation. One student manifesto from Columbia University declared:

"Knowledge has meaning only when means exist to transform that knowledge into social reality".

This seems to be a gloss on the famous quotation from Marx' *Theses on Feuerbach*:

"The philosophers have only interpreted the world in different ways. The point is to change it. . .".

The (left wing) History Students' Association at Madison, Wisconsin, turned the general principle into a practical demand for

“the institution of a critical approach to history by abandoning the survey principle, and helping students to take an active role in critically analyzing historical problems”.

This sentence, couched in the jargon of the Left does not mean what it appears to mean at first sight. “Abandoning the survey principle” is clear enough, being an expression of boredom with historical outline courses, in fact with the requirement that history students should acquire a wide spread of historical knowledge without reference to any particular contemporary social or political cause. But “An active role in critically analyzing historical problems” does not signify a demand to learn how to analyze, or think about, historical situations, Indeed there was no need to demand this, since the students had the choice of 60 or more history courses, many of them detailed and offering abundant opportunities to learn the art of historical analysis. “Critical” here is used in the continental or Marxist sense of “critique”, i.e. of subjecting ideas or institutions to criticism in the light of some principle already adopted. The sentence meant that the students wanted to learn to use history as a means of criticizing, and thus of attacking and destroying the unsatisfactory institutions of contemporary society.

Nobody is likely to deny that the study or teaching of history can be and often is, involved in various ways in contemporary politics. This can be illustrated from one of the most popular demands in American history faculties today – the requirement for negro studies. Courses in negro history can be justified, simultaneously, on a number of grounds, some purely academic, others not.

- (a) They will fill an obvious gap in the teaching of American history. A brief survey of North American university syllabuses reveals the gap.
- (b) They will give American negroes recognition of their important and hitherto undervalued contribution to American civilization, and make them feel that it has at last been recognized.
- (c) They will give the negroes a sense of their identity as a racial and cultural group with its own history and traditions, distinct from those of the whites.
- (d) They will force whitey to recognize his criminal treatment of non-white races, particularly the negroes, to do penance and make reparation for it.

Fortunately, courses in negro history can be instituted without

worrying too much about the nature of their justification, or the motives of those who attend or teach them (although there is a serious shortage of persons adequately qualified to teach the subject). Nevertheless, of these four justifications only the first has not an overriding political motive and purpose. The first two are likely to appeal to academic liberals and Civil Rights supporters; the last two to advocates of Black Power. When the lectures are actually given, their substance and tone will almost certainly be dictated by the particular justifications uppermost in the mind of the lecturer. Moreover, an audience of Black Panthers will probably not be satisfied with lectures delivered by a liberal white scholar trying to fill the gap in the syllabus with an objective account of the history of the negroes in America. The audience will doubt the "critical validity" of the lectures, complaining that they are wholly inadequate to the objects of Black Power.

To sum up, the demand for "relevant history" in the universities goes well beyond an interest in those historical subjects which seem to throw some light on present conditions, or of a preference for their treatment in a way which reflects the political sympathies of the student. Such subjects and such "slants" were already provided in many of the courses, but failed to satisfy the "critical" audience. The demand is for the politicization of history; for its subordination to an overriding political purpose. Of course a Marxist would claim that this already exists, since so-called "objective" history is, in fact, merely history subjected to the political purposes of the liberal bourgeoisie. There could, therefore, be no special objection to his using it for the purposes of his own political aims, and subordinating it to his own orthodoxy or party line. When the cry for "relevant history" goes up the onus is upon the person who takes the old fashioned view that the primary aim of historical study should be to acquire knowledge of the past, not to raid the past for propaganda weapons in some contemporary struggle, to justify his view.

When we begin to look for justifications for studying the past, we start to realize that something very odd is happening to the philosophy of history, that is, to our reasoning about why we study history and how we should do it. To explain this it is necessary to survey briefly some developments in historiography during the last two centuries.

We are used to the idea that we study the past for the sake of historical truth, and that we should strive for impartiality for that end. Yet, in fact, this idea is surprisingly recent.

In the seventeenth and eighteenth centuries it was normal to use history for blatantly political ends. In the seventeenth century English constitutional history was mainly a vehicle for attacking the doctrine of

the Divine Right of Kings. As late as the American Revolution the Anglo-Saxon democracy discovered by Seldon was still part of the radical political armoury. Charles James Fox planned his History of the Reign of James II as a blow struck for the good old (Whig) cause. But he was too dilettante to get very far with it, and Macaulay did the job much better. History is still an integral part of most political propaganda. The difference is that it is not nowadays taken very seriously as history.

In the nineteenth century the avowed purpose of historical writing changed. It became less intellectually respectable to fight party battles with weapons from the past. The historian's purpose was envisaged as discovering and accumulating historical truth. No doubt the new purpose was connected with the development of history as an academic study. Its prophet was Lord Acton, who defined the sublime art of the historian as "discerning truth from falsehood, and certainty from doubt". For this end he set up the ideal of objectivity and impartiality as a means of achieving fair judgment. Having excepted certain contemporary historians such as Macaulay, Thiers, Mommsen and Treitschke (the greatest of his day) who, as he said, "project their own broad shadows on their pages", he declared that a historian "is seen at his best when he does not appear".

There has been a good deal of misunderstanding of Acton's views, partly because he is often quoted out of context. The impartiality was not merely that of a neutral investigator finding out what happened, but rather that of a hanging judge, determined to establish the true facts before pronouncing "the verdict of history". Acton looked for impartiality as between traditional, national, political or party attitudes. His aim was to further the march of progress and civilization by pronouncing the judgment of history according to the moral law. History was therefore subordinated to a moral purpose which rested on a twin belief in moral certainties and historical certainties.

With the decline of Victorian moral dogmatism the didactic purpose of history declined likewise. There remained, however, historical certainties, the aim of discovering and accumulating historical truth, and the need for impartiality as a means of securing it. This aim, although not quite the same as Acton's, was also part of the nineteenth century conception of progress, according to which the accumulation of truth was also the accumulation of virtue. It was slightly more durable than Acton's, and even when two world wars began to cast doubt upon the reality of human progress and to strip the ideal of historical truth of its moral consequences, the disinterested search for truth for its own sake remained a respectable aim. If Acton's position

was untenable one could turn to Ranke (with Bishop Stubbs, one of Acton's model historians), and set out to show "only what really happened". By the present century the main justification for historical research was the contribution which could be made to historical knowledge.

In the last 20 or 30 years the basis of this final justification for the study of history has been undermined by a growing consciousness that historical knowledge, whatever it may be, is not complete historical truth. History seems to have become, like dress, art, music, literature and medical science, subject to fashion. Instead of busily contributing to the pile of historical facts, the historians have proceeded to carry on their craft by means of acrid, if learned, controversies (very useful, of course, in enabling them to follow each other in increasingly crowded fields without merely repeating each other). A few of these controversies are resolved, but many are merely superseded by others, or overtaken by more radical changes in the basis of historical interpretation (as when the old Roundhead versus Cavalier version of seventeenth century British history was succeeded by the dispute about the rise of the gentry, with its Marxist overtones). Nowadays all historical knowledge seems to be in a flux. Even historical works which in their own generation appeared objective, impartial and indisputable, seem in the next to be none of these. Victorian "life and letters" biographies, so solid and lapidary in their own time, now look like a compromise between a source book and an act of filial piety. A consciousness of the shifting content of historical "truth" has gripped not only the professional historian but his public. Historical truths are not final. They are seen to be not only subject to alteration by the discovery of further evidence, but in some way dependent on the changing attitudes and outlook of the historians. If students are asking for "relevant history" in this sense, they have already got it.

How did this transformation come about? On the practical level, as historical studies developed and expanded it just "happened". On the philosophical level it was encouraged by the descriptions of the nature of historical study offered by a school of historiographers sometimes called the Historicists. These have been discussed by Hans Meyerhoff in the introduction to his anthology of historiographical writings *The Philosophy of History in Our Time*, published in 1959. Historicism (the word is used in a sense contrary to its use by Popper) began with Meinecke, but its most important representative in Britain was R. G. Collingwood, Oxford archaeologist and philosopher of history, Collingwood's book *The Idea of History* substituted for the historian's aim of discovering historical facts the aim of historical understanding;

of getting inside the period or people being studied, of “rethinking their thoughts”. The object was still historical truth, but not in a form which facilitated its perpetuation and accumulation.

The Historicists adopted a definition of historical study intended to differentiate history from the neighbouring and rapidly growing social sciences, economics, sociology, etc. A modern version of it can be found in G. R. Elton’s *The Practice of History*, published in 1967. “History”, he says, deals with “the occurrences of the past from the point of view of happening, change and the particular”. The purpose of this definition is to keep the historian’s attention on the particular event, that is, to prevent him looking on past happenings as merely some of a series of similar occurrences, so that he can abstract regularities from the past and build generalized social theories upon them. It prevents him turning political theorist, sociologist or prophet, and keeps his eyes firmly turned upon the past.

The Historicist view of history has held the field, for several reasons. Firstly it seems to describe what many historians actually do. Secondly it does (as intended) distinguish historical method from that of the social sciences, and prevents them making a takeover bid for history, although in doing this it raises some complicated problems about the role of generalization in historical thinking. (These have been discussed by Louis Gottschalk in his essay “Categories of Historiographical Generalisation” in *Generalisation in the Writing of History: Report of the Committee on Historical Analysis of the Social Research Council*, ed. Gottschalk, Chicago 1963.) Thirdly it prevents politicians prophesying from the “lessons of history” or the “inevitable course of history”, for some purpose of their own. It became very popular in this country between the wars, largely, perhaps, as a reaction against the use of so-called philosophies of history by continental dictators and their publicists. The few who ignored it, like Toynbee, were greeted, on the whole, with suspicion, and other historians waltzed in to look beneath the smooth surface of their historical repetitions and generalities, and illustrate the real differences which they had overlooked.

It is, therefore, hardly surprising that revolutionary students become impatient with history, since the discipline is specifically defined to prevent the kind of use they want to make of it.

What the Historicists did not see, and judging from Professor Elton’s book, still don’t see, was that their definition demonstrates the impossibility of accumulating historical truth. The particular event may be as small as the wart on Cromwell’s nose, or as great as the rise of western civilization. Great events, like the latter, are made up of an infinitude of small events, like the former. Every historian is constantly

faced with the choice between knowing a wide range superficially, or a narrow range thoroughly, between generality and specialization, extension and depth. But understanding history thoroughly, “rethinking the thoughts”, or as someone has put it, reading until you can hear the people talking, means getting behind other historians’ accounts to the sources themselves. The resulting historical work is a first hand interpretation of what happened from the evidences left behind. A wider synthesis must be, at least partly, an interpretation of other peoples’ interpretations, and the wider the sweep the further removed from the exhaustive knowledge of “evidentials” (Walsh’s term) required for thorough historical understanding. Historical knowledge stops at the limit of the capacity of the individual historian. It can be handed on only at a superficial level, so that accumulation, in any meaningful sense, is impossible. At the same time, the confrontation with this infinite mass of past events, problems, and evidences, imposes upon the historian the necessity of constant choice, both of subject and of the evidence relevant to it. Thus (as Professor Walsh pointed out in his book *An Introduction to the Philosophy of History*, first published in 1951), selection admits opinion. Historical understanding is open to every wind that blows upon the historian.

Of course this feature of historical study does not arise merely out of the Historicist definition. Conclusions based on historical regularities or patterns are not accepted as final or undisputed, especially when their political tendencies are disclosed. They, also, are based on selection, and opponents hasten to select what they omitted. But the definition does bring us face to face with the relativity of history.

What, then, is left of the justifications for spending three years, or a lifetime, on historical studies? Some secondary justifications hold their ground, such as the excellence of history in training the mind (which used to be said about Latin grammar), or that it helps us to know ourselves. The latter is part of the larger consideration that no contemporary society or institution, or person for that matter, can be understood without some knowledge of its history. It is a true, common sense justification. But it makes history a subsidiary of other forms of knowledge, and its results are open to the same limitations as those of historical knowledge itself. But if you ask historians why they study history you will get some such answer as this:

“I was six: a world of inexhaustible possibilities opened before me – real people, real things that had really happened to them. Britons, Romans, an invasion, people with the most complicated names. I remember them all: as soon have forgotten the names of my neighbours in class. . .”. (C. V. Wedgwood, *Velvet Studies*.)

or

“I think you must like history, as I liked history when I was your age, because it is about living men – as many men as possible, all the men in the world, united together in society, working and struggling and bettering themselves – and this must please you more than anything else”. (Antonio Gramsci to his young son. From the inaugural lecture of Professor Harry Hearder, University College, Cardiff.)

In other words, the historian is a person to whom the past is real **and** therefore important. He has a talent or endowment for it, as the **artist** has for art, the musician for music, the scientist for science, the journalist for the realities of the contemporary scene. Of course the endowment differs in degree. A great historian (like Gibbon) may **value** his political experiences because they illuminate his historical understanding. A politician with some sense of history may want to fight his political battles with historical weapons. So may a revolutionary student. Unfortunately, the value of historical study purely for its own sake, is not self-evident, especially in time of crisis, and especially when its results are seen to be so impermanent. Historians with a social conscience are never happy explaining that they study history just because it was there and they like it. And they are currently suffering from the position that the steps taken to safeguard historical truth from distortion by subordination to extraneous purposes have dispelled the illusion of reaching final historical truth.

However uncomfortable it may be to live with the relativist view of history, it is in some ways a liberation. We are released from the impossible and cramping task of trying to obtain an unobtainable historical impartiality. There were always historians who didn't bother, from the Hammonds to Hobsbawm. But even if we disagree with the slant of the Labour historians, the best of their work suggests that excellent historical writing can be the product not of caution and impartiality, but of sympathy and passion. At the same time, the influence of the Historicists seems to be waning, and the use of historical “models” and other sociological devices is creeping into historical study. At least two British universities (Sussex and York) are devoting part of their history syllabuses to the examination of such entities as culture and society, conservatism and reaction, imperialism and nationalism, war, revolutions, etc. These may make a stimulating framework to historical study, and provided their conclusions are also recognized as relative, would seem to do no harm. If students want to carry their sympathies into their work, or use the theories of Professor Rostow in ordering their information about the Industrial Revolution,

why should we stop them?

What we have to do is to distinguish between biased or slanted history (all history is biased) and propaganda. Biased history is history infused with the historian's sympathies. It is history rather too obviously relevant and relative to the historian. Propaganda is history deliberately used for political ends. The argument against it is not primarily historical, but political. History subordinated to politics is usually (not always) bad history; but it means eventually history subordinated to government. This means totalitarianism – the extension of political control over scholarship and all forms of thought. The defence against the demands of revolutionaries for their form of “relevant” history springs from the liberal conception that the freedom to differ is everybody's right. It is possible (as the late G. D. H. Cole showed by example) to write political pamphlets, to write slanted history, and at the same time to teach and to argue with respect for other people's point of view. But those who can be interested in history only as a means of political warfare should be speedily diverted to some other pursuit. They are political tyrants in the making.

Review

The Neophiliacs – a study of the revolution in English life in the Fifties and Sixties, by Christopher Booker. Collins, 42s.

In his introduction, Christopher Booker says that his purpose in writing this book is to show that “there is one window through which it is possible to look on almost all the events of these years and see them emerge in a clear and complete pattern”, that “there is a common thread binding together all sorts of events and phenomena which on the surface seem quite disparate”. The key-word which Mr. Booker has found to explain all the upheavals and changes of the last two decades in English life is Fantasy. His concern is first to explain the working and structure of fantasy and then, in a kaleidoscopic account of the events of the past 20 years, to show how the social and political life of Britain has obeyed its rules.

The essence of fantasy, Mr. Booker says, is that it feeds on a succession of sensations or unresolved images, each one of which arouses anticipation, followed by inevitable frustration, leading to the demand for a new image to be put in its place. So fantasy is cyclic, and he divides the cycle into five stages – the Anticipation stage, where one is looking for a dream-focus, the Dream stage, a period of rising excitement when everything seems to be going right, the Frustration stage which starts the downward slide to the Nightmare stage, in which everything goes more and more wrong, becomes more and more menacing, and finally and inevitably the Death Wish stage, or “explosion into reality”. Any fantasy sequence *must* end in tragedy – hubris to nemesis – by its very nature. And according to Mr. Booker, Britain in the fifties and sixties has been swept by a group fantasy, a “psychic epidemic”, whose leaders were the “neophiliacs”, restlessly craving new sensations, new experiences, each one more illusory and more unattainable than the last.

This five-stage fantasy cycle, he suggests, is in fact a basic pattern which can be found in many periods of history. For instance, he slots the rise and fall of Nazi Germany neatly into it: Germany in the twenties and early thirties is in the “anticipation stage”, from then up till the conquest of France in 1940 comes the “dream stage”, the failure to subdue Britain is the beginning of the “frustration stage” which becomes, by 1944, the “nightmare stage” with “forces closing in on Germany from three sides; and the whole cycle culminating in the Death Wish stage of Germany’s collapse and Hitler’s own suicide in

1945". He applies it to America in the twenties: "The collective excitement and rising expectations of Jazz Age America . . . spiralled dizzily towards the explosion into reality of the Wall Street Crash and the Great Depression". Or to Napoleon who "after initially sweeping all before him, had in the end, by the insatiable nature of the collective psychosis of which he was the embodiment, to overreach and destroy himself". He seems to apply it indiscriminately to practically anything. To the cinema (*Jules et Jim*, *Bonnie and Clyde*), to novels (Scott Fitzgerald's *The Great Gatsby*, Nabokov's *Lolita*), and to the great classical tragedies of Shakespeare (*Macbeth*, *Othello*) or of Sophocles and Aeschylus. He makes a rather desperate-seeming attempt to apply it to music with Ravel's *Bolero*. To any musician, this could only seem marvellously funny, because this work's one claim to fame (or ridicule) is that it manages to repeat a single rhythm and a single theme uninterruptedly throughout its entire length – i.e. for almost a quarter of an hour. Its interest lies, not in any development of the theme or introduction of new themes, (in fact most definitely not in any neophilic craving for new sensations) but simply in Ravel's gradual building of a crescendo (which he does by stating the theme first pianissimo on solo flute and then restating it over and over again ad infinitum, each time adding more orchestral weight) and which he resolves by a sudden, and very satisfactory, change of key in the final bars and a completely dissonant ending. It's a harmless and popular piece of no great significance, which Ravel himself called 'a crescendo without music', and when Mr. Booker tries to make it the embodiment of a sinister fantasy-cycle: "as the pursuit of the elusive climax becomes desperate, Ravel at last changes key (Frustration Stage)" etc. etc., the result is merely ludicrous.

And, at the other end of the scale, what is one to make of his attempt to apply his fantasy-cycle to the events of the Passion Week? "The dream stage of the entry into Jerusalem with the crowds cheering, through the Frustration Stage of Gethsemane ('Oh Father, if it be possible, let this cup pass from me'), to the Nightmare stage of the Betrayal, the taunting and the trial, with the same crowd which had cheered five days before, howling for his blood. And so on to the Death Wish stage of the Crucifixion. Yet, on Easter morning comes the Resurrection, completing the full cycle of the perfect man who had acted out the pattern of the world's sins, and yet was reborn". Does he mean that Christ took on the fantasy-cycle and thereby did something about it? If so, what? It is all, to say the least, extremely unclear.

In the main section of his book he takes us on a guided tour of the years 1955-66 which, whether one accepts his basic premise and agrees

that the events he describes can be made to fit into his five-stage fantasy cycle or not, at any rate makes highly coloured, or more accurately technicoloured, reading. The Beatles, Mandy Rice-Davies, the Kray brothers, Twiggy, Screaming Lord Sutch tumble out of the pages cheek by jowl with Churchill, Macmillan, President Kennedy and the Bishop of Woolwich. He certainly creates a dream-world, one in which the launching of a newspaper colour supplement or a new discothèque, or the activities of a "television personality" like David Frost seem to assume the same importance as the Suez crisis or the Vietnam war. But perhaps that is exactly his point – that the victims of a group-fantasy, imprisoned in a growing bubble of excitement and hysteria, lose all ability to distinguish between the significant and the merely trivial. Mr. Booker himself was editor of *Private Eye* and script-writer on "That Was the Week That Was" and "Not So Much a Programme, More a Way of Life", and so very much a part of the slick, television-dominated, "with it" (or rather without it) world he describes. At the end of the book is an appendix which gives the names (his own among them) of the 200 hundred or so "leading figures" who created the revolution in English life in the fifties and sixties. Apart from 15 politicians, they are almost without exception pop-singers, journalists, dress-designers, actors, "television personalities" or film directors. It's quite an alarming list.

However, Mr. Booker's message is a serious one. Although his style is apt to be extremely "Colour-Supplement" ("The morning's headlines were black with dramatic news" – "the glittering slogans of the new crusade" – "as Khrushchev and Kennedy played their game of cosmic 'Chicken' the world teetered on the brink of disaster" – etc., etc.), his main concern is to prove that fantasy is a solely destructive force at work in the world, a force (in his words) of evil, and one which leads men away from reality. And not only an individual, but a whole people may become the victim of fantasy in times of social and political upheaval. Mr. Booker suggests that this is what is happening in Britain today. He also concludes that the way out, or the way back, is through religion, "the ultimate means whereby man seeks to establish his unity with the unchanging reality underlying his existence". Perhaps this may seem an impeccable conclusion to come to, but I am entirely dubious about the way he arrives at it and, in fact, about his "credo" as a whole. It is hard to understand what exactly he means by this "unchanging reality" – the nearest he comes to defining it is to call it "the infinite organic whole". And he defines the religious man as the one who "bends the knee" and sees himself as "a tiny part" of this infinite organic whole. Maybe, maybe, but from being a neophilic Mr. Booker

seems to have sunk back into a dangerously passive type of conformity. He talks of “man’s mounting self-assertion against his natural setting over the past few hundred years”, he says that “in place of the old certainties rooted in the supreme reality of existence, we have transferred our faith to science, the explanation for everything which explains nothing, the ever more fragmented picture of reality which becomes ever more unreal”, and the picture he paints of what a society based on “reality” would be like is truly awful. It would be a society which, “like that of the animals, is *dedicated to the supreme purpose of carrying on life*” (my italics). A society in which “no one feels lonely or isolated or bored or insecure or superior or inferior to anyone else, because his chief concern is mutual co-operation and subservience”, a society whose members “above all, feel the joy of their overriding sense of being bound together in a common task which goes on for ever”. All animals except man, he says, play their part in the general framework of nature by obeying an innate natural law. They accept their place in a hierarchy, propagate their species, in an unchanging ritual generation by generation. All, except man. He alone has the power of imagination, the power to speculate. And according to Mr. Booker, this is the basic flaw in his nature, this is what has put him outside the rest of creation, this is what caused “The Fall of Man”. Man is (to Mr. Booker) the unstable element in an otherwise stable universe, and his world is literally a dream-world, because in “reality” the laws of nature still retain their absolute control. Man is ceaselessly creating fantasy-images, fantasy-projections, each leading to frustration and self-destruction, and it is “only when he uses his imagination to return within his basic framework, that man can find satisfaction”. It is impossible, however persuasively Mr. Booker argues his case, not to feel that there is something unpleasantly ostrich-like in this approach, not to hear overtones of “back to law and order” in his appeal to people to cease from “pointless speculation as to how things might have been, or might still be”, and, by overcoming what he calls the fantasy-self, thus be enabled to play their part in maintaining the survival of life.

Are we really to turn our backs on man’s gift of imagination, and on his in-built desire to *know why*? Fantasy, in Mr. Booker’s definition, may indeed be evil – but it can surely also be visionary, illuminating, positive instead of negative. Are we really here only to “play our part in maintaining the survival of life”? Surely it is possible to accept “the Fall”, not as a unique disaster but as a unique opportunity – and to see what Mr. Booker calls the “basic flaw” in man’s nature as being, on the contrary, perhaps the most valuable thing he has.

Alicia Yerburgh

Comment

The Underground Alternative

From 1961 to 1966 I lived in Berkeley, California, the latter portion of that time as a participant in that segment of Berkeley society which has since been labelled the "hippy scene". Three years ago I left Berkeley (feeling generally relieved to be leaving an atmosphere which had become thick with humourless self-congratulation) and came to Finchden Manor, where I have been in continual contact with boys who to some extent feel themselves a part of the hippy, or underground movement. I have never felt, as do some of them at this moment, that the hippies are pursuing youthful folly, which will eventually be abandoned for a conventional approach to life. I feel that the hippies are headed in the right direction, but they don't go far enough. It is often this hesitation whose outward signs are the most disturbing to those who find the behaviour of these people bizarre.

There is an astonishing freedom of association among hippies, and a friendliness which extends equally to outsiders. The most obvious contrast between these current bohemians and their predecessors (from the aesthetes of the nineties to, particularly, the beats, of whom the present underground is a direct descendant) is the immediate warmth and openness they project. More openness in human relationships is surely the only way we will be able to cope with almost effortless travel all over the globe and the individual, national, and racial confrontations this brings about. But the openness of the hippies really can go no further than an immediate response: two initiates automatically feel close because they share a loyalty, but have little energy to deepen it, so that it has only too often no issue.

The word "love" has been debased by its constant use in the underground to mean just this sort of unfocused good-will arising from a feeling of mutual congratulation. (Just as an aside: I read this piece for criticism to a boy here who said he could have invented the word "hip". He particularly approved of this last sentence, and laughed with recognition when I read it.) To "We must love one another" I think one must ask, "How will this love manifest itself?" A gentle and generous approach to others is a good start, but if that is all this love consists of then it is a pretty lightweight thing indeed. We had a boy staying at Finchden who had spent some time in the underground scene in Oxford and London, and who was trying, in a feeble way, to shake off his dependence on heroin, which, it was obvious, would eventually kill him

unless he could change. Another boy, who had given him some drugs said he'd done it because "He is my friend". If this is the measure of their friendship, then how deep can it possibly go?

It is too easy to trade the traditional set of bonds between people – parent-child, boss-worker, host-guest, protector-dependant – for a shallower relationship altogether. What is more difficult is to preserve the depth of relationship while maintaining an openness.

A child who has grown up in a middle-class family in one of the richer countries over the past 20 years has never lacked food, shelter, and clothing, has never known a world which wasn't completely explored and mapped, and has seen technological fantasies realized at an accelerating pace. Where is the adventure for a child like this? To put it another way, how can he take a risk, test himself? Obviously one adventure for a youth raised in affluence is to turn aside from his comfort and go on the road as a vagabond. This is just what many young people now do. What is more, they regard their travelling as a kind of pilgrimage. The object of the pilgrimage is vague, but usually it is called "experience". A Finchden boy who spent a weekend wandering and hitchhiking said, agreeing that it was a rather fruitless time, "Yes, but it was an experience". Actually, the more bizarre the experience, the more likely it is to be meaningful to such a pilgrim. This hints at the real object of such a search, and that is revelation, immediate and certain knowledge. Such a search, of course, also lies behind the use of psychedelic drugs and interest in oriental mysticism, astrology, tarot cards, and the like.

Interest in oriental, and even American Indian, religions as an alternative to western ways of thought is common among hippies. But Ruby Rae, in her article on the underground, misses the point here. Whether Tantrism and Zen were once suppressed is irrelevant. (What new religion hasn't been, most notably the one founded by the followers of Jesus?) In fact, Zen didn't really take root in China, but grafted most successfully in Japan, where it has been an "establishment" religion for over ten centuries. Taoism is the closest religion to Zen in China, and, along with Confucianism, it has been a formally established religion for over 2,000 years. As for the underground's supposed rejection of Hinduism, Allen Ginsberg, a major figure in the movement, has called himself a practising Hindu, and regularly sings Hindu prayers for underground gatherings. No, the important characteristic of the hippies' interest in eastern religions is that it is highly selective, and not very thorough. The apparent casualness of much oriental mysticism (particularly Zen and Taoism) appeals. Again, with astrology, tarot cards, and drugs, the craving is for

an *immediate* result, rather than a long-term development of knowledge.

If it is true that taking a drug can distort the mind so that it can better perceive some aspects of experience, then even the personal value of such a revelation depends very largely on the recipient. And, if this experience is only available to someone through taking a drug, then how valuable is it likely to be?

But again, the hippies are on the right track. For the past four centuries men have been discovering and collecting facts about the natural world, and only occasionally synthesizing them into a coherent structure. The growth of information recently has accelerated tremendously, so that we are getting snowed under with data. The amount of sheer information which many jobs require now is huge, and coordinating facts in order to recommend action is simply not possible if a plodding, piece-by-piece approach is taken. Intuiting, synthesizing, seeing the single pattern in and behind the flux – these are the talents needed more and more, and these are linked to revelation rather than fact-collecting.

The hippies feel that they live in the present and see things as they are, whereas the squares are tied down to the past (habit) and the future (working for goals) or, what is worse, out of touch with reality altogether. (Usually in this case “reality” means uncomfortable facts such as the horrors of war, or the plight of homeless families.) The phrase “live for the moment” has unfortunate connotations. To live for the moment can mean to seek only pleasure, to indulge yourself, to reject intellectual development, or any endeavour which takes you in a straight line to a future destination. Living for the moment can lead to aimless circling and boring repetitiveness.

But being aware of the present can mean sharpening one’s ability to perceive, as opposed to conceiving. Abstractions, concepts, can only take us so far toward understanding. Perception, an activity which is a dialogue between the person and his situation, is of equal importance. In a world where so much of what one perceives is through the media of print, glowing screens, and loudspeakers, and is thus vicarious and manufactured, it is vital to exercise genuine perception, in order to feel oneself real and whole: to be able to live for the moment, but not *just* for the moment.

The hippies are settling for second-best. They grasp part when the whole lies before them.

May I put in two afterwords here about Ruby Rae’s article. First, about the hippies and the middle class. I think Ruby Rae is mistaken when she says the underground movement is no longer a middle-class

phenomenon, but one based on “dislocated groups”. The hippies are very much a middle-class phenomenon. They are the children of parents who have always been able to provide them with more than a sufficiency, and they have now rejected their parents’ acquisitiveness. (This is particularly true in America, of course, where the middle-class drive to acquire is more evident.) The “dislocated groups” which Ruby Rae mentions (those with a background of “social sciences, humanities, drama schools, or art schools”) are groups within the sphere of higher education, a world which I should have said is still a fundamentally middle-class domain.

Secondly, about the underground and the authorities. How can Ruby Rae say “Very possibly the authorities do not regard the underground as a serious threat” when she also recognizes the “violent hysteria” shown by “police, press, and parents . . . at the spread of pot and LSD and the general existence of underground activities.”? A policeman at least knows where he is with overt law-breaking. But the “practical danger”, as Ruby Rae has it, of a supposed unseen revolution, a change which might be seen as an eroding from within, this is far more frightening to someone in authority than a direct act of rebellion. The American authorities in particular are already not as indifferent as she suggests.

Norman Alm

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Sentences

(From an essay on “Schoenberg’s *Moses and Aaron*”, by George Steiner)*

The motif of a sharp conflict between Moses and Aaron is, of course, present in the Pentateuch. It may well be that later priestly editors, with their particular professional association with Aaron’s priesthood, smoothed away some of the grimmer evidence, and obscured the full, murderous consequences of the clash. Schoenberg made of this archaic, obscure antagonism a conflict of ultimate moral and personal values, of irreconcilable formulations or metaphors of man’s confrontation with God. Working on the principle – discernible at the roots of Greek tragic drama – that fundamental human conflict is internal, that dramatic dialogue is in the final analysis between self and self, Schoenberg gathered the entire force of collision into a single consciousness.

This is the drama of Moses. Aaron is one of the possibilities (the most seductive, the most humane) of Moses’s self-betrayals. He is Moses’s voice when that voice yields to imperfect truth and to the music of compromise. Schoenberg remarked in 1933: “My Moses more resembles – of course only in outward respect – Michael-angelo’s. He is not human at all.” So far as the harsh, larger-than-life stature of the personage goes, this may be so. But the poignancy or the opera, its precise focus of emotion and suffering, comes above all from Moses’s humanity, from that in him which is riven and inarticulate. . . .

Moses’s incapacity to give expressive form (music) to his vision, to make revelation communicable and thus translate his individual communion with God into a community of belief in Israel, is the tragic subject of the opera. Aaron’s contrasting eloquence, his instantaneous translation – hence traduction – of Moses’s abstract hidden meaning into sensuous form (the singing voice), dooms the two men to irreconcilable conflict. Moses cannot do without Aaron; Aaron is the tongue which God has placed into his own inarticulate mouth. But Aaron diminishes or betrays Moses’s thought, that in him which is immediate revelation, in the very act of communicating it to other men. . . .

Confronted with the rebellious bewilderment of the Jews, with their call for visible signs of the new revelation, Moses retreats into his own inarticulateness. It is Aaron who proclaims himself the word and the

* *Language and Silence*, pp. 155-159. Faber and Faber. © George Steiner, to whom we are indebted for permission to quote these passages.

deed. It is he who casts Moses's rod to the ground where it turns into a serpent, and shows Moses's hand to be leprous and then miraculously restored. During the entire last part of the Act, Moses is silent. It is Aaron who proclaims the doom of Pharaoh and the covenant of the Promised Land. Fired by his eloquence, the people of Israel march forth and the music is exultant with Aaron's certitude. It is through him that God appears to be speaking.

In one sense, in one possible idiom, He is. Moses's understanding of God is much more authentic, much deeper; but it is essentially mute or accessible only to very few. Without Aaron, God's purpose cannot be accomplished; through Aaron it is perverted. That is the tragic paradox of the drama, the metaphysical scandal which springs from the fact that the categories of God are not parallel or commensurate to those of man.

NOTES ON CONTRIBUTORS

Joan Harvey, mother of three, humanist, anarchist, lives in a group of caravans on a half acre near Cambridge.

Simon Mein read Theology at Nottingham University and is Prior of the Society of the Sacred Mission, Kelham.

Mary Scott read Psychology and Philosophy at Edinburgh University. She is a practising psychologist interested in the interaction of biological and spiritual factors in healing and personality development. Member of the Scientific Research Committee of the Churches' Fellowship for Psychic and Spiritual Studies.

Arthur Iberall is Chief Physicist at General Technical Services Inc., Upper Derby, Pennsylvania, U.S.A.

G. A. Lyward, after 16 years as a schoolmaster, founded (at the request of two psychiatrists, Dr. H. Crichton Miller and Dr. J. R. Rees) Finchden Manor, a community for seriously maladjusted older boys and young men of high or good intelligence, now in its 40th year. He was one time Chairman of the Home and School Council of Great Britain and editor for 13 years of *Home and School* and is a member of the Advisory Council of the Association of Psychotherapists and an external examiner of Bristol University.

Jerome Perlinski is Professor of History and Theology at Webster College, St. Louis, Missouri. He has studied at the Teilhard Foundation in Paris as the recipient of its first fellowship.

John Walker is chief engineer in a company which operates two pipelines carrying solids. He studied Mathematical and Mechanical Sciences at Cambridge, was resident ventilating engineer for the Mersey Tunnel, popularized underground mine fans, and, though an R.N.V.R. navigator, worked during the latter part of the war mainly on development of servo-mechanisms, gyroscopes and predictors for gunnery. He was nominated by the R.N. to assist the development of post-war weapons by Vickers Armstrong, and managed their research department until 1953.

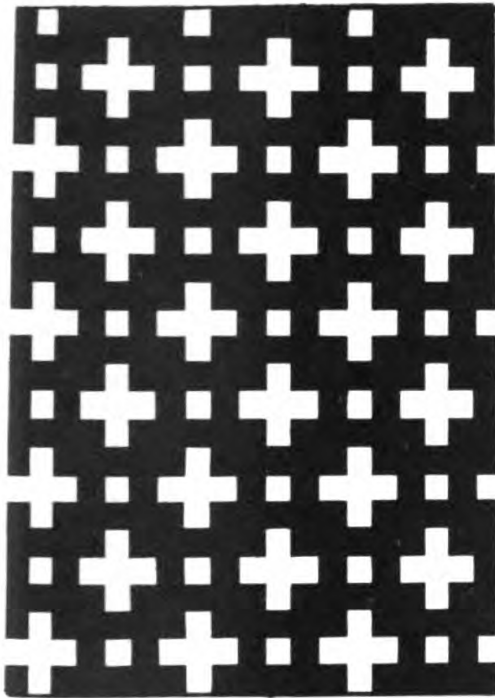
Ursula Henriques graduated in History at Somerville College, Oxford. After years in the wartime civil service and in boarding schools she struggled across to university teaching via a further term at Oxford, and a Ph.D. in Manchester University. She now lectures at University College, Cardiff. Her writings include *Religious Toleration in England, 1787-1833*, and articles "Bastardy and the New Poor Law" and "The Jewish Emancipation Controversy in 19th Century England" (*Past and Present*).

Robin Mckinnon Wood, who designed the cover, read Mathematics and Physics at Trinity College, Cambridge. He was founder of Systems Research Limited and now works at the Cambridge Language Research Unit.

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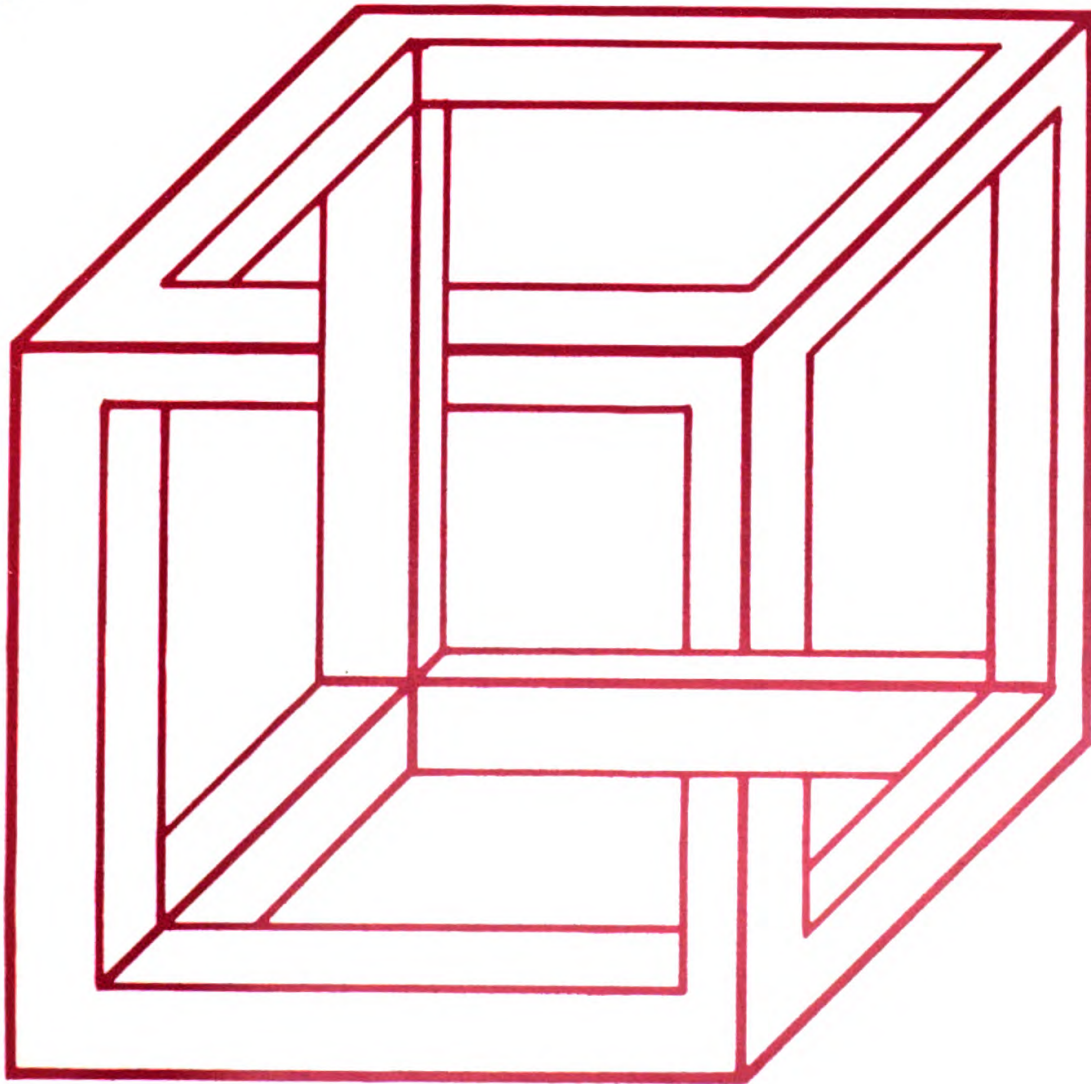
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THEORIA TO THEORY

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Editorial

This number has been written and compiled in a situation of transition, and therefore has characteristics which are just those that our critics from time to time complain of. The contributors are largely (though by no means exclusively) “in-group”, and we are late (though not as late as we were with the January number). But the situation is exceptional. By the time this reaches our readers, they should also have received a letter circulated for us by the Pergamon Press, which will show that difficulties are currently surrounding the Pergamon Press and that we have been having our difficulties too. These difficulties have had a good deal to do with our late appearance, and with a certain doubt at one point as to how *T. to T.* could continue to appear at all.

We have now concluded an interim negotiation with the Pergamon Press by which they will pay us an editorial allowance for the next two years, but we will take over publication on January 1st 1971. In the meantime we shall work at ways of building up the circulation, advertising revenue, and book shop sales of the Journal, so that it can break even financially when we no longer have the financial subsidy the Pergamon Press has very generously given us until now. The journal is not so very far from breaking-even point, and the circular already mentioned invites co-operation and suggestions as to how to get it there.

Now that the immediate question of future publication is clearer, we hope to catch up on publication dates, so that we can appear quarterly and on time. We are transferring the printing to the Compton Press, Compton Chamberlayne, near Salisbury. This is a new, but rapidly growing, printing firm whose managing director, Julian Berry, is interested in *T. to T.* for its own sake as well as for its commercial possibilities, and is therefore prepared to help us build it up as a publication.

* * *

For the “Dialogue” in this number we are publishing an edited version of a discussion on translating the Bible. The provenance of this discussion is explained in a preamble, and your editor has written a personal postscript to it. This is a part of the journal where in-group character is in evidence. We believe, however, that the

questions raised are of sufficient interest and importance for us to take the risk of being attacked for this. With the appearance of the New English Bible translation of the Old Testament, translating the Bible is in the news, and the merits and demerits of that particular translation have been widely discussed. We are not here concerned, except parenthetically, with discussing the N.E.B., but are looking at a very different venture in translation – the United Bible Societies' project for translating the Bible into some 800 languages. The principles on which this is being conducted seemed to us to raise disturbing religious and philosophical as well as linguistic questions. Hence the discussion.

* * *

In reply to people who are asking increasingly what is the line of thinking of the Journal, now is perhaps a moment to make a brief statement about this. *T. to T.* caters above all for two differing sorts of people: one religious and one scientific or humanist. The first is that group among religious people who are prepared to go outside the closed world of religious talk and religious ritual into the open world of scientific-cum-metaphysical truth, *without losing or under-rating the depth of the religious enterprise*. Thus two widely differing sub-groups of religious people oppose this enterprise: those who cling to the current religious stereotypes as to an ark; and those who, on the contrary, no longer have faith that the religious enterprise in any form can have any depth. Each of these sub-groups, though they look different, has this in common, that each has suffered a fundamental loss of faith; but whereas this loss of faith has deprived the first sub-group, the ark-dwellers, of courage, it has deprived the second sub-group, the walkers out, of insight. By contrast, hippies, members of "Arts Labs" and of the Institute of Contemporary Arts, orthodox, Orthodox and unorthodox Christian religious contemplatives, contemplatives also from the older Hindu, or Buddhist, or Sufi traditions – as well as a good number of metaphysically-minded and open-minded philosophers – welcome the journal and are totally unafraid even of its most technical or mathematical speculations or of its most way-out explorations of scientific growth points – simply because they are unafraid of anything.

The second group, the scientists, might be described as "open trans-humanists". These are well aware that, directly or indirectly, all truth must stand upon an empirical foundation. But they are

dissatisfied, increasingly, with the narrow and bitter intolerance, and also the increasing callousness, currently being shown by official atheistic humanism; and they are alarmed also that the older, more poetic stereotypy of religious rituals may disappear only to be replaced by an even more crude and powerful and therefore more sinister stereotypy of band-waggon science. With the aid of collaborators from among these, we are probing new growth-points in fundamental science in which discovery, if it turns out to be genuine, may shake or perturb, or perhaps even shatter, the current crude materialistic world-picture. (We have already made one or two suggestions in the course of doing this which have been taken up elsewhere.) But what we are concerned with is to increase fundamental discovery, not to inhibit it; therefore in this area also we appeal to men of faith.

Dialogue: *Translating the Bible*

This multi-person dialogue has been adapted and shortened from a taped discussion which was held in the Cambridge Language Research Unit on Friday, February 20th, 1970. The following took part:

Robin O. Anderson, Research Student, Moral Science Faculty, Cambridge University; research assistant Cambridge Language Research Unit.

Dr. E. W. Bastin, sometime Research Fellow in Physics, King's College, Cambridge, consultant in information science, Cambridge Language Research Unit.

Patrick Carnegy, of the Times Literary Supplement.

The Rev. Professor John Emerton, Regius Professor of Hebrew, Cambridge University.

Professor Dorothy Emmet, sometime Samuel Hall Professor of Philosophy in the University of Manchester, Editor of *Theoria to Theory*.

Robin McKinnon Wood, Systems Programmer and Principal Investigator, Cambridge Language Research Unit.

Margaret Masterman, Director of Research, Cambridge Language Research Unit.

David Shillan, Linguist and language-teacher; principal investigator, Cambridge Language Research Unit.

Dr. George Steiner, Fellow Extraordinary of Churchill College, Cambridge.

as well as others who did not take part in the discussion.

The following had expressed a wish to be present but had been unable to come:

Professor James Barr, Professor of Semitic Languages in the University of Manchester.

Dr. Henry Chadwick, Dean of Christ Church, Oxford, sometime Regius Professor of Divinity, University of Oxford.

The immediate subject of discussion was the book *Helps for Translators, The Theory and Practice of Translation*, by Eugene A. Nida and Charles R. Taber (published for United Bible Societies by E. J. Brill of Leiden, 1969). Margaret Masterman called this discussion, in the form of the first of two C.L.R.U. seminars on this

subject which were announced in the *Cambridge University Reporter* and which were therefore open for any members of Cambridge University to attend; but it was not anticipated that the discussion, though taped, should be published. However, on February 26th, the *Times Literary Supplement* published an account of it which those who had been present felt to have been materially distorted, and which provoked letters of protest, written from differing points of view (and which were published in the *Times Literary Supplement* on March 5th, 1970) by Margaret Masterman herself and by William D. Rebyburn, Translations Co-ordinator of the United Bible Societies. It was also announced that a more accurate account of the discussion, to be obtained by referring back to the actual tape, should be published as the Dialogue of the next issue of *Theoria to Theory*, since widespread general interest in the matter had by then been aroused.

Since then Margaret Masterman has published in the March 19th issue of the *Times Literary Supplement* an authoritative article, entitled *Bible Translating by "Kernels"*, in which she has set out the logical and linguistic case for thinking that Nida and Taber's method of translating is invalid; and the situation at the time of going to press is that Nida and Taber have been invited to reply. It might be thought, therefore, that the original C.L.R.U. informal discussion has now outlived its usefulness and might be forgotten, all the more so as the relevant technical and linguistic issues were raised in far more detail in the second C.L.R.U. seminar, which was not taped.

However, the Editor's opinion is that three or four points were raised in this first discussion, which make an original contribution to the general literature of Biblical translation, in that they are unlikely to be found elsewhere. These three or four points have been retained and concatenated, and the rest of the discussion jettisoned; which was all the more possible in that it was these same points of which the *Times Literary Supplement* gave its own version. The tape has been preserved.

Margaret Masterman opened the discussion, as follows:

Margaret Masterman: I have called this seminar because of a situation which has developed with regard to Nida and Taber's book, *Theory and Practice of Translation*. When the TLS sent me this book to review, I accepted the assignment as a professional linguistics matter, because I hoped, through studying the book, to

learn something more about translation. The enterprise of translation of the Bible, after all, as George Steiner keeps pointing out, is the largest scale translating enterprise going on anywhere in the world. It is probably indeed the largest scale translating enterprise which has ever gone on anywhere in the world; and it involves very many languages.

Now it is possible that I have just not understood this book, which is a difficult book; one reads and re-reads it, and yet has continually an uncertain impression that, in spite of all one's efforts, one has not yet understood it. But if this is so, then what I have called this seminar for is to be helped to understand this book better; and understanding it better represents no special problem.

But if I have understood the book, even partially, then there is every kind of problem. For the problem of translating the Bible is not only a linguistic and a historical problem; it is also a philosophic problem; and I am a philosopher. I wrote the series of four articles in *Theoria to Theory* which bore the title *Theism as a Scientific Hypothesis*; and, as I now see, it is as the author of these articles, as well as the Director of Research of C.L.R.U., that the TLS has asked me to do this review. Moreover, there is more to it even than that. Translating the Bible is not only a linguistic problem, a historical problem and a philosophic problem, it is also a religious contemplative problem. And I suppose you might say that in a rather low and brutish sense, I am a religious contemplative. And so for me the Bible is a contemplative and mystical book.

What Nida and Taber are actually saying

In so far as I understand it, this book of Nida and Taber's sets out a universal theory of translation. Their theory does not only apply to the Bible. It could apply to any translating enterprise, of any text, and starting from any language to go into any other. So the book makes a very big claim.

The second point is that this new theory is quasi-mechanical in nature, though the authors know that at its present stage of development, it cannot possibly be put on an actual machine. They claim, though, that it derives from the "transformational grammars" of Chomsky, which Chomsky took pains to make mathematically rigorous and which is always assumed to be in principle mechanizable. Moreover, this method of translating is a teachable skill. Translators can be trained to work it with speed and ease: as well as being a theoretic treatise, this book is a manual, with progressively graded exercises.

The third point is that this new theory of translation is claimed to be so reliable in its handling of essential meaning that it enables translators to dispense with the original texts, in the languages of origin, of the Bible. They can work, instead, by comparing and using the method to analyse the differing translations which have been made of the Bible into English. Thus English becomes the source-language, not Hebrew or Greek. All that the translator needs is to know English, know how to use the method, and to know also some other target language into which he then proceeds to translate (by a process called *restructuring*) the meaning analysis which he has previously made, using the method, of the Biblical English.

Everything then rests upon the method. What is it?

Put shortly, it is a stage-by-stage method of analysis of any English sentence. First the words of the sentence are classified as belonging to four universal *categories*. Secondly, the now categorized sentence, whatever its grammatical form in the original English, is cut up into pieces. Each of these pieces is then turned into a separate short English sentence of one of seven allowed types. These seven primitive sentence-types are called *kernels*. The process of turning English noun-phrases, or verb phrases, or prepositional phrases or what you will, into kernel sentences is called (allegedly following Chomsky) *back-transformation*. These short kernels are then connected together into longer strings called *near-kernels*, the interconnections being made intuitively, but by using a not very large number of interconnecting mechanisms. These near-kernels which, it is claimed, now carry the complete information which went to make up the original Bible message, is then translated with as little alteration as possible into the target language. This last process is described (the word being again taken from Chomsky) as *transformation*. Thus translation of anything from any language into any other consists of (i) *word categorization*, (ii) *back-transformation* (to form the individual kernels), (iii) *concatenation* (to string them together into a near-kernel) and (iv) *transformation* (to translate the now categorized and concatenated near-kernel into the target language).

Take an example – in fact, let us take the example which Nida first takes. This is Mark I: 4 (Revised Standard Version):

“John . . . (preached) a baptism of repentance for the forgiveness of sins.”

1. *Categorization*

This is categorized as follows, into the four basic categories: *O* (for Object), *E* (for Event), *A* (for “Abstract”), and *R* (for “relation”).

O *E* *E* *R* *E* *R*
 John . . . (preached) a baptism of repentance for the
 E *R* *E*
 forgiveness of sins.

The next step is to turn the pieces of this now categorized sentence into kernels. To do this, each noun in a noun phrase like “the forgiveness of sins” has got to turn into a verb; and “implicit elements” – i.e. in this case, more nouns – have now got to be added to provide subjects and objects for the new verbs. This adding of the “implicit elements” Nida and Taber separate out as a separate step, step 2, which, coming as it does after the word-categorization and before the kernel-making, makes the sequence of translating steps, using the method to become not four steps as given above, but five, as under.

2. *Explication* Also it is *people* who repent and *people* who sin.

- (a) Those who are baptized are *people*. Add therefore the word “people” as an object for “baptize”, and as a subject for “repent” and for “sin”.
- (b) It is God who forgives sins. Add, therefore, “God” as a subject for “forgive”.
- (c) Add a grammatical sign, *X*, which can stand for a whole kernel or set of kernels while itself acting as a subject or object of a predicate.

3. *Making the kernels*

The seven types of kernel-sentence, for the English, are:

(with or without adverb)	<i>illustration</i>
<i>type</i>	
1. Simple predicate	John ran quickly.
2. 2-relational predicate	John hit Bill.
3. 3-relational predicate	John gave Bill a ball.
4. Spatial or temporal (or other) specification	John is in the house.
5. (Adjective to predicate back-transformation)	John is sick.
	(i.e. Any adjective-noun phrase which, when back-transformed into a kernel, won't fit in elsewhere: a residual category)

6. Statement of class membership John is a boy.

7. Definition by identity John is my father.

of these, only kernels 1 and 2 are needed for the example we are analyzing, which divides up into kernels as follows:

1. John preached X (where X stands for kernels 2–5) (kernel-type 2).
2. John baptizes the people (kernel-type 2).
3. The people repent (kernel-type 1).
4. God forgives X (where X stands for kernel 5) (kernel-type 2).
5. The people sin (kernel-type 1).

4. *Concatenating the kernels*

1. The resultant, or *goal* of John's preaching was the message consisting of the set of kernels 2–5.
2. Kernel 3 *precedes-in-time* kernel 2, to which it must be related by some such connector as "and", or "and then".
3. Kernel 5 is the operation, or *goal* on which is performed kernel 4.
4. The concatenation of kernels 4–5 is the *purpose* of the concatenation of kernels 3–2.

so, we get a preliminary conflation as follows:

1. John preached.
2. The people repent
 and then John baptizes them.

In order that

3. God forgives the people
 who
 have sinned.

5. *Making the near-kernel*

These three pieces can be conflated into a single near-kernel in various ways, so as to suit the grammatical needs of any given target-language. Probably the simplest conflation, to illustrate the general method, would be:

John preached:
the people are to repent
 and then
he will baptize them
 in order that
God may forgive them
 although

they have sinned.

In other words, in forming a single near-kernel from a string of separate kernels, subordinating connections and pronoun-connections have got to be established between the kernels of so simple a nature that they can be transferred, one way and another, into any target-language.

Thus, the whole Bible is to be made simple, and the whole Bible is to be made concrete, with each separate small kernel sentence having a separate, easily comprehensible, concrete paradigmatic reference in terms of actual objects or events.

Now, it is easy to show that this use of the notion of kernel is not Chomsky's. A Chomsky kernel, to start with, is a mathematical construction, x , whereas Nida's kernels are just short sentences.*

The crucial point which comes up is whether this is the Bible at all? Or is it the case that I have just simply misunderstood what Nida and Taber are getting at?

George Steiner. Your guess is right, Margaret. That is what they are doing.

Margaret Masterman. Well, if they are doing this – in so far as they are doing this – and especially if they are doing it in the name of fundamentalism – then this whole enterprise is, if you like, the very devil. Because as soon as they insist upon having all these separate concrete references, all the worst cynics among the atheistic linguistic philosophers will back them up in order to get rid of the Bible by making a *reductio ad absurdum* of it. And all the most atheistic social anthropologists will in turn back them up – in order to give each separate phrase of the Bible a separate operational concrete reference in terms of human behaviour, which is the only way, they think, to prevent any canonical scripture from becoming totally meaningless. Thus all the real content of the Bible – both the metaphysical content and the mystical content – is totally lost; and by invoking the name of science.

George Steiner. Yes, but let me refer to a passage and two footnotes of Chomsky's. The passage is on p. 3 of *Aspects of the Theory of Syntax*: "All languages are cut to the same pattern" or from the same mould (there are also footnotes attached to this passage which evade the whole problem of whether the possibility of "real

* In her *Times Literary Supplement* article of March 19th, Margaret Masterman set out Chomsky's view, and went into the difference between this and what Nida is doing. [Ed.]

translation" follows). Nida had to try to do something, and no authoritative lead was given. He seems to be working with I. A. Richards' "Picture language model". Nida is in a hurry; hundreds of languages are waiting for the United Bible Society to get on. Remember this pragmatic context. Richards' basic English and picture theory of statement may help a lot. "Concrete kernels" are a re-phrasing of basic English and picture language. In trying to go to other languages with something very complicated to convey, find concrete gestures or rudimentary things to refer to.

Margaret Masterman. But you are acknowledging that what is to be conveyed is something complicated.

When the first narrators of the Christian story said, "John the Baptist preached the baptism of repentance for remission of sins" they were speaking in a culture which knew a great many sophisticated things about baptism, repentance, initiation ceremonies, Greek mysteries, ceremonial washings – very much more than we do – and they knew what a sophisticated remark was being made. They were saying that John was advocating a special and very powerful and interesting form of initiation ceremony; and that he was offering it publicly to everyone; not keeping it secret. Now Nida makes a fuss, very rightly, about people who translate "he was possessed" by "he was mentally disturbed"; for to be mentally disturbed in first-century culture (and in fact in ours) is not the same as being demoniacally possessed. Thus, when he thinks that first-century culture is more primitive than ours, in that it believed in demons, Nida insists on the primitiveness being retained. But when first-century culture was more sophisticated than ours, as in its knowledge of, and experience of, initiation ceremonies, then, apparently, all this sophistication is to be ironed out and simplified, by the kernel-making process, until only the concrete references remain.

How much we should alter our way of looking at older cultures, as we get to know more and more through sociology, psychology of mysticism and so on, is a deep question. But why when the culture is thought to be primitive you put back the primitiveness, whereas when it is sophisticated you never replace the sophistication, I can't see.

Ted Bastin. There are two things you can do when an immensely sophisticated kind of knowledge is to be translated, conveying a mystical tradition to a culture to which it is quite alien, yet where they have something like it. You can go back to root words, like

oil and water, and find what corresponds. Alternatively, you might treat the whole body of knowledge as a science, look into the subject, discover its proper technical terms and assume there will be corresponding terms, and find that there are. Both of these are deep ways of proceeding.

Robin Anderson. But Swahili, for instance, is a more restricted language, not up to the expression of complicated things.

Margaret Masterman. I wonder. But, about Ted's suggestion: it seems to me to be a defence of Nida, not an attack. It means that until an absolutely non-existent science of comparative religion, of which we barely glimpse the beginning, has been developed, you just haven't got the basic scheme on which to map a comparable set of insights in the second culture; so, Nida might say, you had better make do with concrete sentences.

George Steiner. Nida might say "There are hundreds of languages, and I am trying to find concrete universals, pictures of actions, with which I am trying to work". He should add "*At some level*" and in fact he sometimes does. If you are going into this mass transfer business, you have got to go at the whole picture theory as being something more universal and easily accessible. Be a little fair, and see in what context he is speaking in this book. It is a working paper.

Nida sees his job as getting over a Western document to the Eskimos.

Margaret Masterman. The Eskimos are an exceedingly mystical people.

George Steiner. Saying a Western document may transfer awkwardly into these other structures is not to say that these other structures are less deserving.

Margaret Masterman. He doesn't say the other languages are less deserving, but, by implication, that the other cultures are less deserving.

Dorothy Emmet. Suppose you are trying to translate a complicated mystical point into another language, where our technical terms might not be translatable. Could you not go to the more simple concrete language, not stopping there, but finding ways also of showing that it has a more abstract symbolic significance? Nida has "abstract" as one of his universal word-categories, but seems only to mean by this "adjectives and adverbs which can be moved around as grammatical universals", so this doesn't help this point.

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Margaret Masterman. All the structural linguists, including Nida and Taber, are conducting analytic splitting operations, whereas interpreting meaning is a basic operation of glueing. When you glue together a sequence of individually concrete words, to form a whole linguistic *Gestalt*, the meaning of the Gestalt often becomes more technical or more abstract; quite different from the individual meanings of the individual words. But when you split up long sequences of words into small pieces, and then turn each small piece into a simple subject-predicate sentence, the meaning of each individually split-off word inevitably becomes more concrete.

George Steiner. There are two things being talked about together here. One is an attack on the theory and practice of translations as applied to the Bible in Nida's book. This is a general linguistic point. The second is *your* problem as more or less engaged Christians. The Jews neither want to be translated nor care passionately whether anyone "outside" understands. The Talmud has many warnings against proselytizing. The Jews do not reject mysticism, but there is very little of it in the Old Testament with its extreme concretion. Nida is a Christian Biblical comparatist steeped in the Old Testament. Now as a Christian you can't say that when you are translating the Gospel for Eskimos you are offering a complex exchange of values, as with any ordinary book. You have to do with a revelation paradoxically delivered to people. You are now bringing good news, a message to the world. Nida is saying "there must be a bridging operation; I have got to grab it where I can, to get my package across, my message". If God has sent His Son in one time and place it is not a general theory of relativistic cultures Bible translation is concerned with.

Margaret Masterman. The Talmud scholars I met in Jerusalem would disagree with everything George has said about there being no mystical substratum in Judaism. What about the schools of the prophets? You can also look at early Greek Christianity, which had Eastern connections and was a variant of a *philosophia perennis*. If you go back to this *philosophia perennis* in the Greek fathers, you don't just get a picture of people Bringing the Light; you get proper discussions; as can be seen from the literature.

John Emerton. In any case, I am not clear how this affects translation.

George Steiner. Enormously. As it were, it says over the door of the American Bible Society "Bring the Word". You may wish to

spread it in a very simple form, as in basic English. You bring the foreign-language learner on by slow stages, not starting him at the deep end. You may decide, as many African missionaries did, that you want to get precepts of conduct across but not theological doubts and difficulties. An act of translation is one of the most strategic of operations. No one ever sat down to translate Virgil or Homer without a very clear idea in his mind of what he wanted to get across to his readers. When you look at the Algonquin Bible you learn much of the history of American opinion on how to treat Algonquins. It is a practical programme of conversion or at least, "enlightenment".

Margaret Masterman. What evidence is there that what the Americans wanted to do with the Algonquins was tied up with the Bibles they wrote for them?

George Steiner. We could get it in the history of successive stages in the American Indian versions of Scripture.

Robin Anderson. This sort of phenomenon isn't necessarily to do with religion, or confined to the Bible. It can happen whenever you produce a translation into an alien culture.

George Steiner. Early New England Gospels in Indian tongues were an attempt to get the natives away from French influence. The French were doing Mariology and a lot of saint stuff and wanted their native allies to adopt their line. The Gospel in Iroquois is strongly Protestant. It was crucial in those years in Massachusetts to be able to say to the Indians "we have got the true Word, not the French", and this was how they translated the Gospel.

Dorothy Emmet. If you are saying that these translators had a definite Evangelical bias in what they were preaching and this determined their translation, what do the scholars say about this?

George Steiner. Of course it determined translation, just as the Black Power movement is demanding a Bible in which much of the black and white symbolism is restructured.

John Emerton. Every translation simplifies, though the scholars' aim is to bring out a translation which would not do this.

Robin McKinnon-Wood. You can make a distinction, though, between translating a book and teaching a set of values which you believe to be contained in the book.

Margaret Masterman. Have the Oxford and Cambridge translators of the *New English Bible* sat down under this attitude to translation, or have they struggled against it? Ought they to have done?

Dorothy Emmet. Are the people who try to produce a scholarly translation of the Bible aware that they have their own theological presuppositions, and if so that they have to struggle against them? Is “knowing what they are doing” in their case being able to see how the religious language is being used without putting their own theological scheme onto it, because their job is to produce what will be a source book for a lot of other people?

John Emerton. There are a large number of translators and it is difficult to generalize. Many translators don't approach things with the idea we know all about it, and also they become aware of many real problems when they are thinking how best to say in one language what was intended in another. A number of people make up a panel and will each have their views, and the result may be something of a compromise. The position is not quite the same, as they are writing for the educated.

George Steiner. To “know what you are talking about” may only be possible in a second language. So the difficulty of translation illuminates you backward, and the strongest thing you might say to Nida is that, quite apart from worries about conversion, you are selling us short by not giving us enough help from this dialectical process. You are selling us short in our own “at home” attempt to understand our Bible. It's not easy to say we know what we are talking about.

* * *

John Emerton. How does translating the Bible here differ from translating any other book?

George Steiner. In America they are doing a “translation” of Shakespeare into new basic. In *Hamlet*, out go difficult things like archaisms, the grammar is straightened, and so is the terrible riddle of the double murder in the play scene. For the Bible, you might take one simple reading and leave out difficulties.

John Emerton. I'm still not clear here what the difference is supposed to be between translating Shakespeare and the Bible.

George Steiner. Take “the sons of God” in Genesis VI. You say you are worried, and the teacher says he is too. Should it have said “Big brave men”? But you don't tell your little Swahili you are dealing with philosophical doubts and symbolic difficulties.

John Emerton. Can you remember what the American Jewish version did with this passage?

George Steiner. The American Jewish version is for adults. When

we were children perplexing passages were put aside. You don't start children with the complicated passage about menstrual ablutions in *Leviticus*.

Ted Bastin. I want to ask Professor Emerton how much it is the translator's business to face the problem posed by the personalist language of the original?

John Emerton. Can you give me an example?

Ted Bastin. What about "the only begotten Son of the Father"?

John Emerton. This is obviously intended as in some sense metaphorical. My own approach would be to take the ordinary equivalents for "son", "father", "only".

Ted Bastin. I'd say you were taking an expression which could only have a place in a whole context in which it might give the right signals, and were forcing it into a culture in which it is bound to give the wrong signals. In the new culture, for instance, you might have to do it in terms of light; and you would have to be consistent.

George Steiner. What about the hinderparts of God, which Moses saw, when everywhere else it is said that God is incorporeal?

John Emerton. You would probably use the ordinary word for "back".

George Steiner. But you can't waffle over the total corporeality of it. And when your little student comes to you and says that God incessantly says "I am invisible and you are not to imagine me in human form" what do you answer?

John Emerton. I'd say this isn't the translator's job but the teacher's.

Margaret Masterman. When the gods walked in procession, dressed in the trappings of divinity, it was vital not to see their back; because if you did see their back then it became clear, even to children, that they were only men dressed up. Gods always had to be looked at from the front. You must not see their rump.

George Steiner. In Jewish teaching, since man cannot suffer to look upon God, Moses and only he, is allowed the fantastic privilege of seeing "the hindside".

John Emerton. I'm not sure it means that particular part of the back, but that's another question.

Robin Anderson. Hasn't the translator got to reproduce inconsistencies?

Dorothy Emmet. Yes, I think he has. Inconsistencies can show that the very concrete expression doesn't mean just what it says but something more complicated.

Robin Anderson. It's odd that as education increases, the plea for simplification increases. I recently read an article in *The Times* by Joseph McCulloch with a plea for a shortened Bible, showing a strong consistent thread from beginning to end, with all the inconsistencies ironed out.

George Steiner. There is a rise in education but to a very low plateau. There is not a continuous rise. In the U.S. there have been perhaps unconscious decisions taken to build a plateau culture – a powerful levelling. Advertising copy provides an interesting study, with permitted lengths of words, lengths of dependent clauses, punctuations and so on, to encapsulate basic information. Literacy is being deliberately allowed to shrink, in the interests of a democracy where millions of people feel snubbed by long and beautiful sentences.

Ted Bastin. The current Anglican policy is also to emasculate things: God is our Father. Jesus is an awfully nice bloke, and it is inconceivable that they should want to make things hard.

George Steiner. Remember Valéry's statement – "We are safe in France. English can be learnt in 20 hours and French cannot be learnt in 20,000". That was the absolute counter-statement, the claim of the esoteric.

Margaret Masterman. There is something I should like to say to McLuhan if I ever met him. One of the things which he ought to have stressed is that as literacy grows, symbolic power – that is, the power of using and interpreting concrete symbolisms in sophisticated ways – declines. *Dance* is the heart of this sophistication. When your body itself is the linguistic vehicle, as in the ancient Chinese and Indian dances, you cannot deceive yourself that there is not a difference between the physical form, the gestures, and the highly symbolic message.

George Steiner. We speak from such luxury. These basic Shakespeare people – I wish we had their work sheets – take Hamlet and say "To kill myself or not to kill myself – that is the question". They say that is what it is about, its message; whereas "To be or not to be" will soon be out of reach.

Robin Anderson. Isn't that the same approach as Nida?

George Steiner. An attack on Nida as based on lack of ontological depth is mistaking a bicycle for a Honda.

Margaret Masterman. I don't know how far basic English was influenced by this sort of phenomenon. I'm not sure it was, actually.

George Steiner. It must have been. Remember all those references to trying to teach the Chinese the Gospel?

Margaret Masterman. Yes, but remember also the missionaries' famous mistake of not translating God into Chinese by "Heaven" but by a word that means "the Superior Emperor".

George Steiner. But Nida would say, better than nothing.

Margaret Masterman. No, much worse than nothing. Let me repeat: as literacy increases, the symbol-making power, the symbol-handling power, the symbol-interpreting power, declines. In the exercise of this power, the Maya Indians, say, are immensely in advance of us, so long as they dance their symbolic sequences, or weave them, and don't write them down. We are writing things down in one-dimensional sequences, instead of, for instance, building up symbolic Navajo sand pictures. It is in so far as we are literate that we have become religiously effete; and this is a big trouble, as there are some genuine advantages in literacy. All this notion of primitives as unsophisticated is only true in so far as they are literate and not painting or dancing.

George Steiner. Then you don't really want to translate the Bible at all?

Margaret Masterman. Not really; not like this anyway. Adequate scholarly translation should be available for reference; otherwise any "Christian" development of an already non-Christian established culture should only occur through spontaneous development of the dance, or a felt-to-be-natural modification of the aboriginal sand painting.

In the Visitors' Book at Pendle Hill, in Pennsylvania, I wrote,

What though the spicy breezes
Blow soft o'er Ceylon's isle,
Though every prospect pleases
Their speech is simply vile.
In vain with savage kindness
Our Biblic words were strown –
The heathen had a nasty new
Thesaurus of his own.

Postscript: What can we do with the Bible?

Dorothy Emmet

The questions raised in the discussion “Translating the Bible” are not only about the structure of language but, by questioning certain uses of the Bible, lead straight into what is a specific *T. to T.* concern. In this postscript I shall try to say how I see this, writing in an individual and not an editorial way. Some of my colleagues are likely to see it very differently – some will be more to the right and some undoubtedly more to the left. And readers of *T. to T.* may also be prepared to say what they think. Do we know what we ought to do with the Bible?

The promoters of the United Bible Societies’ translations surely know what they want to do. They want to convey the “message” of the Bible in as simple a way as possible in as many languages as possible and as quickly as possible. It may not be strictly accurate to call them “fundamentalist”, in so far as they certainly allow textual and historical criticism of the Bible, and are prepared to paraphrase and re-arrange its texts. If they were just fundamentalist in the crude sense their enterprise would not have the scholarly support that it does have, and would not face us with such a problem. Rather, they are Protestant Evangelicals who hold that the Bible can be taken as a whole; that it contains a message for the salvation of the world; and that the message can be conveyed as a narrative about a particular God (*Object*) doing particular things (*Events*) to and for (*Relations*) us (*O*) for (*R*) our Salvation (presumably another *E*).

Now this extremely concrete particularity is in line with a good deal of what has been called “Biblical Theology” over the last generation. This has said we should eschew any metaphysical or mystical overtones in the words of the Bible, and it draws a sharp distinction between the supposed concrete realism of the Hebrew mind and the supposed abstract idealism of the Greek mind. It is also in line with some recent philosophy of religion. Philosophers asking about the meaning and verification of sentences like “God loves us” (the example of religious language that Antony Flew, for instance, generally takes), whether they are on the Christian or

atheist side, nearly always consider short sentences of a Nida-kernel-like form. The atheists argue that these look like but are not simple empirical statements; they are therefore “metaphysical” and unverifiable – out. Then some of those on the Christian side, accepting the attack on metaphysics, rejoin that the Bible is indeed concrete, factual, non-philosophical; but that its verification of its factual claims will come, if it does, hereafter. Or the facts are said to be facts of “Revelation”, to be accepted as such, and not open to philosophical argument. This kind of view can be called “Theological Positivism”.

It is positivistic because it reduces meaningful statements to statements about particular objects and particular events. It gets shot down because if God is talked of as though he were an object among other objects, as a tribal Yahweh might be, it can be shown, once one begins taking seriously theistic attributes such as unlimited perfection or infinity, that these cannot be applied to any particular object in any ordinary sense.

What then about non-ordinary senses? Then we have the whole problem of ambiguities, analogical meanings, negative and affirmative ways – in fact that very philosophical complexity of religious language which both “theological positivism” and Nida’s kernel sentences are trying to rule out.

I believe the positivists are right in asking for factual references of some kind, if religious language is to be *true*; and also they are right in saying that what is factual comes ultimately within the range of science, though it may be science in a large sense, reaching into new sciences we haven’t yet got. This indeed is what *T. to T.* is mainly about. They were wrong in thinking that there will not be philosophical, even mystical, elements in such an extended science – not only at certain stages, but as necessary antennae. This also is what *T. to T.* tries to be about.

Our immediate concern, however, is with the Bible. The kind of Biblical Theology which lends itself to turning the Bible simply into a non-philosophic, non-mystical narrative of records of how “God speaks” to people (without asking what sort of experience this might be, since to ask this would be a philosophical-cum-psychological question) has produced what I shall call “theological pidgin”. I mean by this something like what Ted Bastin, in an article in *T. to T.* I called “sermon-talk”, which he defined as the use of personalist language, without showing how and why it is being used.

But it is simple concreteness rather than just personalism that I have in mind.

To say theological pidgin won't do is not to say there cannot be a genuine charm – indeed wit – in some real pidgin translations of Scripture, as “Gutnuis bilong Jisas Kraist Pikinini bilong God, i kamap nau” (“the beginning of the gospel of Jesus Christ, the son of God”).

But this is more like a Melanesian accommodating a piece of Scripture into his own world; it is very different from confronting him at a further stage of his educational development with what is supposed to be the proper Bible. If we give him a version interpreted in theological pidgin, as he gets more educated (as he quickly will) he will either have to have our worries about what this can conceivably mean, or – more likely – he will say “this is white man's children's talk; give us Marxism or the Thoughts of Mao”.

Then how else can the Bible be taken? One thing that can be said at once is that in the ages when “God's Word” was a vital matter to people in our own culture, it was surely not just this. Even fundamentalists (unless they were very crude and literal-minded) dwelt on passages in which they found overtones which responded to their own experience, expressing their faith, hopes, fears, despairs, exultations. When they spoke of the “Word of God” they did not mean just texts, but a continuing capacity of these to “speak to their condition”, so that they could say that

The Lord hath yet more light and truth
To break forth from His Word.

But this way of taking the Bible depended on living in a culture that was steeped in its use and where its phraseology entered deeply into literature and poetry as well as devotion. Now we are not only confronted with people in cultures which have never had this background, but, except for a minority, we have lost it in our own. True, the New English Bible translation of the Old Testament (which appeared after our discussion) has had immense publicity, and, like its predecessor the NEB New Testament, will no doubt be a best-seller, and I have been impressed by what I have so far read of it. But how many people will find themselves praying with it as the “living Word”? There is a very real value in having a translation which helps us to see better what the original Hebrew was saying, but it can do this as a reference book for literary and historical and anthropological purposes. I confess, as an amateur anthropologist,

to a considerable interest in what are generally looked upon as the more barbarous parts of the Old Testament. But this is a minority interest. Even culturally we can no longer assume that most people will know or want to know their Bible. When lecturing a little while ago on Hobbes' *Leviathan* to a class of some 50 students, I suggested they look up Job xli to see where Hobbes got the title and also the sayings about "the king of the proud"; "there is no power on earth to be compared with him". I was met with blank faces, and then one of them said "That's in the Bible isn't it?" He was a pious one, and came up to me afterwards and said: "You are the first lecturer who has referred us to the *Bible*". Lack of knowledge of the Bible as part of our literary culture is a problem for educationalists, and this will no doubt be one of the places where "The Bible to be read as Literature" comes in.

There is also the Bible as a book of good stories. It has plenty of good stories, and, as with other books, those that children enjoy most will not necessarily be the most religiously edifying. Robert Bridges describes how as the parson's "mild discourse" goes on a choirboy is surreptitiously reading the story of

"the seventy kings, who with their thumbs
And their great toes cut off, finger'd the crumbs beneath
Adonibezek's table, until Jew Simeon came
And did the same by him, to my chorister's joy."

(*The Testament of Beauty*, II 576 ff.)

I once heard a young man in a railway carriage describing a scripture lesson in which a temporary teacher was telling the story of David and Goliath, and how David's stone had hit Goliath plonk on the forehead. "Ee!" said one of the children, "That must have hurt him!" "Hurt him! It bloody well killed him." It sounded like a highly successful lesson, though it caused the temporary teacher to lose his job. But what has all this to do with "Religious Education"?

Children earlier and earlier seem to be asking whether they need believe what they get in R.E. (and some at any rate of its teachers are aware of this). Fifth and sixth formers want to argue about *truth* (which will mean philosophy in a broad sense). They know that there are other religions besides Christianity. If they just have Bible study interpreted in theological pidgin, they may turn to drugs as a means of self-exploration and "expansion of consciousness". We need to see that this can come out of a religious quest. R.E. hasn't

satisfied them, so they experiment with their mental and spiritual health in an attempt at a short-cut to something they hope will be better.

What would not be a short cut would be to restore a context of the theory and practice of religion, in which the Bible would have to make the grade as genuinely illuminating by independent tests, not just be assumed to have a central place because it is the Bible. If we are not just to read it as a reference book or for aesthetic pleasure, but also as a book with which we can pray, this will depend on having a background against which it can be set.

This is not in fact really so new a thought. The theory of religion which could supply us with a background may be different from any that we can yet see, but in the days when people read the Bible as a “living Word”, they did in fact have a background. The Early Fathers and the medieval theologians taught that the Bible should be read in *four* ways, literal, moral, allegorical and anagogical – a much more sophisticated view than simple concrete literalism. To seek the literal meaning was the first of the ways. The second was to look for its practical import; the third, the allegorical, was where the symbolizing imagination was allowed play; and the “anagogical” way took passages as pointing to what lay beyond our present life. The results, especially of the allegorical way, may often have been fanciful, but they were at least an attempt to see how the narrative in a piece of Scripture could be paradigmatic of a more general truth. Thus the life of Moses was interpreted by Gregory of Nyssa as showing three stages in the life of the soul: (i) illumination (illustrated by the burning bush); (ii) separation from the world (passing through the cloud and wandering in the desert); and (iii) learning to bear the presence of God, who is invisible (entering into the darkness of Sinai).

Of course in medieval times the Bible as a whole was not widely read – it was said to have lain “under the bench”. But many of its passages were read and heard liturgically, and this may well have encouraged people to take them in these four ways, leading to a personal identification with the events and processes they were held to be describing. This would apply particularly to the use of the Psalms in the Divine Office, and above all to the greatest story of all – the story of the Passion and Resurrection. Indeed we can see this incorporation of one’s own experience into the story happening already in Scripture itself. St. Paul speaks of being crucified with

Christ – buried and risen with Christ; and of “Christ” not as just a title of Jesus of Nazareth, but as signifying a mystical body, a relationship which we live “in” and “by” and “through”. His prepositions carry us into a way of thinking which is certainly not just simple personalism, or to be rendered adequately by simple unambiguous sentences about objects and events.

In the older use of the Bible, people found themselves identifying themselves with its events, characters and happenings as they read about them or sang their hymns about them. Much of the Bible lends itself to this kind of interpretation, since it is often uncertain whether the speaker is supposed to be an actual individual, or an individual speaking in a representative way, symbolizing a community. We thus get a way of thinking about individuals as mutually interrelated with each other and their God who is somehow basic to this web of relations. (I tried to say more about this as both a sociological and a religious idea in the last of my articles on “Religion and the Social Anthropology of Religion” in *T. to T.* III 4.) This kind of mutual involvement seems to me far more true to life than the alternative of each man carrying and working out his own Karma, and perhaps for this reason, as well as early conditioning, I can see how the Bible stories can be read as not only stories of people speaking of themselves, or as representatives of an ancient Hebrew community, but as paradigmatic of more universal human experiences. By “paradigmatic” I mean here an experience which creates an exemplar in terms of which a whole class of experiences is symbolized.* It is not necessarily “an archetype”, if this means, as Jung seems to mean, an innate predisposition for certain experiences to get expressed in certain symbolic forms. I question the innateness and the necessity of these forms. Paradigmatic experiences are creatively achieved; they come out of a particular culture, but are capable of becoming representative. But this representative character can be lost: people may no longer find themselves identifying with these experiences, which thus lose their symbolizing quality. This may be a matter not just of a changed cultural way of talking, but of the loss of analogies in our own experience.

The analogues may now indeed be found among people of other cultures than our own; so it may be for them to teach us to under-

* The term “paradigmatic experiences” was first used in this sense, as far as I know, by Karl Mannheim in his *Diagnosis of our Time*, and I borrowed it from him in my *The Nature of Metaphysical Thinking*.

stand parts of our Bible. For instance, in the story in Numbers xxiv of Balaam and Baalek, Balaam goes into the wilderness to seek for enchantments, and there he falls into a trance, still having his eyes open; and in spite of the pressures of Baalek, the conquering chief, he finds himself impelled to bless and not curse. We have here something like a medicine man turning into a prophet. Again, the experiences of the Iroquois or the Crow Indian, who goes to live alone in the forest and receives "a spirit vision", may help us to understand how people could say that "the word of the Lord came to them". Study of mind-body states among people who are still developing powers most of us have lost could throw light on what may lie behind some of the healing stories in the Bible; and above all there is the enigma of the Resurrection. We should not sit down under the New Testament critics telling us that it is impossible to say what happened, and that, in any case, this story and indeed the healing stories of the Gospel may have had no happenings at all behind them, but are bits of preaching designed to make a theological point. So also the "drop-outs" from our own culture may help us to see what parts of the Bible are about. With all our expertise in other directions, we have no longer got a tradition of spiritual wisdom, with prophets and living masters who know what they are talking about and can teach it (or if they exist, they are in non-obvious places and hard to find). The "drop-outs" from our organized society are putting the demand for this spiritual wisdom before everything else; it seems to need a combination of primitivism with depth, the primitivism in the end growing, thanks to the depth, into prophetic power. So the fact that we are – as I believe – seeing the break-up of our inherited culture, and of the literary knowledge of the Bible which was part of it, can also mean that a fresh start in understanding bits of it might come from places where people are living closer to the roots of the kind of experiences out of which it arose. Many of these, in our own culture as well as other cultures, will not now be looking to the Bible as giving them the symbols with which they can identify themselves. Some are looking to the sacred writings of other religions, partly no doubt on the principle of *omne novum pro mirabili*, but surely also because of the kind of Biblical study to which they have been exposed.

In a recent letter to *The Times* (March 19th) Lord Platt said that now the NEB translation has shown what the Old Testament is really like – a "horror story", "an obscene chronicle of man's cruelty

to man”, we should see it is quite unsuited for children’s education. The bits he was referring to were no doubt not all that much disguised in the older versions; and people wrote letters following his, pointing out that there are also many noble bits. Of course there are; but this was hardly an adequate answer. The point is whether without context, background, and a renewed tradition of religious wisdom, all this Bible study may not do more harm than good. It can well do so, if we only present the Bible in terms of theological pidgin. Of course we need the Bible as a reference book for literary, archaeological and anthropological interest. But religiously, except where it has a creative effect, it may have to come off its pedestal and go once more “under the bench”. One thing might happen if it were put under the bench instead of on the examination syllabus – people might be curious to read it.

Mythology of the Machine

W. Richard Comstock

The great technological transformation which we also call the "modern world" has had obscure but profound effects on traditional religious styles of life. We shall not here worry about a precise definition of the elusive word "religion" but simply use it to refer in a general way to the symbolic systems of myth and ritual by which pre-modern societies (let us call them traditional societies) have usually expressed their understanding of man and his relation to the powers of nature, human society, and the realm of "the gods" that determine the shape of his existence. These symbolic systems include depth symbols which have the power to unify the feelings, attitudes, and beliefs of a group around perduring forms that are multi-significant and the focus of a number of emotions.

Such symbols have been operative in primitive societies where small groups live through food-gathering, hunting, animal husbandry, agriculture or some combination of these. Religious symbols were also important in the great archaic civilizations that developed in China, India, the Near East, and Egypt around 3000 B.C. They continued to be important in the ancient Roman civilization and the Christian medieval one of western society. It is with the emergence of the modern technological society that for the first time their efficacy has been called into doubt on a large scale. Although religious symbols continue to be used by large numbers of people, many thoughtful representatives of modern civilization have experienced a tension between the continued use of any religious symbolic system and the basic shape and style of their technological life. Various reasons are offered for this sense of conflict between the two. Often it is affirmed that scientific findings have invalidated the truth claims made in many of these traditional symbolic systems. However, I want to argue that, important as these kinds of questions are, an equally powerful source of the tension is an incompatibility felt more on an emotional and aesthetic level than a logical one between the elements of religious symbol and the artifacts of the technological world. Somehow the world of religious symbol and the world of the machine seem to be radically different and to belong

to diametrically opposed orders of feeling and behaviour. It is this felt incongruity that I want to consider.

The incongruity is pervasive and easily documented. For example, over a hundred years ago Ludwig Feuerbach argued that Christianity stood in

the most glaring contradiction to our fire and life-insurance companies, our railroads and steam engines, our picture galleries, our military and industrial schools, our theatres and scientific museums.

More recently Lionel Trilling observed that

A specter haunts our culture – it is that people will eventually be unable to say “they fell in love and married”, let alone understand the language of *Romeo and Juliet*, but will as a matter of course say, “their libidinal impulses being reciprocal, they activated their individual erotic drives and integrated them within the same frame of reference”.

[*The Liberal Imagination*, pp. 271-2.]

In the same vein E. E. Cummings wrote:

Jehovah buried, Satan dead,
do fearers worship Much and Quick;
badness not being felt as bad,
itself thinks goodness what is meek;
obey says toc, submit says tic,
Eternity's a Five Year Plan:
if Joy with Pain shall hang in hock
who dares to call himself a man?

[*Poems, 1923-1954*, p. 314.]

Such attitudes are representative of a number of existentialists, classical humanists and religionists who, however else they may differ amongst themselves, agree in this one point that somehow technological civilization is generating the demise of a religious approach to reality through traditional symbol, myth, and ritual. Thus we are told that technological man has de-mythologized and de-sacralized his world. He is fast becoming “religionless” man who has experienced both the “death of God” and the “death of the gods”.

All of us who live in the twentieth century cannot but feel the force of this judgment. Nevertheless, there are certain considerations which should give us pause and make us hesitate to accept this account of a non-religious technical man without serious qualifications. For example, if we look at the present situation in western society from a broader historical vantage point certain aspects in this picture of technical man become parochial and limited. In the course of his historical development, man has experienced many technological transformations. The Neolithic revolution and the

emergence of the ancient civilizations involved new relations between man and technological innovations. In each case there occurred changes in the content of the religious symbolic systems of the cultures concerned, but no abandonment of the systems as such. Particular gods "died" and others were born to take their place. Nevertheless, the religious mode of apprehending the world through pervasive symbolic forms (emblems, myths, rituals) continued. It is possible that the present technological transformation of modern society is generating not the absolute demise of religious symbols but simply their radical transformation into forms more congruent with the shape and pattern of technological life.

Support for the possibility of such an interpretation of the present relation between religious symbol and technology can be found in a consideration of the way that modern man still apprehends his world through certain symbolic devices that, although differing from those of traditional societies in their specific content, continue to provide a symbolic focus for thought and feeling analogous to the process of religious symbolization in traditional societies.

To make this point clear, let me here remind the reader of the account of the primitive myth-maker given by Claude Lévi-Strauss. Lévi-Strauss considers the myth-maker to be a kind of "bricoleur" who takes various "odds and ends" from his society and uses them then to construct pictures and patterns that express structures and problems involved in man's relation to his particular world. Actually this point is well known to anyone familiar with religious expressions. Religious symbolism has used materials from pastoral and hunting societies, from civilizations centred in great hieratic cities to devise imagery of divine shepherds, sacred animals, celestial cities. The tools of ancient technologies have always been items in the myth-making bricoleur's constructions. Thus the shepherd's staff, the farmer's plow, the warrior's chariot, have played prominent roles in the symbolic systems of the traditional religions.

The question we now have to ask is whether this bricoleur has survived the technological revolution of the modern world and is still at work. I think that he has survived and for the past centuries has continued to take various artifacts from his technology to construct with them new symbolic emblems and forms that express complexities and problems apprehended in the emerging technological civilization of which he is a part.

As an impressive example of what I mean let us consider the role

that the mechanical clock has played in the development of a symbolic form through which modern man has structured one of his major responses to the advent of the technological world.

The Clock as Paradigmatic Artifact

The exact origins of the modern clock are obscure, but we know that by the thirteenth century clocks worked by falling weights were being used in medieval Europe. The more accurate measurement of time which they provided facilitated the successful performance of more sophisticated scientific experiments. It encouraged a greater efficiency and order in economic relationships and profoundly influenced everyday social activities. The clock began to dominate practical behaviour and to provide the most expressive symbol of changes in thought and feeling about the nature of the world. As Lynn White, Jr. observes:

In the fourteenth century no municipality of Europe felt that it could hold up its head unless its cathedral or city hall were graced by a monumental clock in which, at the booming of the hours, the kings and prophets of Israel and the locally more admired saints marched and countermarched.

[*Machina Ex Deo*, MIT Press, 1968, p. 68.]

It is important to see how this very concrete technological artifact has provided on the symbolic level a depth-symbol by which modern man could organize his thoughts and feelings about his technological world. Depth symbols have powers of compression and condensation whereby a number of meanings are coalesced into one distinctive form. Here the clock has served to summarize and unify modern man's awareness of the entire range of his technological innovations. As Lewis Mumford observes:

The clock, not the steam-engine, is the key-machine of the modern industrial age. For every phase of its development the clock is both the outstanding fact and the typical symbol of the machine: even today no other machine is so ubiquitous.

[*Technics and Civilization*, Harcourt & Brace, 1963, p. 14.]

The clock thus became the paradigm for early modern man of what he meant by a "machine". A machine is any artifact composed of a number of distinct parts each of which performs a specific repeatable action as part of an orderly sequence that leads to a single prescribed result. The clock is the archetypal model of all such machines.

The next step is to see how the clock not only summarized the world of the machine as such but provided the concrete model for a

particular way (or pattern) of viewing the universe as a whole. In a recent series in *T to T*, Margaret Masterman pointed out the intricate relation that obtains between religious iconic patterns and the concrete iconic vehicles in which they are expressed. I am not here considering her whole view of “icons” as having revelatory power, but have in mind her account of how a “very abstract ‘meta-physical picture’ or ‘way of seeing’ ” is often related to “an actual artifact – perhaps even an actual piece of apparatus”. [*T to T*, I, 4th Quarter, p. 349.]

I think it can be shown that Newtonian physics was first apprehended by the general public (and still is by many today) through a paradigmatic pattern that was structured by the concrete artifact of the clock. Newton showed that the “solar system was truly a vast mechanism” which “allowed God to be reduced to the role of a divine clockmaker, who had only to set the machine in motion and then retire to contemplate the results.” [Robin Briggs, *The Scientific Revolution of the Seventeenth Century*, Longman, 1969, pp. 77, 89.]

In popular expositions of Newton’s work it is common to refer to the cosmos as a great machine and indeed as a cosmic clock. I am aware that such expressions are often meant only as casual metaphors, but I think that they have actually operated on a much deeper level that is analogous to the way mythic forms have operated in earlier societies. In other words when the layman of technological society declares that the universe is a clock, I think that the force of the copula often transcends the conscious intention of the user and approximates the force it had in traditional mythic expressions.

In many myths of primitive societies and archaic civilizations, a biological pattern predominates. Thus the natural world is felt in some sense to be alive. Several ancient myths declare that the world is a “cosmic man” and through such symbolic forms the human being thereby relates the organic rhythms of his own body to the larger rhythms of a living cosmos.

The symbols of ancient civilizations later imposed on this primitive sense of the live cosmos certain mechanical patterns of thought. The universe seen through the patterns of astrological thought (which exerted a powerful influence on ancient civilizations) thus has both the qualities of a living organism and a grand precisely determined machine symbolized by the wheel of the Zodiac. Ancient science in the west was both influenced by and resistant to astrological speculations. In Aristotle, for example, the universe (or parts of it, like

the stars) is still in some sense alive although it also operates according to physical laws of movement and velocity. It is only with the emergence of modern science that animistic and astrological conceptions are exorcized from the picture of the physical universe.

Nevertheless, the form of traditional mythic thought continued. When the primitive myth-maker declared that the world is a living man, he took an element from within his experience and used it as a pattern for his understanding of the world as a whole. In the same way, early modern man took an element from within his experience, the clock, and used it to pattern his understanding of the world as a whole. The clock has thus functioned as a pervasive paradigmatic vehicle that has dominated western consciousness and determined human thought and behaviour with a force and authority equal to that of the great religious symbols of antiquity.

The clock therefore serves as symbolic vehicle through which a metaphysical picture of the world as a whole is expressed. It has various religious functions. For example, the argument from design becomes popular in theology. The marvellous ordering of the parts of the cosmic machine surely points to a cosmic machine maker. This argument impressed Newton and Dean Paley later gave it its classic form. If, he says, we find a watch on the ground, we immediately assume a watchmaker. So when we encounter the universal clock of nature itself, we must assume the existence of the Divine clockmaker.

In religious thought the sense of divine reality transcending nature has always been confronted by a more pantheistic sense of the divine immanent in nature. Both approaches continue to operate in the Newtonian world. What is interesting is to see how both approaches are profoundly affected by the clock as paradigmatic vehicle. To some God as transcendent reality becomes a celestial mechanic and to others the pantheistic whole becomes itself a celestial machine.

The Ambivalence of the Clock

Man has always quarrelled with his gods and entered into dialogue with them. The gods have created problems for man as well as solved them. To put it another way, man uses his symbolic systems not only to express his final answers to the questions of his existence, but also to explore the scope of the problems and conflicts that are involved in his relations to his particular world.

Thus the clock has provided the expressive vehicle in which early modern man could explore problems that have accompanied the

advent of the machine as a dominant force in modern society. The reign of the clock has been an ambiguous one. On the one hand its advantages are many and obvious. It increases order and efficiency. It also supports human freedom in that it releases man from bondage to the rhythms of nature. It is no longer the positions of the sun that indicate to man the "time" in which certain things are to be done or meetings to take place. Synchronized clocks with their accurate, repeatable measures now determine in more rigorous ways the scope, arrangement and rhythm of his activities. It is not light or warmth, but the clock that informs him when to begin his tasks, as well as the right moment for termination at the end of the work period.

Yet this freedom from cosmic rhythms has involved a new bondage to the mechanical rhythms of the machine. As the clock dominates society, it seems incumbent upon man to reduce himself to a particular function that can be integrated into the perfect functional sequences of the clock's operation. The development of the assembly line in the nineteenth century is the most perfect expression of and response to the model of the archetypal clock. The work of each man is broken down to one specific act which he performs at repeatable intervals as identical objects pass him on the assembly line. He has become a single cog only in a perfectly regulated machine. He assumes the function of a single wheel that does its one repeatable action over and over again in a manner perfectly integrated with the clock-like movements of all the other "wheels" of the industrial mechanism. [See Siegfried Gredion, *Mechanization Takes Command*, W. W. Norton, 1969, pp. 86ff.] Religious man hungers for union with his god. Mechanical man now achieves a similar goal; he becomes an integral part of the cosmic machine that has dominated his consciousness.

But gods can be tyrannical as well as kind. So our poets and artists, as custodians of our modern symbols, begin to express the tyranny of the clock. William Blake writes:

Cruel works
of many wheels I view, wheel without wheel,
with cogs tyrannic
Moving by compulsion each other . . .

Fritz Lang portrays in his early cinema, *Metropolis*, the tyranny of an industrial Moloch where the worker is attached to a fantastic machine and forced to synchronize his body to revolving hands that are more than a little reminiscent of a clock. In Chaplin's *Modern*

Times the tragi-comic hero is literally enmeshed in the gears of clock-like wheels and later he compulsively moves his hands in fragmented, circular acts that turn the bolts that have hypnotized his consciousness.

Such is the imagery that haunts the modern mind and lends support to the opposition to technological culture on the part of many humanists and religionists. In the light of the above picture, the danger of the mechanization and de-humanization of man seems all too real.

Yet something is wrong with this picture of man's increasing de-humanization through machines because, in spite of its obvious power, it does not seem to conform with complete accuracy to the actual experience of modern man in his relation to technological artifacts. There is a truth in the picture but it is not the whole truth and therefore its too frequent use by the critics of technological civilization has led to as much mystification as enlightenment. The fact is that man does not find the machine to be completely alien to his existence in a human form. Under the right conditions, man enjoys his relation to machines; the teen-ager who tirelessly works on his car and humanizes it with a name (usually feminine) is one example, the skilled labourer who takes pride in mastery of the machines under his surveillance is another; machines have enhanced, not limited man's powers; through mechanical means he can travel, communicate with loved ones and friends, listen to music, and gain information in ways that transcend the wildest dreams of his less technologically advanced forebears. How are we to reconcile this set of data with the image of mechanical de-humanization that has haunted modern man for some time?

The Humanization of Technology

One commonsense answer frequently given by humanist critics of our technological world is that man must learn how to be master of his machines instead of being mastered by them. In an obvious sense, this is true, but the way in which we have just stated it needs important qualifications. It may be that one mistake we have made is to view the problem of man's relation to the machine too much in terms of irreconcilable conflict in which one party or the other must dominate and master the other. In man's past he has used his symbols to express tensions between various forces in which the most satisfactory resolution is not the victory of one over the other but a dynamic mutually interacting relation between the two.

In the past religious symbols have dealt with three basic environments or worlds: the natural cosmos, human society, the world of the gods. However, I think we must now recognize the existence of a fourth environment – technology. The post-medieval technological revolution has forced on human consciousness recognition of the fact that the world of human technology is a realm of dynamic forces to which man must relate the rhythms of his own body and mind in creative and humanly constructive ways. Too often man has rather experienced a dramatic conflict between them. As an example of what I mean by a conflict of rhythms consider the following account of the Argentine novelist, Julio Cortazar:

Think about it: when someone gives you a watch they are giving you a little flowered hell, a rosy wreath, a cage of air. They are not simply giving you a watch, happy birthday, I hope it lasts a long time because it's a good Swiss make with rubies in the movement, you are not being given this tiny green woodpecker which you will attach to your wrist and carry around with you. One gives – one doesn't know, the most terrible thing is that one doesn't know – you are being given a new piece, fragile and precarious, of yourself, something which is you but is not your body, which you must fix to your body with its bracelet so like a little, despairing brassard, fallen on to your wrist.

You are given the necessity of rewinding the watch every day, the obligation of rewinding so that it can remain a watch; you are landed with an obsession with checking the time in the jewellers' windows, with radio time signals, with the speaking clock. You are given the fear of losing it, of having it stolen or of dropping and breaking it. You are given this particular make with the assurance that it is the best, you are given the temptation to compare your watch with other watches. One isn't giving you a watch; you are the present, it's you who are being offered to the watch, on its birthday.

[Quoted in *Realities*, April 1969, No. 221, p. 86.]

Cortazar feels he is being “offered to the watch”. Through ancient myth and symbol, man has often expressed his experience of nature, society, and the gods as oppressive forces. He has also on occasion worked out more satisfactory relationships of mutual interaction and harmonious co-operation. For example, in hunter societies we see how man is able to express an intimate relation between himself and the animal world through theriomorphic symbols in which animals have human aspects and men have animal ones. In such ways the world of nature is humanized and man is naturalized. Similarly, through symbol society has been humanized and man socialized. Indeed, through depth-symbols the mystery of the cosmos as a whole has been humanized and man has been rendered more cosmic in the scope of his awareness.

These attempts have had various degrees of success. Sometimes

the humanization process has overwhelmed the relation and a sentimental anthropomorphism of reality has resulted. On the other hand, if the alien quality of the other predominates, man is de-humanized into the unhappy tool of totally non-human forces. At its best a relationship of reciprocal interaction between man and nature, man and society, man and the gods has been achieved.

A similar set of dilemmas faces technological man. He must learn how to humanize his technology at the same time that he "technologizes" the awareness of his own nature. He must discover ways of apprehending his organic connection with his machines and gadgets. As Marshall McLuhan puts it, they are "extensions of man". Technological artifacts are not adventitious items which man happens to use but which are no part of his real existence as a human being. Man is essentially a "tool-making" animal and his technological apparatus are integral parts of his body and his being. To grasp the full force of this point, it is interesting to compare McLuhan's phrase with that of Sigmund Freud who was less happy about the emergence of technical civilization. In *Civilization and Its Discontents*, Freud compares man's technology to prosthetic devices which function only in an abrasive fashion like a set of false teeth or an artificial limb which is helpful but does not quite fit and hence generates discomfort. McLuhan rather sees technological devices like the telephone or radio as extensions of man's organs which can integrate with the human body perfectly and in so doing complete, enhance and perfect his organic activities as a human being in the world.

Lévi-Strauss' myth-making "bricoleur" must continue his work. From amongst the varied artifacts of the technological society he must find the materials for new myths and patterns that disclose structures for co-operative human interaction of man with his machines in contrast to the compulsive tyranny of one over the other.

Prospects for the Future

How is this to be done? Technological man is presently engaged in working out an answer whose final form is as yet far from clear. For the moment we have only hints, some of which are promising.

For example, one problem seems to be the integration of a number of different rhythms revealed in the various processes of the universe into a harmonious interacting whole. Thus we can distinguish the cosmic rhythms of nature exemplified in the seasons of the year and the alternation of day and night, the biological rhythms of the human body, the more personal rhythms of human personality and

thought, the rhythms of a functioning human society, and the rhythms of the machine. The problem is to develop a style of life in which some of these rhythms do not obliterate others, but on the contrary each reinforces and complements the other in an organic complex process that has both human value and cosmic appropriateness.

If one rhythm (for example, a mechanical one) disturbs rather than supports the others, a sense of de-humanization results. This is at least part of what Blake meant when he referred to the “wheel without wheel, with cogs tyrannic moving by compulsion each other”. Blake went on in the same poem (*Jerusalem*) to refer to wheels in “Eden” where “wheel within wheel in freedom revolve in harmony and peace”. The image is taken from Ezekiel’s vision. The “wheels within wheels” are, I think, the various rhythms of existence now co-operating with each other rather than each forcing the other rigidly to conform to its own particular ratio of movement.

The early modern world suffered the tyranny of the machine because the rhythms of the mechanical clock, after assuming the force of a paradigm pattern for the world as a whole, destroyed rather than supported the biological and personal rhythms of human existence. The mistake was to attempt integration through making man a part only of the machine. The desired relation between the two must be different. Man as a whole must relate himself to the machine as a whole in such a way that the integrity of each is protected while a dynamic interaction between them is maintained.

In this connection Marshall McLuhan has argued that the advent of electric machines in the nineteenth and twentieth centuries has transformed our technological civilization from a mechanical (clock-like) one into an electronic one. He further suggests that electronic machines may be capable of more adaptability to the rhythms of human existence than the clock-like ones of the earlier mechanical stage of our modern civilization.

How could this be so? The answer, I think, lies in speed. In a surprising manner, the incredible speed at which electricity moves renders it more consonant with human rhythms than are those of the clock. The human mind operates (like a modern computer) at great speed, and the slow, ponderous rhythms of the clock seemed to force human thought and behaviour into heavy, lugubrious movements that destroyed its complexity and creativity. Electronic devices, on the other hand, seem to be extensions of man that truly

enhance rather than inhibit the natural speed of human thought. Thus perhaps the electronic computer is now replacing the clock as paradigmatic artifact in ways that allow for a more humane relation between man and his technology. Hence many analysts of electronic culture argue that new forms of industrial production may replace the undesirable features of such patterns as the old-fashioned assembly line.

All this is, I know, quite speculative, and, what is worse, haunted by a sense of the ludicrous. The notion of electronic rhythms that have human and even religious implications will strike many sober minds as amusing. However, it might be well to remember that our sense of the ludicrous is usually generated by a felt incongruity between two phenomena unexpectedly joined together. But this brings us back to the point from which we began our explorations when we noted a prevalent feeling of opposition between religious symbol and technological artifact. It may be that we must undergo and are presently in process of undergoing an evolution in sensibility in which this felt incongruity will be overcome. In the past, hammers, shepherds' staffs, farmers' plows have served as concrete vehicles in religious symbolic systems. Why may not modern machinery do the same? Furthermore, the energy of electricity seems to have a greater capacity for such functions than many other items in nature and human culture. The effects of electric power has always impressed man with numinous awe. Thunder and lightning have served as symbols of the gods since ancient times. That same power, now functioning with tremendous force and almost infinite speed in devices that extend human capacities in incredible ways, may well be appropriate vehicles for the dynamic integration of religious, human, and mechanical worlds in the present age.

The Virgin and Dynamo

At the present time we are looking for symbolic vehicles in which the perplexities and promises of our age may be appropriately expressed and explored. In a pluralistic and secular society, no one symbol or myth can serve as an absolute focus and point of reference. Rather, we may expect the present-day myth-making bricoleur to make for us a number of forms out of various artifacts from our culture that open up partial insights, vistas, points of view. No one symbolic form or myth will any longer suffice. A number of them in creative interaction may illuminate the basic situation in which we find ourselves.

Let me point to one interesting example of such possibilities. At the turn of the century, Henry Adams found his mind turning to two intriguing symbols: the virgin and the dynamo. Adams was a representative modern mind, devoid of traditional religious faith and impressed with the achievements of science and technology. However, Adams became intrigued with the power that the symbol of the Virgin had exerted on worshippers in the chapels of Normandy and its environs during the high middle ages. To Adams, the Virgin represented human energies of sexuality and spirituality that had inspired man and enlarged his awareness of the possibilities for a truly human existence. On the other hand, at the Trocadero Exposition in Paris in 1900 Adams encountered the dynamo with which he felt technological man had replaced the medieval Virgin.

Now I do not think that the implications of the juxtaposition of these two great symbolic vehicles have always been fully understood. Often the Virgin has been considered as the representative of human spiritual forces that are in resolute antithesis to those of the dynamo and its inhuman mechanical energies. Perhaps Adams himself meant the contrast to be understood in this sense. However, Lynn White points out, it is not the case that worship of the Virgin in thirteenth century France was a purely spiritual act devoid of technological contamination. The churches in Normandy and the neighbouring territories are

. . . the greatest engineering feats in human history up to the time of their building. The technicians of the twelfth and thirteenth centuries, far from being traditionalists, were creating an entirely new concept of architecture, dynamic rather than static. In their cathedrals we see a sublime fusion of high spirituality and advanced technology.

[*Machina ex Deo*, p. 63.]

In this connection it is not sufficiently recognized that the origins of our modern technological world have religious roots. The first model of an efficient technological society is the medieval monastery. According to a discredited legend, the monk Gerbert, afterward Pope Sylvester II, invented the mechanical clock near the close of the tenth century to bring more order into the life of prayer. As Lewis Mumford points out,

the monastery, through its very other-worldliness, had a special incentive to develop mechanization. The monks sought . . . to avoid unnecessary labour in order to have more time and energy available for meditation and prayer; and possibly their willing immersion in ritual predisposed them to mechanical (repetitive and standardized) solutions.

[*Technics and Civilization*, p. 269.]

In an intriguing way, we now see that the problem of mechanical rhythms is connected with religion most directly through the matter of ritual. A ritual in its benign and living form seems to involve a creative interaction between mechanical routinized behaviour and human involvement that is dramatic, personal, spontaneous. If one operates without the other, we have either dead machine-like activity (the husk of religion) or structureless upheavals of blind energy (the heart of religion without a body). The two in creative interaction provide a style of religious life that is both effective and free.

On this point the medieval monastery is a kind of microcosm of both the problems and promises inherent in the macrocosm of the emerging technological society. The monk introduced technology into his world to release his bodily energies for the more important matter of spiritual contemplation. However, at times he erred by routinizing every moment of his day and night in such a way that the clock became a tyrannical overlord inhibiting rather than supporting spiritual growth. The monk then allowed the clock to determine the exact moment that he should begin his prayers and end them in a manner that eliminated all creativity and spontaneity and instead instituted the absolute authority of the clock. In this problem, it is better to sympathize than criticize since we moderns are faced with similar dilemmas. It is not easy to find the proper balance between the mechanical rhythms of the clock-machine and the spiritual rhythms of the inner man. Technological society as a whole is struggling with the task of finding a positive relationship between mechanical patterns that enhance order and efficiency and personal patterns that enhance freedom and creativity.

Nevertheless, perhaps the technological society may find that a return to its forgotten origins in the medieval monastery may provide the solution to a question haunting our modern civilisation: In a life with all material problems solved, what is left for man to do? Is he condemned to the banality of external thrills and mindless pleasures depicted in Huxley's *Brave New World*? Perhaps he will rather embark on a spiritual exploration *within* while his machines *without* tend to the mundane needs of his existence. In such a situation, it may not seem inappropriate for the Virgin to have an entourage of robots about her feet.

Adams' attitude toward the dynamo has been even more misunderstood. The passage in which he discusses it is instructive and deserves a full quotation:

Then he showed his scholar the great hall of dynamos, and explained how little he knew about electricity or force of any kind, even of his own special sun, which spouted heat in inconceivable volume, but which, as far as he knew, might spout less or more, at any time, for all the certainty he felt in it. To him, the dynamo itself was but an ingenious channel for conveying somewhere the heat latent in a few tons of poor coal hidden in a dirty engine-house carefully kept out of sight; but to Adams the dynamo became a symbol of infinity. As he grew accustomed to the great gallery of machines, he began to feel the forty-foot dynamos as a moral force, much as the early Christians felt the Cross. The planet itself seemed less impressive, in its old-fashioned, deliberate, annual or daily revolution, than this huge wheel, revolving within arm's-length at some vertiginous speed, and barely murmuring – scarcely humming an audible warning to stand a hair's-breadth further for respect of power – while it would not wake the baby lying close against its frame. Before the end, one began to pray to it; inherited instinct taught the natural expression of man before silent and infinite force. Among the thousand symbols of ultimate energy, the dynamo was not so human as some, but it was the most expressive.

[*The Education of Henry Adams*,
Houghton Mifflin Company, 1927, p. 380.]

An interesting question pertaining to modern sensibility is here revealed. Many humanists no doubt find in this passage an example of the de-humanization of man as he falls down and worships his own mechanical artifact. However, at this point we encounter a problem that has appeared in the history of religion from the beginning. Religious man uses concrete symbols as vehicles to point to something not identical with the symbol itself.

Is it not then possible that modern man may be able to use technological artifacts as symbols of his contemporary relation to the realm of religious reality (“trans-social power” or the “realm of the gods”, however it is conceived)? I believe that this is what Adams was doing, for he explicitly says that the dynamo was to him “a symbol of infinity”. The direction of Adams’ thought and feeling is awe in the presence of a symbolic vehicle that has awakened an awareness of “infinity” which was certainly not quite human, yet human enough to allow a baby to sleep close to the throb of its pulsating power.

Of course Adams’ attitude toward the dynamo is not free of ambiguity any more than is our own. For example, Adams was worried that the organic sexuality of the Virgin was being replaced by the sexless energy of the dynamo. However, as we have seen, Adams does not feel the human to be completely alien to the dynamo, which, as symbolic vehicle, recaptures a classic theme of divine mystery that is not *inhuman* but *more than human* to counter-

act the excessive and often sentimental personalization of later Christian developments. Dorothy Emmet observes that religious myths have on occasion tried to “be cosy about the cosmos through being social about it instead of being unc cosy about our society through being cosmic about it”. [*T to T*, III, 1st Quarter, p. 50.] Adams’ vehicle reverses this trend.

In centering his attention on the dynamo, Adams seems to have been seized by an intuition about the progress of our technological society similar to that of Marshall McLuhan. Somehow the advent of electricity and the electronic world has changed the rhythms of the earlier clock machines and perhaps made them more congenial to those of human existence. Thus, while “this huge wheel” revolves “at some vertiginous speed”, it “would not wake the baby lying close against its frame”. To Adams, the divine child of ancient mythology and Christian symbol has found a new home.

What impresses me is the way that Adams works out on the level of image and symbol a new set of feelings in which ancient religious emotions and modern technological enterprise achieve a harmonious union. I think that the further development of this harmony on the level of thought, feeling, and symbol is the crucial task of our time with which the custodians of our symbolic counters – poets, religionists, intellectuals – must deal. Somehow, as William Blake put it, the tyrannic “wheels without wheels” (i.e., rhythms in opposition to one another) must become “wheels within wheels” (i.e., rhythms that have been integrated into a basic “harmony and peace”).

The Work of Dr. Hubert Benoit

Margaret J. Rioch

The purpose of this paper is to introduce Western students of philosophy to Dr. Hubert Benoit, a contemporary French philosopher-psychologist, who deserves to be better known. The following summary may help to smooth the way for obtaining a first-hand knowledge of his work.

Hubert Benoit occupies a unique position among Westerners who have been stimulated by Oriental thought, in particular by Zen Buddhism, in that he has no desire to visit the Orient except perhaps to enjoy its art. He insists that he must find the Way himself. His work is the product of a very Western kind of mind seeking to find total enlightenment or that state which the Japanese call *satori*.

He is not connected with any school or organization but teaches on a one to one basis if students come to him because they are interested, as he is, in the total realization of man. Sometimes people come to him for help with more personal, emotional problems in the hope that he will function as a psychotherapist. He considers these people too as students albeit not so far advanced as the others.

His clinical methods are not appropriate for everyone. If a person is too disturbed to carry on a rational conversation, Benoit sends him to a psychiatrist. He is interested in hearing how each student sees his problem and what his life situation is, but not in hearing long histories of childhood and family background. He answers questions extensively and listens with great sensitivity and perceptiveness, but without the slightest tinge of sentimental softness. His extraordinarily keen mind allows him to see quickly the major problems with which his students are struggling and to relate these to the one universal human dilemma of the limited individual claiming to be absolute. When he is dealing with someone who is not very far advanced in metaphysical understanding he spends more time than with advanced students on the specific life problem which

* This paper is a revised and abbreviated version of a lecture delivered at a session of a course in philosophy at Massachusetts Institute of Technology at the request of Professor Huston Smith.

the student presents, such as a conflict having to do with love or ambition. But as soon as possible he tries to move with the student beyond the concrete situation to make clear that this is simply one of the thousand forms which the underlying human problem takes. He is not interested, as the psychoanalysts are, in discovering the specific causes or precursors of a specific conflict since this places unnecessary emphasis on the particular and overlooks the more important point that all anxiety is fundamentally one. He frequently points out that the problem as posed is insoluble. If the student is flexible enough he can on the basis of this insight move out of his impasse. He also points out the false assumptions, the basic fallacies on which the student is trying to live his life. He works well with those who are willing to entertain the possibility that they are living on a set of illusory notions.

His therapeutic methods are strongly intellectual. He is aware, of course, that intellect alone cannot liberate, but he is mistrustful of its derogation. Knowing well that analytic, discursive thought can be misused, he nevertheless emphasizes its important preparatory function in permitting us to comprehend our "inner phenomenology" and the "laws of our being".*

He is also aware of a not so intellectual, yet beneficial effect which he often has upon his students. In speaking to him they find someone who accepts them totally, who considers their "being" which is beyond their more or less positive or negative "manifestations". In the course of time the student discovers the possibility of assuming this same attitude toward himself. He can then calmly accept whatever his "manifestations" may be, thanks to his "being" which is their reconciling principle. He can become good company for himself, secure, and beyond the need to pass judgment upon his "manifestations".**

Dr. Benoit does not seek a personal "encounter" with each student in the way which is now fashionable in psychotherapy, especially in America. But he is quite without pretense or pretentiousness in his dealings with them. He shares his own experiences with his students when he thinks this can be helpful to them. Over the years he has tried out for himself various ways of bringing about a state of mind in which *satori* can explode. He is very willing to share these methods with his students, but equally willing to drop them when he becomes

* From a personal letter to the author of this paper, 31 January 1957.

** From a letter to the author of this paper, 1 December 1957.

aware of their limitations. In this he sets an effective model for his students and encourages them to follow him in his fearlessness about making mistakes. He has been called intelligent, he says, but he does not consider himself to be more intelligent than many other people. The quality which he thinks he does have is the audacity to think what he thinks. He has this courage, he believes, because he sees that the danger is illusory. People tremble at being wrong, but he admonishes them to go ahead and be wrong, for they have no need to "put a head higher than their own". He encourages his students to have the audacity to affirm their own perceptions of reality, imperfect and changeable as these may be. In all of Benoit's therapeutic endeavours, as well as in his books, his constant aim is that each man should become his own metaphysician.

His writings are not voluminous; the most significant ones have been translated into English.

An early work, entitled "Metaphysique et Psychanalyse" [5] is of interest only in so far as it shows the author as a young man searching for the unity of psychology and philosophy, of the individual mind and the cosmos. His next book, "The Many Faces of Love" [2] deals with the psychological phenomena of love which Benoit divides into three kinds: appetitive love, benevolent love, and adoration. The book is written in the form of a conversation between the Author and a Young Man and a Young Woman who are being instructed by the Author. The latter clarifies for them their confusion about this ancient and eternally interesting subject. As this occurs, the reader finds that he is being led toward the idea that these various forms of love can be looked at as a preparation for something beyond all of them, even beyond the one which the Author obviously favours, namely adoration. He is being led to perceive that a possibility exists of total realization for which man has a profound nostalgia but from which he is cut off by his tendency toward attachment, the most obvious form of which is love of other human beings. The Author is leading the Young Man and Woman and therewith the reader to an understanding of attachment as a stage in development. He lingers over the forms of attachment called love, not wishing to rush through this stage before it has been thoroughly experienced. But it is obvious that the path leads beyond this, to complete liberation.

In his next two books, which are his major works, Benoit makes his purpose clear. He is trying to help the reader to find ways of enlarging and deepening his understanding of himself and the world

with a view to arriving at a radical alteration of his present state of mind.

“The Supreme Doctrine” [4], first published in French in 1951, is Benoit’s central work. His major psychological and metaphysical concepts are explicated in this book. His last work, “Lâcher Prise” [3], first published in France in 1954, is a continuation of the studies which compose “The Supreme Doctrine”. It stands on its own feet but can be understood more readily if the reader has already perused the earlier work. “Lâcher Prise” describes the growth of man’s normal, rational intellect as a partial development of his total potentiality. The whole work is a practical guide based upon a detailed theoretical exposition.

During the past 14 years, during which he has not published any new book, Benoit has often struggled with ill health but has persisted in teaching whenever possible. He also writes, but is not yet satisfied that he has anything ready to publish. He continues to develop but maintains that he has not arrived at total enlightenment. He is very much of a purist about this and brushes aside as relatively unimportant, experiences of a “little *satori*” or states of ecstasy or transient feelings of serenity or oneness with the universe.

This paper is based primarily upon Benoit’s last two books and upon his personal instruction.

It is by now well known in the West that the teaching of Zen is “no-teaching”. Zen masters maintained that it is not necessary to do anything special to become a Buddha; one needs only to see directly into one’s own nature. Benoit’s comment on this is: “Personally I have had to reflect for years before beginning to see how this advice could be applied practically, concretely in our inner life. And I think that many of my Western brothers are in the same situation.” (4, p XIV) One of the reasons why it is difficult for Westerners to approach the teachings of the Zen masters directly without some discursive preparation is elaborated by Benoit in a short paper which he wrote as a memorial to his close friend, the Swami Siddheswarananda [1]. Benoit says in this paper that he thinks Western man is not very gifted for intuition of the universal. The Westerner has to force himself to think of God as immanent. His more usual and natural tendency is to think of him as transcendent. The whole Orient is profoundly aware of objective universal perfection. A doctrine intended for the Hindus need not enunciate this point. It can be taken for granted as common knowledge and a teacher can

build solidly upon it. Since this is not the case in the West, Benoit finds it necessary to take a long way around to prepare his readers or his pupils for what the Oriental can approach more easily. But this long way around may be the shortest way home.

Benoit has erected a philosophical and psychological scaffolding which makes it possible for Westerners schooled in Western ways of thinking to build up their own edifices of understanding. To use his own metaphor, he leads his students by the hand through philosophical and psychological paths to the edge of the ditch which lies between truth which can be expressed in words and the inexpressible truth of real knowledge, a ditch which has to be jumped, in a single leap, leaving behind all the preparatory philosophical and psychological understanding formulated in books and spoken words.

Benoit differs from many others, both Oriental and Occidental, who write and teach about Zen in his clear and firm insistence that the best way to approach this ditch is through comprehension, ever deepening, ever more clear and more present, of man's true nature. He does not condemn meditation or yoga or similar practices. But he considers all of these things more or less irrelevant compared to the development of profound understanding.

Benoit thinks that in this he is in accord with the old Chinese Zen masters. But he finds it quite unimportant whether what he writes was derived directly from them or arose in his own mind. Whereas the form in which he expresses himself is individual and personal, the important thing is that the truth contained in it should be universal. "In other words that which is valid, worthy of consideration in the truth that I express does not belong to me-as-a-distinct individual, and has not properly speaking any connection with my particular person. If I have understood that, I am altogether indifferent to the particular brain in which such a truth has taken shape; that particular brain is only the receiving-apparatus which has caught the message. . . . A claim to the paternity of any idea is absurd; it comes from the egotistical fiction of divinity which, lurking at the bottom of our psychology, pretends that we as individuals are the First Cause of the Universe. . . . In the ages of truer wisdom artists, scholars, and thinkers, did not dream of attaching their names to the works which took form through them." (4, pp. 244-245)

Like Dr. Daisetz Teitaro Suzuki, Benoit does not find that other religions, in particular, Christianity, are alien to Zen. He says that

he does not need to burn the Gospels in order to read Hui-neng. Both in his written and oral teaching he frequently quotes Scripture, for truth in this form is often more easily understood by Westerners than in the great books of the East. The Christian concept of the death of "the old man" and the rebirth of the "new man" is a central theme in his work. He equates the birth of the new man with *satori* or awakening and he refers frequently to St. John of the Cross as one who went through the "Night of the Great Doubt" to awakening. Among Western philosophers he is closest to Spinoza and Socrates. He does not consider himself akin to the existentialists because, in his opinion, they rationalize the affect of despair. But he does share with them their "ultimate concern".

Benoit starts, as perhaps all profound thinkers about such matters must start, with the dilemma of man's situation. Man, though individual, mortal, and limited, wants to be unbounded, eternal, and absolute. He knows that his organism is limited; yet he cannot give up the claim to limitlessness, absoluteness. Benoit uses the metaphor of a law suit which is constantly being tried in the recesses of each man's mind, a law suit in which he constantly attempts to reinstate his claim to be absolute even as a limited individual. Sometimes things seem to be going his way, sometimes he has setbacks, but the trial is never concluded.

Benoit's contention is that the problem, thus seen, is an illusory one, that the problem really does not exist, and that, therefore, there is no need of solution. This sounds like a sleight-of-hand trick, which would abolish with a wave of the magician's wand the stubborn problems with which man has struggled for thousands of years. But Benoit is well aware that it is not so simple. He does not claim to have rid himself of the problem. He is very much inclined to think that the accounts of the way enlightenment came to the Buddha and to other sages, even though partly legendary, are valid descriptions of the path preceding sudden and complete awakening. Buddha, according to Benoit, possessed an extraordinary, lucid intellectual intuition, a great vital force, and he lived in a favourable environment. However, the pile of stones which the giant breaks in one blow can be dispersed by lesser men with the help of techniques adapted to their capacities. Benoit's constant preoccupation is essentially a practical one: How to find ways to prepare for the breaking in of *satori*.

It seems at first difficult to reconcile the apparently contradictory

statements that there is no problem and that practically everyone is struggling with it. It is like a man staring out of a small barred window, straining every nerve and muscle to stretch and see out of it as far as possible, shaking violently at the bars which may bend, but will never break. Behind him, at the other end of the dark room, is an open door. He has only to turn around to walk out of his prison. But before it will ever occur to him to do this, before he will let go his cramped hold on the bars and be willing to turn away from the precious bit of light which he perceives through the window, he has to comprehend clearly that he really is and always has been free. This is impossible to believe so long as his attention is fixed upon the barred window. One cannot press this or any other figure of speech too hard, but it illustrates four important points, each of which is carefully developed in Benoit's work.

First, we do not have to strive to go anywhere or make great efforts of the will to be free. We are free. In order to stop clinging to our illusory enslavement we simply need to let go, to detach ourselves.

Second, the raptness of our attention upon a partial aspect of the cosmos prevents our knowing that we are free.

Third, liberation lies not in struggling for perfection as we habitually tend to do, but in making an entire right about face, in learning to lose this habit.

And fourth, only through comprehension, or what we might call intellectual intuition of this situation, will we turn to freedom. In the attainment of more thorough comprehension one person can help another; a teacher can help his pupils, both through books and in face to face instruction.

Benoit believes that a man must attain at least some of his concrete goals and fulfil at least some of his potentialities before he can comprehend that all such attainment and fulfilment will never be anything but a half-realization. Withdrawal from living on a sour grapes basis is not liberation. Only the man who has engaged actively in life, who has not turned from it in fear or in resignation, but has fulfilled himself as a normal man and realized some degree of inner harmony in the world, can comprehend truly that this too is not really *it*, is not the Absolute for which he longed. In other words, the work necessary to prepare for awakening is not a cure for neurosis. Neurotic suffering must be alleviated before this work can begin.

The idea of the reconciliation of opposites is central to Benoit's

thought. In Chinese philosophy the cosmos is seen as the play of the active, positive, masculine force of the Yang with the passive, negative, feminine force of the Yin, reconciled in the conciliating principle of the Tao. This Law of Three can also be symbolized by a triangle which appears again and again in Benoit's writing. The two lower angles represent the positive principle and the negative principle respectively. The apex represents the superior conciliating principle. So long as we do not recognize the conciliating principle we remain on the base line, i.e., in the world of dualism, of opposites. No matter how strong the positive, the negative will of necessity be present. In fact, the stronger the positive, the stronger the negative.

In our imperfect state we see this only as conflict; and man, being a generalizing animal, translates his emotional preference for the positive side of the conflict into an intellectual partiality for the Good, the True, and the Beautiful. He tries to obtain perfect positivity in Utopias and he dreams of complete happiness in Paradise. He thinks he should eliminate his faults in favour of his virtues.

It is true that some individual men have thus attained a high degree of sainthood or heroism, but to Benoit this is not awakening, for awakening supposes a synthesis in which the two poles, without ceasing to be opposite, collaborate harmoniously. There is a danger for lesser men in trying to follow in the footsteps of the saints and heroes, for they usually mistake the path. The great man is moved by authentic love for something, whether it be for God, a cause, or an ideal; and he can harmonize his being to a large extent with reference to this love. But if a lesser man, without authentic love, tries to imitate the behaviour of the saint or the hero, he simply puts himself under constraint and compulsion. He is moved by spiritual ambition, believing that he must attain salvation. Usually this is accompanied by the idea that it is his duty also to bring others to salvation. At its worst this leads to phenomena like the Inquisition. At best, it leads to an attempt to enslave others by persuasion. People sometimes suppose that we would not struggle for awakening except under the compulsion of duty, but this is absurd, for awakening terminates the distress which is always with us, and it is foolish to suppose we would seek relief from distress only from a sense of duty.

Intellectual comprehension of the concept of awakening is not so difficult, but the actual realization of the collaborative synthesis of positive and negative, life and death, subject and object, is something

we cannot imagine from our present dualistic outlook. And yet at the same time it is always incarnate in us. We can see this incarnation in the biological sphere in which anabolism and catabolism, systole and diastole, inhaling and exhaling, collaborate. But in the psychological or spiritual sphere, it is not so apparent.

Here, if we fail to take cognizance of the apex of the triangle, we inevitably idolize the lower angles. The positive one becomes God and the negative one the Devil, and we go through philosophical acrobatics to reconcile the existence of evil with a God who is both good and omnipotent. The universe becomes a gigantic battle field upon which are met the proponents and opponents of the Good, an agonizing duel in which Light and Darkness vie with each other. In this tortured cosmology we have the idea that the forces of cosmic order should triumph and prevent catastrophe. In the usual Occidental view the actions of each individual assume an absolute importance since they are able to help the forces of order or those of disorder, and thus to influence cosmic destiny. Each of us sees himself called by the Cosmic Manager to collaborate with Him against the Powers of Darkness. An absolute moral philosophy follows from this in which a man's acts are considered good or bad according to whether they serve the will of God or run counter to it. This vision is obviously flattering to man but it charges him with a terrible responsibility. If we think that our evolution can go either in a good or in a bad direction objectively speaking, we conclude that it is our duty to strive to evolve properly.

Awakening can be conceived of from a superstitious standpoint, which implies a divinity of some sort who wants us to obtain this awakening, or from a free standpoint, from which we have no duty whatsoever. So long as we believe that we ought to free ourselves, that the cosmos expects this of us, our search will imprison us in an impasse. True and effective courage consists not in submitting to the pressure of duty, but in rejecting this reassuring crutch and assuming our liberty. Benoit is talking here, of course, about duty in an absolute sense. If we wish to be considered responsible citizens of a democracy, we must fulfil certain duties. But this does not mean that we have an absolute duty to strive for good and against evil.

The error in the dualistic concept of God against the Devil lies in the incompleteness, not in any absolute falsity of the concept. The base angles of the triangle are correctly seen. We have only to draw in the rest. In all our perceptions of reality there is a partial truth

which need not be discarded but only fulfilled. This is a cardinal principle of Benoit's thought which plays an important part in his teaching. In the dark a tree root looks like a snake and one may think it is a snake. When morning comes, it is clearly nothing but a tree root. Nevertheless, it is still true that in the dark it looked like a snake. It is important both to affirm the present partial view and to be ready to let it go when more light dawns.

In our ordinary unawakened state, the dualism of the Yang and the Yin is represented in man's belief that he is made of two parts, body and soul, with a hiatus between them. Even if we try philosophically to transcend this dualism, we still use in everyday speech such expressions as "I could not stop myself", or "I tried to control myself". It is not really true that we consist of two parts, but we have two aspects which we think of as if we were indeed a horseman and a horse.

When our horseman is on the job, he sees how the horse behaved a moment ago and he gives him a little pat, or a little blow, of approval or disapproval. By this animal training the horse is conditioned. So long as we think we are really a horse and a horseman, the best we can do is animal training. We need not condemn this, but neither must we believe in it as a way to awakening. True awakening is quite different. There is no trainer and no trainee. The "I live" and "I think" are reconciled in the single "I am". While we live on the level of animal training we must constantly be evaluating, giving the horse a pat or a blow for his good or his bad behaviour.

This training or doing must be understood, in the widest sense, to include not only strenuous programmes such as ascetic monastic disciplines, but also all the efforts which we make to improve our behaviour, whether by control, forethought, self-analysis, or what you will. All such efforts involve duality; they necessarily involve partiality toward one aspect of the self or the world. But partiality prevents a synthesis of the whole self. When we struggle, we identify ourselves with one of our tendencies; we are partial to it. When we behave without effort it is the result of an unconscious harmonious organization of all our tendencies like the resultant of a parallelogram of forces. Benoit does not think we ought to withdraw from our regular lives and sit gazing at our hands. He thinks that we need not give up our efforts to do things, to strive to find a better way of life, but we should not preoccupy ourselves with these efforts. Their failure is inevitable. It is simply in the nature of things. We need only interpret the failure correctly.

If we believe in the efficacy of training efforts, we shall ascribe their failure to all sorts of things, to faults in ourselves or to external conditions, only never to the inefficacy of training itself. But if we understand the inefficacy without forbidding ourselves the effort we shall gradually transcend it. Awakening is not the crown of ultimate success, but of ultimate failure.

We have to find out for ourselves that all ways end in impasse. We should follow them with the theoretical understanding that they lead nowhere. Our true nature is not the attainment of spectacular states; it consists in nothing but being one with our horse; then the smallest gesture of our lives, however banal, will participate in reality.

By exposing the hidden struggle when we believed ourselves at peace, the hidden unhappiness when we believed ourselves joyous, the hidden danger when we believed ourselves secure, and the unanswered questions when we believed we knew the truth, we come to an ever repeated despair of all our solutions, to a repeated perception of the futility of each supposed accomplishment. Paradoxically, the more clearly we see the inevitable nature of our failures, the less they touch us. Although our life preceding awakening is a path leading from failure to failure, each succeeding one, if we understand it correctly, leaves us lighter, less burdened. We have to understand that the problem of happiness is insoluble.

Superficially conceived, this is profound pessimism. It is related to Schopenhauer's view of man as a donkey following the famous carrot which the driver in the carriage behind holds on the end of the whip in front of the donkey's nose. No matter how fast he runs, the carrot inevitably remains in front since the donkey himself, without realizing it, by his own running pushes the carrot constantly ahead. Instead of the carrot, Benoit uses the metaphors of a man running in place and of a man running to catch up with his own centre of gravity. But he also speaks less metaphorically and more psychologically.

Each one of us, he maintains, desires not only to exist but also to be; that is, we want to live meaningfully, not only to vegetate. Sometimes we are willing even to sacrifice our existence, our lives, for the sake of our being, for that which has given meaning to our lives. If we see no hope of living meaningfully, we may commit suicide. But existence is the substrate of this being. We have first to exist in order to be. Benoit believes that in the conception of being we have

a correct intuition of our fundamental identity with the Absolute, a nostalgia for reunion with our true Centre. But we do not at first fully comprehend this. We think we are seeking happiness, which we call by different names according to our different tastes, such as peace of mind, maturity, a meaningful life, etc. We experiment ceaselessly hoping to find the perfect state and this experimentation is experiencing. Both for the French word "éprouver" and for the English "experience" there is an obsolete meaning which is "to try out", "to test". We are actually testing out various states to see whether they are the perfect one which we are seeking. Thus in all experiencing there is judging, plus or minus, according to whether we evaluate the experience as taking us closer to, or farther from, perfect happiness. In the former case, we judge that this thing, this person, this situation ought to be; in the latter we judge that it ought not to be. In the figure of speech of the law suit experience is the judge who decides whether a particular aspect of the trial is going for or against us.

But although our wish to experience was supposed to mean experimentation with new aspects of the world in order to find a perfect state, it turns out in actuality that our imperfect state continues in monotonous repetition. We insistently claim that we must be completely affirmed by the world in our contacts with it. But this is never the case. The world is always negating as well as affirming. With an inertia like that in the physical world of objects, we stick to our claim, hoping repetitively that the negative aspects of the world will disappear; and repetitively they do not; so that, in essence, our experience is always the same old thing.

If we were really to understand the search for happiness we should be attentively expectant. We should wait with ardent patience. But we are always attracted by visions of the world centred in ourselves which we desire. If we cannot succeed in imagining the world favouring us, we will envision it as crushing us. The unbearable idea is that of its indifference, of its existence independent of us. Our imagination conjures up a variety of compensations which save us from neurosis, such as work, art, love, family, friends, etc. When we live in these things and our emotions are strongly involved in them, it is hard to think that there could be any other way of living. We will not let go our precious compensations and the emotions involved in them so long as we think that there is nothing better.

We have the idea that light and movement are identified with

being, and dark and immobility with non-being. We should like to have both light and movement, but if we have to choose between them, we take movement. Thus the masochist chooses pain rather than no feeling and the child prefers scolding to being ignored. We seem to fear immobility above all things. When we are happy, we claim still more happiness; that is, movement, change; and thus our joys collapse. Man's prejudice against immobility is an error which engenders all his misery. Only by understanding that immobility is not to be feared can he be delivered. This understanding does not mean turning away from what one is doing, or changing anything programmatically in one's life; it means simply remembering the absurdity of all hopes. Man resembles a caterpillar which can become a butterfly only if it passes through the stage of the chrysalis. The caterpillar crawls along the ground. It cannot fly, but at least it moves. Compared to crawling, the immobility of the cocoon seems horrible. Emotional agitation, whether in joy or in suffering, is like the crawling of the caterpillar. It is the best man knows and with a good imagination he succeeds in mistaking it for flying. Only when he sees clearly that he is earthbound no matter how vigorously he crawls, no matter how strenuously he turns and twists, only then will he agree willingly to the temporary death of the chrysalis in order to emerge as a butterfly.

If man started out in life with a fully developed intellect, he would understand from the beginning that mobility and immobility, life and death, integration and disintegration, are equal and complementary. He would then adhere to the nature of things, to his own death as to his own life, and would live without attachment, accepting final failure in death, willing everything that happens. His life would not be a dramatic conflict under the sword of Damocles, dependent upon a happy outcome, yet knowing that one day the sword will fall. But since the intellect does not appear at once fully developed, man meets the ideas of life and death before he can reconcile them; he believes that he has to choose one and refuse the other, that it is a question of either-or. So long as he refuses death he cannot realize the synthesis. His nostalgia for the Absolute is translated into a nostalgia for life. This entails a refusal of death, dramatically represented by the "No" of Satan who rose up against the divine order.

The growth of man's intellect can be symbolized by a piece of iron which hangs suspended equidistant between two magnets. In infancy the faces of both magnets are covered with insulation so that the

iron hangs free between them. Gradually the insulation is removed from one magnet so that the iron swings against it. This phase represents the learning of language, of general ideas and logic, of the ability to perceive in a subject-object perspective; in other words, the mature intellect. This is the stage in which most people find themselves. We have uncovered half of our capacities; we command the powerful tool of reason, but we feel enslaved. The iron does not hang free; it is forced to press against one side of our being. In other words, we cling to the kind of sense and meaning which our ordinary adult consciousness tells us is reasonable. The more we strive in this direction, the more painful and frustrating is the pressure. So long as the other magnet remains insulated, we have uncovered only half of the capacities of our minds. In removing the insulation of the first magnet we have created a verbal world. We have learned to speak what Benoit calls convergent language. He means by this our ordinary language with its logical, syntactical structure, and its generally understood meanings.

Through our habitual use of this language we have come to believe that its sense is identical with reality and we are deeply attached to this belief. Even if we succeed in transcending our attachment to power, fame, material goods, other people, etc., we still tend to cling to verbal meaning as to something real. We idolize the relative meaningfulness and harmony of the cosmos as we conceive of it and reject its relative disharmony and meaninglessness. We translate our nostalgia for the One Truth into the idea that we should have explicit, expressible knowledge which will give us the key to Truth. We do not realize that the root of our unhappiness lies in our attachment to convergent language. We are so convinced that our problems lie in the real world that we cannot conceive that they might lie in a verbal world which we think of as reality. We think that words are tools to designate things and do not see that they create the world in which our life unfolds. The regrettable thing from the point of view of complete development is not that the mind functions in this fashion, but that it functions in it exclusively.*

* In the third part of "Lâcher Prise" [3] Benoit describes a technique which he was trying out at that time for overcoming exclusive attachment to convergent language. This consisted in practising writing "divergent language", i.e. words which followed each other in normal syntax but which did not make any sense, for example, "Cooks betray snakes". Later he gave this up as being ineffective. He continues to experiment, however, with techniques for developing the "other half" of the mind so that the final synthesis can take place.

The inner work which has to be done to free us from bondage is not work in the usual sense; it is relaxation, but it is not easy. It is, in fact, extremely laborious. Peace is to be obtained only after a vigorous battle not against our faults, but against our inertia. We must avoid the trap of thinking that it will help to go through life as a somnambulist. We should instead go through life like a man who loves a woman. Every morning he leaves her and seems to be forgetful of her as he goes about his daily tasks; but when he returns he realizes that in a "second state" he had remained with her always. As this second state develops we are better able to let go our cramped hold upon the world of words.

Benoit thinks of all the preparatory work toward *satori* as a descent. Awakening will fall upon us when we have reached the bottom and have exhausted all the resources of our being. It cannot occur gradually since it is not a question of acquiring something which was not already there. It cannot be had by striving or by trying to stop striving. Nevertheless a gradual evolution precedes its breaking in upon us. In its course we become wiser and our anguish is alleviated. This evolution is like the gradual distillation of subtle materials from gross. When alcohol is distilled from fruit, the fruit is not destroyed but transformed. As we progress in this direction our self-love becomes less gross and more subtle. The nightmare of life becomes a light dream. Nevertheless until the final moment we are not awake.

Benoit tells an old tale of the fox who, when he wants to rid himself of his fleas, grasps a piece of moss in his mouth and backs gradually into the river. The fleas escape from his submerged tail to his back, up to his neck, his head, and his nose. Until the moment of total immersion he has not lost one single flea. But they are finally concentrated on one small spot so that they can disappear instantaneously. At the very end they hop to the moss which the fox lets go as he submerges and becomes at last completely free.

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In the following list of publications by Hubert Benoit, the French edition is listed first whenever it exists, then the English translation. Page references in this paper are to the English translation.

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Gravel: Where Countryside Planning must begin

John Dyson

In this year dedicated to conservation, the dirtiest word in the language of lovers of the countryside is “gravel”. If gravel was treated less as dirt and more as the essential ingredient of material progress, both countryside interests and technology could achieve a level of mutual tolerance never equalled in Britain’s long fight against the continuing blight of her countryside.

We must come to terms with the fact that gravel is essential, that gravel is going to be dug out of the countryside for at least two more decades, and that with commonsense and applied technology, the excavations could be turned into assets which future generations will bless us for creating.

Instead, people who cherish the countryside – particularly those treasured pastures of riverside tranquillity invariably concealing the most valuable deposits – see red when the subject is discussed and refuse to entertain the idea that a gravel excavation could be the start of something their community will welcome. Yet every gravel “objector” lives in a concrete house, sends his children to a concrete school, drives his car on concrete roads.

Gravel is a tear-stained subject: the hysteria is costing the country money in terms of planning appeals, and loss of opportunity in terms of new facilities that will help to cater for the leisure explosion of the seventies.

Planning authorities, from the Ministry of Housing (which is the ultimate appeal authority) downwards, are of necessity schizophrenic. They must think on the one hand of new roads, schools, hospitals and houses requiring concrete in their construction, and on the other hand of nurtured green-belts, civic peacefulness, quiet rural lanes, and angry “anti-gravel” pressure groups. Their decisions, lacking any kind of national or regional guidelines, are arbitrary.

Nobody knows how much workable gravel remains, least of all the Ministry of Works or the county councils, who believe that prospecting is the responsibility of gravel-excavating companies. The

companies, of course, are industrial giants involved in cut-throat competition to stay alive, and are unwilling to divulge the results of costly research in the field. Greater London is built on gravel, but little of it can be worked. Indeed, its site was chosen because of the gravel: the Romans are said to have drifted up the Thames until the banks were firm enough to land on, and the material which made the banks firm was gravel.

Now it is all built on, and workable reserves on the perimeter are exhausted: that vast area of lakes and derelict excavations west of London is no longer meeting existing demand and the gravel companies are pushing further up the Thames Valley, an area which has been called the Fort Knox of gravel. In this golden corridor every acre of riverside land has been staked out by competing companies, their "claims" in the form of options, secretly arranged with land-owners, or through outright purchase. As the planning authorities will not state in which areas permission to excavate may be given, the companies have to tie up large sums of money in speculations.

The Ministry of Agriculture has imposed an absolute veto on certain areas, called "red corridors", because the land is too valuable as farming. Understandably, therefore, the gravel operators do not waste their time on expensive appeals against the Ministry of Agriculture. They concentrate on the areas in which the only major objection is one of amenity, where their opponents are local residents with meagre funds who may or may not have their local county council on their side.

Appeal hearings are bitter, charged with emotion, and lengthy. Gravel companies brief QCs, landscape consultants, and public relations men who buy acres of self-congratulatory advertising space in local newspapers in an attempt to convert the opposition. Reasonably, they point to the long-term benefits of a "wet" working which will leave for the community an area of reed-fringed waters in which swans will float, dinghy-sailors race, and anglers guarantee their luck because the lake will be stocked with company fish.

Objectors, with reasonable logic but often hot-headed argument, will protest that they do not want a lake. They ask how many lorries will pass along the inadequate roads (one every two minutes during a five-and-a-half day working week), how long the excavation will take to complete (twenty years of clatter and dust), and how effectively a screen of trees will hide the ugly plant from passers-by.

The real problem facing Britain in the seventies is not how other

materials can be substituted for gravel, or how the gravel companies can be stopped from digging unsightly holes in the ground, but how commonsense, practical engineering, modern technology (such as underground gravel-distributing pipelines), intelligent planning and stricter controls can be co-ordinated to effect a common policy of improvement, rather than feeding the flames of an endless and bloody argument, objectors v. gravel.

Instead of today's piecemeal planning – inevitable result of a complete absence of national plan or gravel-working policy – why not use the necessity to dig holes in the countryside as a means of improving the environment? The time has come to stop arguing and start planning.

Alternatives

Gravel has been a dirty word since 1947, when it was realized that operators, mostly family firms of “stone farmers”, were escaping their obligations of restoration and landscaping by going into liquidation when it suited them and starting up again under another name. Many of today's unsightly pits are legacies of those days when controls were virtually non-existent, and some planning consents agreed before the 1947 Act have yet to be acted upon by the gravel companies.

Overall understanding of the problem was not helped by the report of the Waters Committee, which in 1948 reckoned the probable demand for sand and gravel every year for the subsequent twenty years at no more than 20,000,000 tons. This figure was exceeded before the ink was dry. Total production in 1968 was over 110,000,000 tons. By 1980 it is estimated that twelve square miles of land will be chewed up every year, of which seven square miles will be left as water.

In the next decade existing production must nearly double: by the early 1970s sand and gravel will overtake coal as the country's largest extractive industry. The excavations will all be open-cast, not hidden below ground like coal, and it will not be taking place in the “black country” which conservationists tend to shrug off as being so ugly in any case that it is not worth worrying about, but in Britain's prettiest rural, riverside countryside.

While every man's hand is turned against the gravel operators – often seen as money-grabbing villains – it is a fair assumption

that Britain will continue to build her future in concrete and that somebody will have to dig out the sand and gravel to mix it. Marine gravel, dredged from the Channel and North Sea seabeds, is already coping with seven per cent of demand, and developing fast, but there are recurring problems of coastal subsidence, fisheries (up against the Ministry of Agriculture again!) and the difficulty of transporting the material from ship to building site.

Other materials, such as pulverized fuel ash (a waste product of electric power stations), are being successfully applied to concrete as a gravel substitute. If gravel was only slightly more expensive it might even become economic for our freight-hungry railways to bulk-transport the waste heaps of South Wales to feed the concrete mixers of South East England, which produces and consumes half the country's sand and gravel.

Mr. A. F. Holford-Walker, secretary of the Council for the Protection of Rural England, has called for a national inquiry in which the social costs of landscapes destroyed by gravel, together with the gains from the removal of waste heaps, would be included in the final calculations to prove that the alternatives to gravel are practical in the economic as well as the technical sense.

The average new house consumes fifty tons of sand and gravel, fourteen miles of the new M4 extension will consume four million tons. Gravel is already worth fifteen shillings a ton at the pithead, plus one shilling a mile transport to the site. If alternatives were used, would the public be willing to stand the extra cost?

The point which gravel objectors fail to appreciate is that even if marine dredging was tripled, even if spoil heaps were brought from Wales and the public persuaded to bear the extra cost in the name of amenity, even if all the pulverized fuel ash in the country was used . . . there would still be an insatiable demand for sand and gravel.

Therefore let's come to terms with the fact that gravel must be won from the countryside. Let's be aware of the fact that in recent years the major gravel companies, thanks to large-scale takeovers and mergers, have a public relations image to think of. Gravel must come out. But as a community, "let's screw the gravel operators for all we can get".

Leisure

In six years the number of sailing clubs on the gravel workings west

of London has increased by two-thirds, angling by two-thirds, and speed-boat racing by three-quarters. Gravel companies have thick files of applications from various groups wanting a stretch of water – any stretch of water – for various kinds of recreational pursuit. The most far-sighted of the gravel companies have noted this fact and are going into the leisure industry in a big way. The extent of their investment could mean that some of them will shortly be making more money from leisure than from gravel.

Similarly, the most far-sighted of the planning authorities are driving hard bargains with gravel companies. Ambitious plans are on paper for what Mr. Richard Crossman, when he was Minister of Housing, called Britain's "blue belt". In the Lee Valley, Gloucestershire, Hampshire, Surrey, Wiltshire, Buckinghamshire, Nottinghamshire, the north-west perimeter of London, and other areas, water parks utilizing chains of landscaped gravel pits are being developed.

Enterprising though they sound, the local authorities have not gone far enough in pinning down the gravel operators who are reluctant to accept time limits and who by law are not obliged to fulfil some of the conditions. Despite tighter legislation recently introduced, there has been no test case brought against an operator by a planning authority: the exercise would be expensive and time-consuming; at present legal actions are only "threatened".

Some water park schemes sound admirable at first, then you realize that none of the lakes are connected, that some of them may not start being excavated until the year 2000, and that plans are really not a definite objective, but the planning authority's hope of what the gravel operator will agree to.

Take an example, Buckinghamshire's water park at Little Marlow. At present the workings are in mid-swing, some of the excavations being filled with domestic refuse. The scheme will not be completed until the 1990s; although the lakes fringe the Thames River none of them will be connected to it; the three lakes will be separated by two sewage farms, and their shape will be square so that the view of them from across the river on Winter Hill will be of field-shaped ponds, as natural a phenomenon in the countryside as plastic flowers.

Small wonder that local residents, many of whom would appreciate a lake nearby if it could be completed quickly, are up in arms.

The Ready Mixed Concrete group, biggest and most progressive of all the gravel operators, have shown what they can do at the

village of Wraysbury, Surrey, which is now surrounded by gravel workings, some of them completed. The villagers are breathing a loud sigh of relief – rather a lake than a council estate. The village club (subscription £1 per family a year) runs a swimming area, graded and fenced for children, and seventy volunteer wardens take turns to patrol the banks in case children get into trouble. On weekdays anglers are always to be seen on the shores, so that mischievous children who do swim in the prohibited area will at least be pulled out by an adult if they get out of their depth. What a far-sighted attitude compared with companies who fence off their pits and leave them with tangled undergrowth and steep banks where a child who does fall in will never be spotted until it is too late.

In Hampshire the same gravel operator sought permission to landscape the banks of a pit so as to create several small peninsulas on each of which a high-class private home would be built. Permission was refused, the lake was fenced off with pig-netting and barbed wire on tall concrete posts, and a housing development built nearby with only a few of the windows facing the quiet, tree-fringed lake.

Near London Airport – probably Europe's most valuable single gravel deposit – the company was refused permission to dig for gravel because the land in question was being used to grow cabbages. A few months later it was "sterilized" for gravel working when it was made available to an industrial undertaking which built on it.

Small wonder that gravel operators are disillusioned with planning authorities.

Hard Bargain

Gravel operators are businessmen. There is no reason why an imaginative and progressive local authority should not give permission for half a lakeside to be developed into a high-class private housing estate along American lines, with a private landing stage in front of every front door, if, perhaps, the other half was landscaped and presented to the local authority as a community water park. Bargains could even be struck on the construction and maintenance of facilities, such as restaurants, toilets, diving boards, water ski ramps, boat moorings, and hire boats.

If two or more lakes are being produced as a result of gravel excavation in any one area, there is no reason why the gravel operator should not provide a linking canal, including a lock if necessary. In the Thames Valley, given that a string of lakes will

definitely appear, there is no reason why a levy should not be imposed to meet the cost of making lakes inter-connecting, with branches into the Thames. Many gravel lakes are so close to the Thames that only a few scoops of the excavator are required to provide an opening big enough for river cruisers and small yachts to enter.

The Thames Conservancy argues that moorings in such lakes would impose an even greater burden on its crowded river; but new cruising waters would relieve some of that over-crowding. To build isolated lakes is surely a negative policy; if all the existing lakes in West London had been planned twenty years ago to be linked with canals, there would be a waterway system to rival the Broads. Instead, the planning authorities are insisting that another twenty years be spent filling the lakes in again with refuse and rubble: lakes which Londoners need for their recreation like ducks need water. The expense of undertaking the extra earthworks could be met by selling some plots of lakeside land for exclusive housing. What we are left with now is a pathetic display of missed opportunities.

What are the major snags to co-ordination of gravel winning on a regional or even national scale? Principally, there are two problems, private enterprise and speed. In the former, the solution lies in commerce and finance, in the latter, the answer surely lies in applied technology.

The gravel operators are engaged in hot competition, which helps to keep the price of the material down but also creates the situation in which two rival companies can be operating adjacent pits, and delivering identical material to adjacent building sites several miles away. The companies pooh-pooh the idea of combining to dig first one pit then the other, because of the element of private enterprise. This attitude is healthy and commendable, but the welfare of the countryside is at stake: the gravel operators have shown that consortia are workable, because six of them have combined to excavate the Queen Mary Reservoir. With a strong lead from the planning authorities, much more could be done to confine gravel workings by insisting that companies work together.

The time element is more difficult to solve. A company setting up a major production unit reckons on running it for twenty years to make the investment pay. If two high production units were combined, traffic volume would become intense. Stockpiling, the companies claim, is uneconomic. Yet some companies have been pressed into agreeing to time limits.

Most people would like to see a lake at the bottom of their garden (some property values in Wraysbury went up by £1,000 when the excavations were completed), but nobody wants an industrial eyesore during the twenty years needed to create it. If technology can solve this problem, and appreciably speed up gravel winning without adding to the intolerable burden imposed on the roads, then much of the objection to gravel will be diluted.

Recently the residents of Cookham won their spirited appeal against Ready Mixed Concrete who wanted to excavate more than 400 acres of riverside meadows. But the demand for that quantity of material has not been disposed of: another community will have to fight a gravel company. My advice to that community is to drive the hardest possible bargain: don't argue, start planning. And thank heaven it is not a meat factory that the company wants to build.

[John Dyson's article is about exciting possibilities of development in landscape and leisure activities on the one hand, and a warning about missed opportunities on the other. He tells us that gravel operators are seen as money-grabbing monsters, and objectors as unrealistic and hysterical. But he puts up a sympathetic defence for both these parties. The real villain of his piece is the faceless planner, who is schizophrenic, fickle in his support, wanting in foresight, lacking any national and regional guidelines, and more hopeful than forceful in his pronouncements. What he is asking from this official is the imposition of stricter controls, imagination, and time limits. However, the report of a long public enquiry on an application to extract gravel from a 300 acre site in Sussex seems to show the planning authority doing just what John Dyson says it should about stricter controls and time limits, with detailed regulations about hours of working, phasing, height of heaps and machinery, transport, silencers, progressive restoration, refuse, drainage, archaeological finds, grading and levelling. All gravel is to be moved by rail, not lorry. Above all the whole work is to be completed in 7 years. Incidentally, the planner responsible for this programme is also chairman of a regional working party, covering about half the South Coast counties, which is making a detailed assessment of gravel demands during the next decade. So it is evident that these indolent planners have something to say for themselves, and their own frustrations too. We are asking one or more of them to comment in our next issue on the situation outlined in John Dyson's article.]

Sending and Receiving in Telepathy

Gladys Keable

1. *Telepathic Networks*

“Beyond telepathy” – or, as a sceptic might express it – from mushrooms to moonshine. And he would be dead right, for these are the two extremities of Dr. Puharich’s methodical investigation into the physiological conditions favouring sensitivity to E.S.P., and a hypothesis about the nature of the E.S.P. faculty.*

In 1955 Puharich worked with Harry Stone who had suddenly developed a habit of falling into a trance and uttering unintelligible sounds. These sounds turned out to be a very localized form of ancient Egyptian, and revealed information about a sacred mushroom cult which was then relatively unknown. Since then, theories about it have, if I may use the term, mushroomed, to the extent that the hallucinogenic *amanita muscaria* is reputed to be the divine soma. Puharich’s more sober reaction was, after studying the cult among the Chatino Indians of Mexico, to take the mushroom into his research laboratory, for he realized that in the ancient cults lies hidden a rich store of information about man’s seemingly magical potential, and he is enlisting those who possess E.S.P. faculties to help him discover how their minds and their bodies work. His subjects include mediums or sensitives, yogins, shamans, and he now has a wistful eye on spacemen.

He first distinguishes between the physiological states of sender and receiver in telepathy. The receiver is in a relaxed, receptive state, often half-asleep, while the sender is generally in a state of shock, fright or tension. The relaxed state he calls mild cholinergia, because it is a condition of parasympathetic activation, in which an increase of acetylcholine occurs in the nervous system. In sensitives, shamans and yogins it can be associated with a sense of “mind-travelling”. This can be induced in a number of traditional ways, such as drug or alcohol taking (e.g. mushroom hallucination) incense burning, fasting, breathing techniques, or touching an object as a link with the information desired. Puharich found that he could

* Andrija Puharich, *Beyond Telepathy*. Darton, Longman & Todd, 1962.

induce the state with the aid of a very bright light, and that the subject's clairvoyant and telepathic faculty was greatly stimulated. An excess of negative ions in the atmosphere is also conducive to cholinergia.

Less attention has generally been paid to the telepathic sender apart from the obvious observation that it is often a situation of fear or danger which prompts him to try to communicate; such conditions are difficult to simulate in a laboratory test, but luckily it is known that the tendency to fight or flight is associated with a massive action of the sympathetic nervous system which is activated by adrenalin, hence the term "adrenergia" for this state. Now the sympathetic and parasympathetic systems in general act as antagonists: one accelerates the heartbeat, the other slows it down, one prepares the body for exertion, the other for rest, the sympathetic causes blood vessels to constrict and inhibits sweat, salivary and gastric secretions, the parasympathetic dilates blood vessels, and secretes juices in the various glands. "The basic act of sending in telepathy", says Puharich "appears to be psychologically a centripetal one, concentration." In fact, the word "sender" in telepathy is a misnomer in that the sender does not send anything out, but rather serves as a centre of attraction drawing to him the attention of the receiver. It is as though the sender creates a mental vacuum toward which the receiver's mind is drawn. The sender by his need and desire prepares a mental stage; the receiver in turn populates the stage with his own symbols and images.

Puharich then goes on to describe more complex telepathic networks than that of individual senders and receivers, such as a large hallucinatory broadcasting effect from a single sender as in the Indian rope trick, or a large number of senders focusing on a single receiver, and the even more puzzling phenomenon of psychometry, where memory or intelligence has been registered on physical objects from which it can be recovered. These objects used to be thought of purely as links with the sender's mind, but Puharich's experiments, for instance with photos, shows clearly that this is not so. "Much of the intelligence that he gets", he says of a subject holding a photo in a sealed envelope, "comes from other segments of time and space than the one in which the picture was taken. This means that whatever it is that is transferred from the person to the film remains in the film as a permanent record ready to be read by a sensitive mind, and is of a nature quite beyond our comprehension. At the time that

much of the subject's past history is transferred to the film some bits of his future history are also added to this record. This process has absolutely no analogy in any of the known dynamics associated with matter or energy." Experiments were carried out in "taking photos" without light or a camera, in which Peter Hurkos' mind was able to mimic the effect of light on a photosensitive surface. This experiment, which has also been successfully done in Japan, "clearly reveals", Puharich says, "the mind's potential as an action centre". In psychokinesis too, the mind can produce pulsed sound from a table when nobody is touching it.

2. *Mobile centre of consciousness*

Following his conclusion that mind is an autonomous action centre, he probes more closely into the phenomenon of mind apparently acting independently of a physical body, in what are known as "out of the body experiences". For this activity he coins the phrase "Mobile centre of consciousness"* because it seems to him descriptive of the state in which "one has a complete body image as a part of such consciousness", distinct from the physical body which can often be observed from outside, and in which "the M.C.C. can at will go to any point in space that it desires, and be there in an instant as an observer". This body image or form, which Puharich calls "psi-plasma", can be seen and felt by its owner, and sometimes by others in the form of apparitions, or of auras, and it is fair to state that in some instances, these apparitions seem to be produced by the minds of dead people. They can also, in some circumstances, be photographed. The difficulty about scientific work on these phenomena is that they are not readily repeatable, but Puharich thinks this would be overcome if we could understand and so get better control over the dynamics of the psi-form, and he goes on to an analysis of the biological conditions which might lead to such understanding, by studying the techniques of two apparently incompatible types of practitioners of out of the body experience, shamans and yogins.

In spite of appearances, there is a parallel development in the two techniques, brought about by exaggerated activity on the one hand, and exaggerated quietude on the other. Preparation in both cases is using "stress for developing physical and psychological

* Borrowed by *TtoT* in a slightly different sense in a diagram, cf. Vol. III No. 4 Page 26.

toughness". Then follows an excitatory "adrenergic" stage, over a long period for the shaman in his singing, dancing and drumming, in an enormously heavy head-dress and costume; and over a short period, perhaps 20 minutes or so for the yogin, in a preparatory interrupted breathing exercise. Then both go into a relaxed, "cholinergic" phase, which in the shaman takes the physical form of exhaustion, and in the yogin includes the slowing down of all body rhythms; for example, the heartbeat can come down from a normal 72 beats per minute to 1 beat or less, and breathing from 18 per minute to 1 or 3 every hour. Most significant of all, the electrical waves of the brain are "slowed down from a normal rate of approximately 30 beats per second to an alpha frequency (normally associated with sleep) of 8 to 10 beats per second, and the slowed down alpha frequency has the characteristics of a sine wave". This slowing down of body rhythms is, Puharich thinks, the key to psi-plasma activity; but it has to be done in such a way that the mind, instead of going into unconscious sleep or hibernation, stays alert. Still using shamans and yogins as examples, Puharich shows that to achieve this, correct amounts of potassium, carbon di-oxide and acetylcholine have to be added to the nervous system, and "these definitely produce an increase in the amplitude of the wave forms, or voltage increase". If high doses are taken there is a decrease in frequency of the brain's electrical activity. This in brief, is Puharich's account of the physiological condition necessary for the control of the nerve plasma membrane of the brain.

The rest of the book is given over to stating Puharich's hypothesis about the nature of the E.S.P. phenomena which can be experienced when this control has been achieved. This is a highly complicated physical theory; those who are interested and competent to look at it critically should read the book.

Puharich concludes with suggestions for tests to validate his theory, which has to do with changes in value of the gravitational field potential.

In 1962, when *Beyond Telepathy* was published, he was longing for the time when manned vehicles could be sent into outer space, so that gravity-free conditions could be maintained for prolonged periods. "Between the earth and the moon", he says, "we would find a null gravitational point where the respective attractions of the moon and the earth would be approximately equal. An outer space laboratory would be an ideal platform from which to conduct tele-

pathy experiments towards earth.” There is reason to think that the U.S. space programme researchers are interested in the possibilities of telepathy in outer space. We look forward to Puharich’s next publication, and wonder whether his experiments will have moved from mushrooms to the moon.

Reviews

W. Grey Walter: Observations on Man, his Frame, his Duty and his Expectations. Twenty-third Arthur Stanley Eddington Lecture. Cambridge University Press, 1969.

The choice of Dr. Grey Walter as the 1969 Eddington lecturer was a particularly happy one – his career as a physiologist began in Cambridge and it was in Cambridge that electroencephalography really began, a field with which Grey Walter's name has become especially identified. His own contribution to this field has been enormous, and to an extent which cannot be judged from this lecture alone, one in which he is still making fundamental discoveries. Unlike men of lesser stature, Grey Walter has always been ready to extrapolate from the hard data of physiological experiment to the problems about human nature which preoccupy the thoughtful layman. Such extrapolations immediately invite charges of dilettantism, but this is a low price to pay for the creative insight which is denied to more blinkered scientists. Eddington certainly was not blinkered and I believe that he and Grey Walter would have been kindred spirits.

An important point to remember in discussing Grey Walter's own work is that it has all been carried out on human beings. We have become so accustomed to the cross-species leap, whereby human aggressive behaviour is homologized with that of the three-spined stickleback, that we forget that Grey Walter's intellectual leaps imply no more than relating one set of human data (physiological) to another set (experimental). If the links are at times only faintly perceived, at least they are not likely to be confounded by unexpected anatomical and functional differences between vertebrate nervous systems. Not surprisingly, Grey Walter himself has little time for the *Simius nudus* approach to understanding human behaviour. Whilst the naked ape may share with other primates the "five Fs. . . . the capacity or need for feeding, fighting, freezing, flight and fornication", he also possesses a number of species-specific behaviours "that are nearly universal among men and extremely rare or rudimentary in other animals: speaking and gaming". (Furthermore, "it [*Simius nudus*] laughs, even at itself".)

In fact, Grey Walter has very little to say in this essay about

speaking but deals mainly with “gaming”. Gaming is used here to denote the progressive computation by the brain of the probabilities between events. The classical experiment is one concerned with “contingent negative variation” (CNV), or, as it is now popularly and provocatively called: the “expectancy wave”. A click is followed one second later by flashes of light which are terminated by the subject pressing a button. If we repeat the click-flashes association six times and electronically trace out the average shape of brain waves from the front or top of the head, we obtain the following picture. Following the click, a slowly rising wave appears (the expectancy wave) which reaches a crest as the flashes begin and then plunges back to the original level. If we continue to average each group of six click-flashes associations in this way we find that the expectancy wave becomes more and more pronounced. If we now present the click on some occasions without the flashes, the magnitude of the expectancy wave is reduced. As Grey Walter comments: “the size and distribution of the electrical events in the brain revealed by our computers follow very precisely the objective probabilities of association in the external events”.

Thus, in certain respects, the brain is behaving as an averaging computer: events are examined for what they have in common with other previous events: components which are common to more than one event are superimposed and components which are not common tend to cancel out each other. Such a picture of common components is easily obtained from a computer programmed to average the brain waves each time a particular stimulus is presented. In contrast what we are witnessing in the expectancy wave is a single picture of the brain's *own* averaging processes. It looks therefore as though one of the brain's special functional adaptations is its capacity for carrying out running averages on our experiences; that is, building up probability statements or gambling. The demonstration that the brain works in this way may help to explain a puzzling fact about the formation of our own attitudes (and prejudices). If we say: “Smith is a liar”, we are often embarrassed by the question: what is your evidence? We produce one or two trivial incidents which may cast doubt on Smith's veracity, but they appear to be small beer upon which to base such a major condemnation. The trouble lies in the fact that our attitudes are the result of repeated sampling of such trivial incidents, the common component – Smith's lack of veracity – being summated, and the precise details of each circumstance being

treated as background “noise” which is simply forgotten. Thus we conclude with a generalization, a probability statement, but are unable to analyze the statement into its historical components. We can now see that our difficulty lies probably in the very process by which our brain builds up such associations as “Smith – lie”, a process of running averages, without keeping an inventory of specific instances.

The fascination of this current work of Grey Walter is that starting from studies of brain activity, we arrive at processes which bear the hallmarks of truly species-specific behaviour. Schustermann and his colleagues certainly have found evidence of probability learning in chimpanzees, but his adult animals were easily surpassed in ability by six-year-old children. Is the vast difference between the gaming behaviour of man and chimpanzee to be found in differences in brain mechanics? Grey Walter’s argument is particularly intriguing: “The foregoing account of how experience is processed in the brain could well be a description of what is generally called the scientific method – the classification of observations, the development of hypotheses and the testing of hypotheses by experiments. I believe that this resemblance is neither coincidental nor trivial; the scientific method is the deliberate formalization of the *intrinsic mechanisms of cerebral computation*” (my italics).

Do we see nativism rearing its ugly head? Possibly; moreover, few psychologists would as confidently adopt an empiricist position as they might have done a decade ago. We now assume that the capacity for language is also quite specific to *Homo sapiens*. Its acquisition cannot be explained in terms of simple Stimulus-Response paradigms derived from study of lower organisms. The universality of the structural properties of language and the near-inability of humans *not* to acquire language even in the most adverse circumstances, has led some psychologists to suggest that the underlying neural organization for language is an innate property of the human central nervous system. This suggestion has some credibility in the light of recent anatomical research, showing that *Homo sapiens* is peculiar amongst the Primate order in the richness of his intra-cerebral connections. There are theoretical reasons why this property of the human nervous system may facilitate language acquisition, but to discuss these would take us too far from our brief. More interestingly, from our present point of view, it may be these same association fibres which, at a physiological level, promote this

other species-specific behaviour – the kind of stochastic model building demonstrated by Grey Walter.

The second major theme of Grey Walter's essay is Man's diversity: "we cannot reasonably discuss observations on Man since the differences between men are as important as the resemblances – perhaps even more important . . .". Here again, the facile generalisations made about human behaviour by ethologists never acknowledge either individual differences in temperament and mentality or differences between cultures. For example, some of the blackest events of our human history have been "explained" by ethologists by reference to the behaviour of animals in crowded conditions; actual experiments on humans show that crowding has differential effects according to the personality structure of the individuals in the group. Grey Walter takes the view that the variety found in human behaviour may be the direct result of differences in brain function. To take the case of contingent negative variation: "some brains seem to work as accurate and trustworthy calculators of probability. . . . Others again display coherent responses only when the level of significance is so high as to convince the most sceptical scientist of his rival's hypothesis. There seems to be in every brain a set of criteria which determine the bias of mentality, from the credulous and foolhardy adventurer to the prudent and circumspect critic." It is hardly likely that we would use of any animal except Man words like "prudent", "credulous" or "foolhardy". Yet Grey Walter is using these highly species-specific terms not about behaviour but about brain function. For Grey Walter, human mentality is human brain function. Human brains are built to carry out specifically human activities and their variations in structure and function are the variations of mentality.

Similarly, the intrinsic electrical activity of different brains may be a guide to those differences in "cognitive style" which so often constitute a barrier to our understanding of each other. Some brains show a perpetual blocking of the alpha rhythm from the occipital area; in the majority of people blocking occurs only in the presence of patterned visual input. The alpha-absent group apparently provide their own patterned input, their thought processes being carried out in terms of visual images, as opposed to people with a persistent alpha rhythm, who are abstract thinkers. Such fundamental differences in thought processes are a direct result of possibly genetically determined variability between brains.

Solution of problems by visual imagery invites the appearance of redundancies; that is, the strong visualizer sees aspects of the problem which are quite superfluous to its solution, but which incidentally may suggest further problems and further experiments. To this extent thought is a creative process. The differences in imagery and abstraction lead to diverse ways of looking at things, to the creation of new working models of the environment. And with new working models comes the power to adapt the environment to our models, rather than ourselves to the environment. It is "just this power to modify our surroundings that is the basis of creativity".

As yet we have hardly begun to explore the creative potentialities of the human brain. Such exploration, Grey Walter concludes, may be facilitated by two of the changes which already are occurring in our daily lives: the increasing use of computers and the resurgence of interest in "altered states of consciousness". Our first need is to relieve the cerebral computer from those chores for which clearly it was not built – large scale mathematical operations – thus freeing it to carry out those processes for which it is specially adapted. These are guessing, gaming, inventing and checking hypotheses – the processes of creative thought and imagination. These processes may themselves be transformed and elaborated through deliberate modification of mental states by means of "orthodox procedures, by the practice of oriental disciplines or by the action of so-called psychodelic drugs". I am unclear what is meant by orthodox procedures, but presumably methods of mental prayer or hypnosis would each fit this description. Such intervention in neural activity is said "to provide for a large and increasing number of people an insight into mental states which are otherwise inaccessible".

This is the weakest section of the essay. The author points out that scientific rationalism has had remarkably little influence in moulding our social environment; the prophets of social change have been the novelist and poet. Here at last is an opportunity for the two cultures to get together. Altering human mental states, for example by drugs, "loosens the bonds between the stochastic mechanisms of the brain and objective contingencies". Under these circumstances, not only new experiences, but new and unexpected relationships between ideas may emerge "where anything may imply or be implied by anything, whether 'real' or imaginery". History shows that where men have acted upon such experiences, they have frequently created violence and persecution. Where things will be different in the future

will be in our access to computers to calculate the logical implications of new ideas before they need be put into practice. Within seconds an idea can thus be shown to be ridiculous, or sound. Personal conduct and possible economic and social developments may all be subjected to the same combination of "individual inspiration and impersonal correction"; *consensus gentium* may become *consensus machinarum*. Grey Walter denies that the vision he wishes to create is a flippant one of intoxicated computers. Yet I cannot avoid the impression that this part of the argument has become mere whimsy, the addition of a little froth for fear that the underlying beverage be too strong. The essay ends on a note of unusual banality. This is particularly sad, since in other respects it is one of the most interesting and provocative of the series.

John Hutt

"The Christ, Psychotherapy, and Magic" by A. D. Duncan. London, 1969 (George, Allen, & Unwin)

This book, despite its title, is a modern exercise in what was once a fairly respectable field, the Christian criticism of the Qabala. This used to be done in the hope that it might help in converting the Jews; but this is not the aim of Duncan's book. It is not quite clear what is its aim, but in its course it manages to raise a number of fascinating comparisons and pose some stiff challenges. If one can bear with the split-mindedness of an author in love with one system while married to another, the book is very rewarding to those trying to find ways of presenting spiritual matters in the language of modern thought.

For this is just what the Qabala, in its own time, did; but for its self-limitation to the narrow world of Jewish mystical intellectuals, it might be part of every educated man's mental furniture. During most of the middle ages, Judaism had no adequate counter to the elaborate and increasingly fine-drawn system of Christian theology, but at the end of that period there emerged the Qabala, and at least part of the complex motivation of this strange creation was to get even with the rival faith. The foundation text of the Qabala is the huge Sefher Zohar, ascribed to Moses ben Leon, a Spanish Jew, moving in a highly creative circle which was to form one of the headwaters of the Renaissance. Another contribution from this area was, improbably enough, the seminal conception of chivalric love. The central concern of the Qabala is to delineate the process of creation, a task which the undiluted transcendentalism of orthodox Jewish theology makes peculiarly difficult.

The solution advanced was to make use of the ancient notion of the emanation of the world from God. This rather nebulous idea was given concrete shape by using a sequence of ten emanations or steps called the "Ten Holy Sephiroth". These were modelled on the ten characters of the Sino-Indian numeral system, originally appended to the mystical twenty-two letters of the Hebrew alphabet, but early moved into the central place. The Sephiroth came to have a great number of symbolic associations, with planets, colours, archangels, and literally dozens more, making them a highly articulated system of archetypes. But, although the earliest references to them are exceedingly obscure, their primary significance was probably as steps in the creative process; and this they always retained. It will perhaps help if I describe these steps briefly.

The first step (Kether) is the undifferentiated manifestation of God; we should today prefer to call it the zeroth step, but traditionally it is the last step which is the odd-man-out; it represents uncreated being. The second step consists in God's introspection, the source of all spiritual energy (Chokmah); it represents the original question, which sets in motion the next four steps to answer it. The third step (Binah) represents the necessary order which appears in a cosmos, however rudimentary, when viewed, as in Chokmah, from within; here appear the elementary forms of creation, things like what we would call the space-time framework, the various physical fields of force, and so forth. The fourth step (Chesed) supplements the necessary order of Binah with a contingent order of actual things and events, a treasury of infinite and unforeseeable possibilities, a boundless kingdom of potentiality. (Later Qabalists felt there was a big gap between the third and fourth steps, and postulated an intermediate ("pi-th") Sephirah called Daath – "knowledge", the point in the sequence at which what we call "information" becomes relevant.) The fifth step (Geburah) represents creative necessity, the formative effect of the laws of nature foreshadowed in Binah on the otherwise limitless possibilities of Chesed; these fourth and fifth steps provide an evolutionary mechanism, having analogies with the variation and selection of Darwinian theory; they are likened to the mercy and wrath (or justice) of God respectively.

The sixth step (Tiphareth) represents created being, that is, the appearance of mediated consciousness in the creation; this is where man (albeit primal, archetypal man) enters the picture, who for us could be seen as the end-product of the creative interplay of the preceding two steps. As mediated consciousness, Tiphareth is seen as a kind of image or reflection of Kether (hence called the "lesser countenance") and as it were a resting-place in the creative process. As consciousness, it can like Kether introspect, and this movement constitutes the seventh step (Netzach), representing the inward freedom of the conscious being; here belong all the drives and dreams of the interior life, the forces which in ordinary people have to be shut away in the unconscious and only let out on a leash of symbols. But we are now in a world full of forms, and it is these which confront and limit the inner life of Netzach, giving us the eighth step (Hod), representing outward necessity; the seventh and eighth steps stand for inner experience and outer existence, but separated from each other and thus neither fully real. They meet

in the ninth step (Yesod), representing percipient being, the ordinary consciousness of man, expanded to include what is normally unconscious as well, aware of what we ordinarily call reality. The origin of Yesod from Netzach and Hod has analogies with the psychological theory which sees the child's image of the world as built up through the mutual adjustment of pre-existent patterns in the brain and actual encounters with the environment. Yesod is another resting-place, in that there is no logical inevitability in going further; but awareness presupposes a reality to be aware of, and the ascribing of actual existence to the content of consciousness is seen as the tenth and last step in the creative process (Malkuth), representing perceived being; this is usually in later Qabalistic writings identified with the material world, but it is rather the perceived world, the specific environment of individual or community, since the world of the scientist is already complete in Tiphareth; the earliest writings identified Malkuth with God's presence (Shekinah) in the world, or with the community of Israel.

Duncan is well aware that the symbolic system, of which the nucleus (a very small nucleus) has just been indicated, is capable of being used by Christians just as much as by Jews as a framework for a meditative discipline, and as a descriptive language for spiritual experience, and he points out the value of being in command of another language, besides the traditional Christian one for these purposes. He has much of interest to say about the poverty of the West in disciplines such as the Indian Yoga, and suggests, not implausibly, that the techniques developed within the Qabalistic tradition could usefully fill the same role, in a manner more adapted to the Western mind than Yoga can. Much of what he says seems to hint at the Qabala being a perhaps fuller or more adequate language of the spirit than Christian theology; but this is a conclusion which he bypasses.

At various points throughout the book, and especially in the closing essays, he lists his points against the Qabala. Though at times verbose, it remains a list, not an argument. The most frequently cited item is the odd claim that the Qabala is "essentially" pre-Christian; which seems to mean no more than non-Christian. It is not only later in time, but it is demonstrably influenced by Christian thought, and reflects a mental climate nearer to our own (though still not very near); moreover it could be claimed, and has been asserted by Qabalists, that all tenable points of church doctrine can be found

somewhere in their system. Duncan could get away with arguing against that claim, but this he does not attempt. Another point against the Qabala is that it is “gnostic”: which is the reverse of the truth. The cardinal points of all gnostic systems are (1) that creation was a crime, or at least a failure, (2) that man’s purpose in life should be to repair the damage, (3) that this requires correct belief (“knowledge” to the gnostic) of spiritual matters, and (4) that this consists in an elaborate fall-and-salvation drama involving supernatural personified forces. The Qabala, true to its Jewish heritage, repudiates (1), finding the purpose of life in re-tracing the steps of creation by spiritual and moral discipline towards ultimate re-union with the Creator. As to the drama of salvation, the Qabala has none, and is almost free from personifications (there are the archangels, of course, but they are more concerned with being than with doing), and it can therefore largely dispense with dogmatic insistency. Gnosticism was a characteristic product of post-hellenism, blood-brother to Christianity itself, which has absorbed many gnostic traits; the Christian quarrel with the gnostics was less with the shape of their thought than with the detail of their beliefs. The Qabala belongs to a later age, one in which gnostic thinking could awake no more response than it can today.

Duncan would no doubt argue that gnosticism means something wider than this, something still with us. Almost any alternative theology to the traditional one could qualify as “gnostic”, if the style of thinking is not to be a criterion. But when arguing against the Qabala he is reduced time and again to mere assertion – as though his heart was not in it. He dislikes particularly the Qabalists’ claim that Christ “belongs” especially to the Sephirah Tiphareth (where else? – this is the fulcrum of the whole system, the place where material existence reaches up to divine potency, the highest point also to which, Qabalists say, every human being is potentially capable of attaining). Duncan would rather have it that Christ has no place in the system at all: a bald and unconvincing assertion.

Though the rational core of the Qabala was soon to be hidden in a maze of magical mumbo-jumbo (as was that of Taoism in China), it has recently been taken out and dusted by modern devotees (notably Dion Fortune and Gareth Knight, Duncan’s favourite quotes), and we can now see that it is indeed a system with some attractive features, including points where it compares favourably with traditional theology. It offers analysis where Christian doctrine

offers mystification: and if from our present day point of view an “analysis” of creation is an absurdly pretentious exercise, hardly better than mystification, it is still a little better (and the point may be against us after all). The symbolism of the Qabala, though less piercing than the Christian, is more perspicuously structured, and therefore more easily applied to actual experience. But in my opinion its best point is that it makes a clear connection between the world of inner experience and recognizable features of the outward world, which in the Christian symbology is too narrowly confined to the Incarnation and the Crucifixion, which need to be interpreted with unusual liberty if they are to cover the ground of ordinary life.

Duncan’s book makes a good case for taking a serious interest in the Qabala, at least in its expurgated “Gentile” versions. A careful study of the Qabalistic thought-style could be of very great use to those who are concerned in constructing a new language in which to mediate the things of the spirit for today. This is far from what Duncan does with it: he is more concerned to justify the continued usage of a different language, that of the orthodox theologians, a language which is – dare I say it? – pre-Qabalistic. The details of the system are no longer acceptable, on the whole, to the thought patterns of today; though time and again it seems to anticipate much later thought, there is no future in anticipation. As a system, it is a museum piece, though one we can admire with more than antiquarian delight. But what the world needs is a better tool to serve the same purpose; if iron won’t bite, don’t bother with bronze, try tungsten.

Frederick Parker-Rhodes

Comment

The Neophiliacs

I must confess that your kind request for a comment on Alicia Yerburgh's review of my book "The Neophiliacs" has put me in something of a dilemma. Since "The Neophiliacs" was published last year, I have received a number of letters which make it clear that my readers fall into two quite distinct categories; on the one hand there are those who see, in the most general sense, what I am on about, in my discussion of the nature of fantasy, evil and rebellion against natural order – in which case, despite many reservations and qualifications, they find the book more or less sensible and illuminating; on the other hand are those who simply do not see what I am on about at all, in which case they naturally find my arguments irritating, absurd and virtually meaningless.

Now I hasten to add that this discrepancy of reaction does not seem to be related in any way to intelligence, age, whether the reader is of a "religious" turn or not; there are plenty of readers of all kinds on both sides of the fence. But undoubtedly your reviewer falls into the second of these two categories – and so obviously have I failed to convey to her even a glimmering of what I was trying to say, that there is little point in my trying to "answer" her review. We just share no common ground on which to argue (as is shown, for instance, by her comments on my use as an example of a fantasy pattern in art of Ravel's Bolero, in which she sought to show how silly and ill-informed I was about this piece of music by describing it in almost exactly the same terms I had used myself!).

There is one point which I think is worth clarifying, however, because it is one which has general reference to a great deal of discussion nowadays – and that is Mrs. Yerburgh's rather "desperate-seeming" (to use her own phrase) attempt to pigeon-hole me as nothing more than a stereotyped reactionary. Again and again, in her penultimate paragraph, she singles out certain phrases from "The Neophiliacs", out of context, to paint me as urging a "dangerously passive type of conformity", "subservience", even "back to law and order". Now, from the way she puts all this, one might well infer that I was arguing for an indiscriminate "bending of the knee" to any form of tradition or worldly authority. But in fact, the only

law to which I refer, the only authority to which I urge conformity is that of God.

I know that we have all got into such a silly state of antinomianism these days that even to use such terms as “the law and will of God” will provoke the John Robinsons and Marghanita Laskis of this world to reach for their slogan box and start crying “backlash”. I must be grateful to Mrs. Yerburgh that she did not use that word herself, although I could see her teetering dangerously near it! But whether she herself is a Christian or not, she really must not be so carried away by all this modish nonsense as to think that a Christian’s aspiration to subject himself to the will of God is “dangerously ostrich-like”. It may seem like that to an agnostic outsider, to whom such terms as “the will of God” are of course meaningless – but if she does not regard herself as falling into that category, then she must ask herself very seriously whether she is not just displaying a fashionably neurotic hostility to certain words – “order”, “authority” and so forth – which have become detached in her mind from any real meaning.

We all find it so much easier to dismiss people and arguments we do not quite understand, by twisting them into some recognizably ludicrous stereotype. Mrs. Yerburgh has chosen to read into my book, as far as I can see, a whole lot of qualities which are probably as far removed from my mind as they are from hers! This makes it, I agree, vastly easier to condemn it – but I must assure her that what she is condemning is only a creature of her own fancy. Nowhere does this show more clearly than in the final sentences of her review, where she seems to infer that I have said we should “turn our backs on man’s gift of imagination”. I can only pitifully reassert that I said nothing of the kind! What in fact I said was that we can use our imaginations in two ways: either to find our way back to God, or to assert our wills against Him, as victims of the Devil. In the first instance, it is possible for human beings to strive towards perfection, although by the nature of the Fall they can never get there. In the second, they will always find frustration and ultimate self-destruction. As someone who accepts the Fall, surely Mrs. Yerburgh and I must at least be agreed on that, if nothing else? On second thoughts, however, and reading again her remark that the Fall must be regarded as a “unique opportunity”, I somehow doubt it!

Christopher Booker

Contemplation and the direction of Policy

In the editorial of the September number of *Theoria to Theory* you

came to the conclusion that “Religion is about contemplation: it is not about anything else”; and further, that a church could provisionally be described as “a universalized, trans-tribal tribe, formed upon some religious basis, and possessing some identifiable structure and pattern of authority”. You added the provision that when asked “ ‘What, within such a church, characterizes authority?’ . . . the overall answer we gave was, ‘religious authority – true religious authority – is secular authority in reverse. . . .’ ”

May a non-specialist, or possibly a specialist in non-specialism, in what might be called the consumer end of religion for ordinary people, put a view?

As a non-specialist I assent to these propositions with reservations; for is not the confusion as to “authority” a matter of semantics, arising through bundling two opposite meanings together under one word? And from my special non-specialist point of view both propositions form parts of a greater whole: a ? process, ? organism, ? cycle – something which *works* when all the parts are present and connected, but not when they are not; though of course the fragments have their own effects, sometimes very curious ones. The computer section of an automated plant producing, say, shoes, may be considered and specified separately, as also may, and indeed must be, the other machines and materials: but the barefooted non-specialists waiting for shoes are only concerned with the correct working of the whole set-up.

So that, although religion may not be about anything else but contemplation, as far as the non-specialist is concerned, the relevant part of the contemplation is the interface at which it emerges as energy, the surface which brims over and determines action, and so policy. The notion of *policy* is a key: religion-cum-church is surely about the development of contemplation into policy; about the mysterious means by which an idea is conceived into physical fact, and by which contemplation grows into creation by the *binding-back* of action and its results to the long-term truths experienced in contemplation. Such a binding-back is not only desirable but a desperate necessity for our survival as men; without it we head for chaos (the supremacy of exceedingly short-term policy) or the ant-heap existence of a collective, where policy, long or short, is outside the initiative of people managed as functions by the privileged few who dictate it.

Because we are human, and so not only conscious but self-con-

scious, we have to *choose* to bind-back to something. Whoever does not do so consciously to long-term objectives, does so by default, animal-wise, to short-term expedience – pleasure, convenience or sheer laziness, though as regards essentials such as survival many animals have the long-term policy laid on in the form of an innate instinct. When its defeated enemy willingly surrenders a particular vulnerable spot to attack in a certain way, a wolf is incapable of attack, and can do nothing but desist from fighting: it is subject to a binding-back built into its physical structure. The soldier faced with an enemy surrendering has to choose to give mercy. Musk-ox line up in fighting formation with cows and calves in the safest position; the tradition that in danger women and children escape first depends on a conscious binding-back to a long-term policy. Chivalry is a most practical arrangement for the long-term interests of the species: but people have to choose it; or not. The survival of men depends on the conscious exercise of will bound-back to long-term results; and the nature of the results chosen depends on deep-down beliefs, the issue of contemplation.

Although a core of mystical ecstasy may be common to all sorts of religious practitioners, it is obvious that ideation arising from it differs in different religions, and in turn the policy-in-action generated by this ideation has widely different results. Each church, in fact, is guardian to its own process, midwife to its own policy. In a given situation a devout Mohammedan will behave differently from a Communist, a Jew, a Buddhist or a Christian; and of course the man-in-the-street, whose action is probably based on the debris of one of these religions combined with a good deal of mush from what are nowadays called Communications Media, will behave differently again. Religions apprehend some spiritual premise, either true or false, and their churches activate the contemplation/policy-in-action circuit to bind people's behaviour back to it. In this way their members gain a fairly effective substitute for animal instinct, with reference to the particular premise chosen, a deep directive for policy.

In this crucial matter of the relation between organisation, policy and people, the churches, if not themselves directly involved, as with Communism, say little or nothing. Yet Christianity is particularly qualified to do so. Christianity, like Christ, concerns people in their relations with each other as individuals and their relations with the Godhead: but it also concerns the relations of people with each

other in groups. The groups have grown, have become larger and more specialized, have become Men in Society, and too often Men in Mobs. As the world fills up with people and complication of sheer number adds another dimension to the problems of the individual, we become aware that the ground of Christianity shows another dimension too. The working of a trinitarian God, an incarnate God; of the way and the truth and the life, the living exposition of the relation between contemplation/policy/results, and its return circuit in the resurrection – all these if they are true, have the very closest bearing on how men can associate in freedom.

We need a re-exploration of the truth, even the harshest truth, implicit in what Christ was and did and said; and at another remove, the truth implicit in the structure of the religion and its theology. The nature and organic law of faith, for instance, is clearly apposite to the nature of one of its analogues, credit, and so to the monetary credit based upon it, itself an intangible that has severely practical effects on the freedom of people to choose or refuse. The theology of grace is to do with the spirit; but might it not also have a bearing on the way to manage credit in order that people shall “have life, and have it more abundantly”?

Yours sincerely,
Elizabeth Dobbs

Bodifyr, Bangor, Caern.

Sentences

“Redemption” by George Herbert

*Having been tenant long to a rich Lord,
Not thriving, I resolved to be bold,
And make a suit unto him, to afford
A new small-rented lease, and cancell'd th'old.*

*In heaven at his manor I him sought;
They told me there, that he was lately gone
About some land, which he had dearly bought
Long since on earth, to take possession.*

*I straight return'd, and knowing his great birth,
Sought him accordingly in great resorts;
In cities, theatres, gardens, parks and courts;
At length I heard a ragged noise and mirth*

*Of thieves and murderers; there I him espied,
Who straight, Your suit is granted, said, and died.*

NOTES ON CONTRIBUTORS

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Gladys Keable read modern languages at Somerville College, Oxford. She has been a parson's wife in a variety of contexts, and worked with the Town and Country Planning Association. Interested in Comparative Religion and E.S.P.; author of "Squares and Circles" and editor of "Such as we are" (a book about parsons' wives written by parsons' wives).

John Hutt read psychology at Manchester University and is now a research fellow in psychology at St. Catherine's College, Oxford and co-director of the Human Development Research Unit in the University of Oxford.

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Zette Barron (we apologize for spelling her name wrong in *T. to T.* III 3) designed the cover. She still hopes to be a sculptor; at present she is occupied with an eight weeks' old daughter and in designing book covers.

The descriptions of the participants in "Translating the Bible" are given at the beginning of the Dialogue.

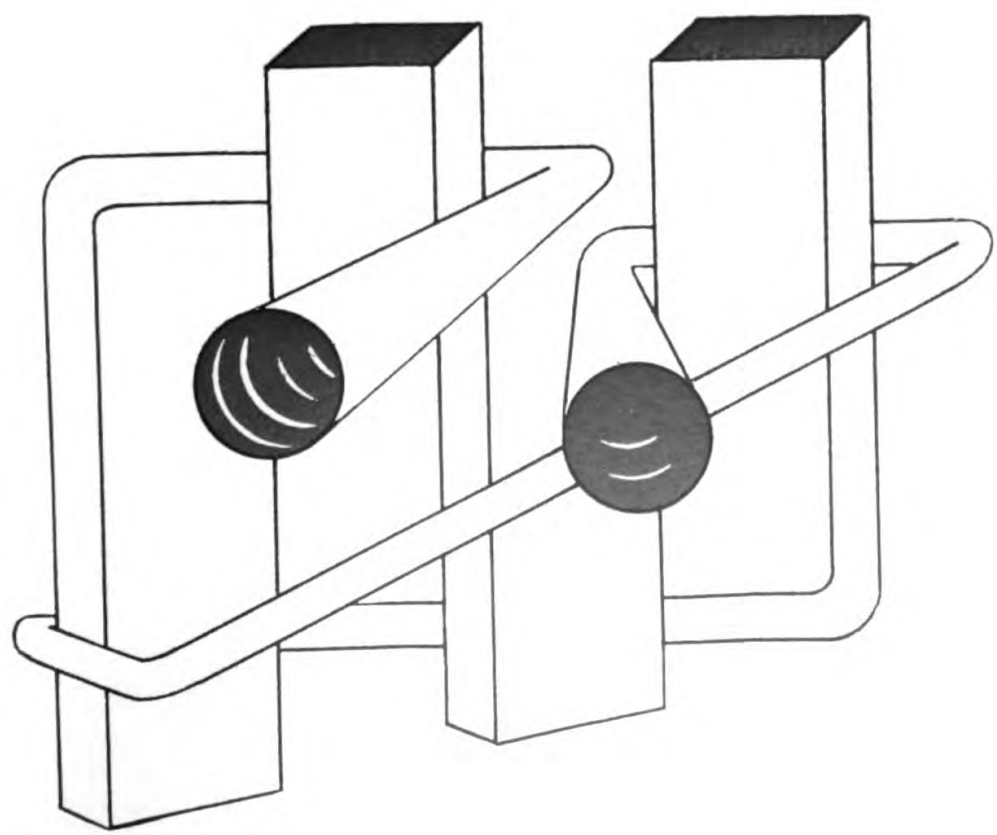
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Editorial

In this number we confront the challenge of the Yaqui Sorcerer, whose “way of knowledge” expounded in “The Teachings of Don Juan: A Yaqui Way of Knowledge” by Carlos Castaneda has for the last year been widely read by the young men and women of the “underground” sub-culture here and in the U.S.A.

That this book has been hardly heard of in the surface world of the liberal middle-aged only high-lights the disastrous gap between the “underground” and the “establishment”. In this number, moreover, we exhibit this gap. For we are also publishing the last of the articles which Thomas Merton sent us before his death. It shows his sympathy, granted, with the religious practices of other cultures, a growing anthropological interest which came out also in the letters he was writing to us. (At the time of his death he had gone to Thailand hoping to get in closer touch with Buddhist contemplatives.) Here he writes, moreover, about something superficially similar to the Yaqui religion: namely, about the cult of the “Speaking Cross” among the Mayan Indians of Yutacan. He sees it as “the voice of their own resistance” to the Ladinos who were destroying their way of life, showing his sympathy with the social significance of the cult. But the question arises: how would he have written about the Yaqui “way of knowledge”? For here political significance is surely subsidiary to a highly exacting personal search for enlightenment. This book is challenging, to Thomas Merton and all those in his tradition, on two main counts: first, on the possibility that drugs, under direction and in an ascetic practice of training, may be another way alongside the purgative way of the Catholic mystics, by which people can come to lose their self-centred defences. This could be an entirely different matter from the indiscriminate drug taking that goes in our society. The second count concerns the relations between an anthropologist and the people he studies. For this book shows there is need for an exacting kind of discipleship, and not only observation, if an anthropologist is to get beneath the surface and understand what people are getting at in their religion, and this has to be done in a way that preserves confidence and integrity on both sides. We find that some of the younger social anthropologists are intensely worried over this. Their training teaches them to look at

beliefs and practices as expressing political and social relations (and this is in effect what Thomas Merton does in his article). Some of the older anthropologists of course knew the people of the culture they were studying so well and got so far into their systems of thought that, even when they analysed these in terms of social relations, you felt they could really appreciate what it would be like to see the world like this, if only at second hand. Evans-Pritchard, for instance, committed himself deeply before he could write about Azande Witchcraft; similarly Rheo Fortune before he could write on Sorcerers of Dobu. But the currently established fashion in social anthropology, under Ph.D. pressure, is for short monographs on safe limited themes, such as kinship, kinship, and kinship. Such social anthropologists can say that they haven't time to study the religion of the society; or if they do study it, they can say that, since social anthropology has to be by its nature empirical, it must exclude the "mystical", taking the kind of definition of "mystical notions" given by Evans-Pritchard (though there is reason to think he has since changed his view) in his 1937 book, *Witchcraft, Oracles and Magic among the Azande* (p. 12): "Patterns of thought that attribute to phenomena supra-sensible qualities which, or part of which, are not derived from observation, or cannot be logically inferred from it, and which they do not possess." But mysticism can also be thought of empirically, as the art and theory of the inner life, and to anyone except a social anthropologist set on interpreting everything in terms of social relations, this is the most obvious fact about it. Moreover, this is what the young who read Carlos Castaneda on the Yaqui way of knowledge are interested in. They do not want to get onto an anthropological bandwagon and give non-controversial socio-political interpretations of religion. They see religion as *sui generis*, not to be put in a sociological, or even psychological context so much as in a primary biological one. They rightly opine that if this is so, they can learn more about it from Yaqui sorcerers than from professors of social anthropology ("I shouldn't have to pretend to the witch-doctor, but I do of course have to pretend to the academics" a very young social anthropologist said to us recently). But this kind of learning means that the field worker must apprentice himself to the person whose way he is studying, and put himself under obedience, facing all the risks to mental health, and all the problems of intellectual interpretation this involves. This is what Carlos Castaneda, who belongs to the new generation, was prepared to do,

and this is why his book constitutes a breakthrough into a serious anthropology of religious custom.

There are indeed more senior anthropologists who realize that religion cannot be adequately interpreted in sociological terms; they then supplement these by describing theological systems as well as ritual systems. They can't say more because they have not put themselves in a position where they can learn experimentally. Nevertheless they see the point. Castaneda was supported by his professor for five years to do just this for his Ph.D., and a remarkably informative book on the Peyote Religion was financed by a grant from the Anthropology Department of the University of Chicago. If the younger anthropologists can combine what the last generation is able to teach about trained observation with their own personal concern over getting at religion from inside, then what has been till now the most superficial part of social anthropology might well become the deepest.

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Biology does not treat all its creatures with equal respect. Obviously it is a better use of limited time to study a few animals and plants in considerable detail than to get a kaleidoscopic knowledge of the comparatively superficial differences among a very wide range of organisms. Obviously too, there are natural forces (we need only mention the transmission of knowledge by text books, its testing by the examination system, and the need for a stock of biological paradigms in discussion) which have the effect that everybody chooses pretty much the same selection of animals and plants.

However, there is another effect at work to produce class distinction in the biological world, so far as our interest in the organisms goes. Some animals and plants have features which become prototypic in new theories. And if we suggest to the layman that he could do worse than acquaint himself with the rather small number of prototypic organisms which are referred to constantly in the current scientific literature, we are not just proposing one of those one-upmanship courses for endowing pseudo-scientific know-how. There is a truth at the base of our technique. That is to say, the prototypic organisms go a long way towards providing the intellectual spectacles through which – at a given time – the biologist surveys nature, and that, in itself, is a fact whose significance we should certainly explore in this journal.

Anyway, in this number we start with the slime mould (*Dictyo-*

stelium). This has not provided a new experimental or teaching technique (like *Drosophila*, the fruit fly, or bacteriophages) but it could easily be the *cause célèbre* around which the fight for the need for a basic change in the concept of organism is fought, because, on most intuitive ways of thinking about organisms, it is completely astonishing.

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The contribution to our series on conservation, with its particular concern for “enhancing life through technology”, this time takes the form not of a fresh article, but of an address sent us by Geoffrey Cowley, County Planning Officer for Bedfordshire, along with a summary of his comments on our last article, “Gravel: Where Countryside Planning must Begin”. We will continue with the series as originally planned next time.

Dialogue: "Behaviour Therapy"

A discussion between H. J. Eysenck and Derek Corcoran, Dorothy Emmet and Ted Bastin.

The use of Behaviour Therapy in the treatment of neuroses amounts to an acceptance of the earlier, but obscure, Freudian hypothesis that neuroses are for the most part learned patterns of behaviour. If they are learned, they can be unlearned. The most explicit statement of the conditions under which learning occurs have been set out by the learning theorists, and behaviour therapists have attempted to apply the methods of the learning theorists to undoing neuroses. The learning theorists have been for the most part concerned with animal learning, but where their experimentation has been extended into clinical practice the results have often been extremely effective.

In general three conditions have been found necessary for learning. (1) A drive state, e.g. hunger in animals or (more applicable to the clinical situation) anxiety. (2) The response has to be made either spontaneously by the animal or by being explicitly elicited by the experimenter. (3) After the response, the drive has to be satisfied. This is referred to as positive reinforcement. The hungry animal for example receives a pellet of bread as a result of pressing a lever. In short, a response is learned when that response has resulted in a reward. A piece of neurotic behaviour is positively reinforced because it somehow reduces anxiety.

When an "undesirable" piece of behaviour exists, this can be stopped either by cutting out the reward which is contingent upon that piece of behaviour, or by the application of punishment. If, for example, the experimenter wishes to stop the rat from pressing a lever, he either arranges for no food pellets to be administered, or he arranges for the rat to receive a painful shock when it presses the lever.

The actual manner in which the neurotic behaviour succeeds in reducing anxiety or some other drive is often very obscure. It is therefore simpler to prevent the neurotic response by punishing it when it occurs. This is the basis of aversion therapy, with which the following discussion is largely concerned.

Dorothy Emmet

We have been thinking about aversion therapy and noticing in some quarters it popularly gets called torture therapy. We don't go along with that way of describing it, because, after all, the object of torture, I take it, is to break a person down, to make him confess, or make him do something you want him to do and that he very much doesn't want to do; whereas the object of any kind of therapy is presumably to do something which you assume that in some sense the person wants. Obviously he won't like some of the things you are doing to him, or it wouldn't be an aversion. But the object is to help him to get rid of some form of behaviour, some habit, which is thwarting him and worrying him, and presumably this means that you have his underlying co-operation. Of course, especially with people who are in trouble, co-operation can be a matter of more or less, and the person himself may be in a divided state. We want to ask you, among other things, how much difference this co-operation makes and what would happen if you didn't get it. Presumably success depends on getting at least a degree of co-operation, and we want to pursue the implications of this in thinking of the person himself, behind the various bundles of behaviour that you're treating by conditioning.

Ted Bastin

Perhaps a point at which to start would be the question, does aversion therapy require co-operation from the person being theraped? And is there a concept of "will" coming in here – an entity whose co-operation has to be achieved?

H. J. Eysenck

I think that with the rather mild kind of stimuli we use it would be rather difficult to achieve anything unless the person was co-operating. In principle, I don't think this is necessarily a difficulty, although I think if one used very strong stimuli then one could achieve a great deal without the co-operation and against the active hostility of the person concerned. Of course this is a purely theoretical point, because naturally one would never try to do this in an ethical institution, or an ethical type of experiment, so you just couldn't try it out. It would not be the kind of thing you would try and do, but in principle I don't see any real difficulty why this couldn't be done. I think the kind of therapy we do with rather mild shocks (there is no great pain involved) does demand co-operation, and it doesn't work at all well if the person isn't co-operative. If, for instance, you deal with a homosexual who has been sentenced by the

Court either to go to prison or to have some treatment, the results have been reported to be poor, as Freund in Czechoslovakia has shown.

Dorothy Emmet

So you don't do it with criminals unless they opt for this as an alternative to prison?

H. J. Eysenck

We've never done it with criminals at all.

Dorothy Emmet

Never done it with criminals at all? I thought you had suggested that this might be done in your book "Crime and Personality".

H. J. Eysenck

I'm suggesting that it would be a good idea, but it has never been tried.

Dorothy Emmet

There might be a problem of co-operation in those cases, mightn't there?

H. J. Eysenck

I would be very averse to doing aversion therapy without having the active co-operation of the person. I don't think there would be much difficulty with most criminals. They don't really like being criminals, they don't enjoy it, and in fact when I wrote that book, I had quite a few letters from criminals who wrote "Couldn't you do something for me?" I think something could be done, but it would be very difficult, and I don't think it would be ethically feasible.

Derek Corcoran

Would you say the type of criminals who wrote to you were psychopaths?

H. J. Eysenck

This is very difficult to know, because from what they say one can't really form an accurate picture, but I do know that many criminals are very unhappy with their state, and they would dearly like to be

rid of it. But they have this impulsive, compulsive type of behaviour, and they are not able to do anything about it. Putting them in prison doesn't help them any, so they are naturally concerned. In fact, we find that criminals show about as high a degree of emotional instability as diagnosed neurotics in the non-criminal population. They are ill—a number of them—and they would welcome treatment.

Dorothy Emmet

What about cases I have heard of anecdotally, of alcoholics, who get together in a pub and say “we can beat this therapy” (which in this case consists of being given an emetic)? They say “We can be sick and we can go and have another drink. It's worth being sick for another whisky.” Do you get this kind of counter co-operation going on, with people pitting themselves against the therapist?

H. J. Eysenck

I don't think one would undertake such a contest. I think there would be very little point to it. If someone doesn't want to be cured, he doesn't have to be cured. I mean there are so many people who want to be cured, you don't go out of your way to find people that don't want it and then impose it on them. I think it would be absurd, even if it were strictly feasible.

Derek Corcoran

Well, actually there was such a case quoted in Rachman and Teasdale's “Aversion Therapy and Behaviour Disorders”, and I think that this must therefore be a case in which, although the chap said “I want this kind of treatment”, in fact he didn't, and I think that we are all interested in pursuing this kind of distinction. What does it mean to be co-operative?

H. J. Eysenck

You have many cases where the kind of thing happens that I mentioned in relation to homosexuality. A person is told either to go to prison or go to treatment, so he is under duress in a way. This is not a voluntary seeking of treatment, and we would never treat a person under those conditions. Other people do. You know, you can't dictate to other people what they should do, and of course aversion therapy for alcoholism has been quite widely used for

many years by many different people. Some presumably have a different outlook on what is permissible, or what should be done, and treat people who are in a sense under duress. They're told they'd be dismissed from their job if they don't take a cure. I think this is not right, but then I have no right to impose my ethical views on my colleagues even if I had the ability, which of course I haven't. We deal with people who are genuinely willing to have the treatment.

Dorothy Emmet

Of course, being "genuinely willing" is a rather difficult notion too, because here's this word "will", which is a word of common speech and a word that philosophers use. I know we have got to think what it means in rather more operational language. There is this "willing" and "partly willing", the divided self, inner conflicts. How much does this aversion therapy theory build up positive motives in people?

H. J. Eysenck

Essentially what aversion therapy does is to take a type of behaviour which quite obviously has positive and negative consequences. The positive consequences are usually direct. You drink and therefore you reduce the anxiety. You have homosexual intercourse and therefore your sex appetites are satisfied, and so on. On the other hand, there also are negative consequences. You drink and you have the after effects. You may be unable to do your job. Your marriage may break up. Similarly with homosexuality, you may be sent to prison, or at least you used to be, and even now this behaviour is still widely disapproved of. You have positive and negative consequences and to any intelligent person these are perfectly obvious. If the negative consequences to him outweigh the positive ones, he tends to seek help of his own free will, as it were. Now it may be that he is actually caught in doing something illegal and then the negative consequences are piled up by society through its legal representatives in such a way as to put him in an impossible position. Although he himself would prefer to continue as a homosexual or drunkard, or whatever it might be, yet society insists he must stop this and places him under duress. I think one can distinguish these two pressures. If everybody accepted homosexuality quite freely and without difficulty, then presumably the

homosexual wouldn't in many circumstances feel under any negative pressure at all, and be quite happy and continue in this way.

Ted Bastin

He gives intellectual assent to the desirability of making a change in himself.

H. J. Eysenck

Oh, it's more than that. He feels emotionally the undesirability of being different from other people. He sees that other people have families and are happy having children, and so on. It's very difficult in fact to know what all these pressures do, to what extent they are rational, and to what extent they are emotional. They certainly are very strong. A few years ago I gave a lecture on this, and at the end of it a well known Q.C. came to see me and said he was a homosexual. He had been having treatment for many years, but it hadn't done any good and could we do anything for him by way of this type of therapy? There wasn't any provision at the time, and within a few weeks he committed suicide. The pressures are very real. He obviously wanted treatment, there is no question of that. One could still argue that society had driven him into it, but then you ultimately must leave it to the individual, I think, to decide whether he wants treatment or not.

Ted Bastin

Yes.

H. J. Eysenck

And if he definitely of his own free will, without direct pressure, asserts that he does so, then all I think one can do is to accept him and say "we will do the best we can for you". Then we should explain exactly what it is that we are planning to do, get his approval to that course of action, and then go ahead. I think if one accepts these general rules of conduct there is nothing unethical or undesirable being done.

Ted Bastin

I think that on this initial question, we're all agreed actually: that there's nothing unethical when a person has given any kind of assent. What would you, Dorothy, say about the use of the concept "will"?

Dorothy Emmet

Well, this division is a very old story. I think part of the difficulty is talking about the “will” as though it were a kind of organ in a person, which clearly it isn’t, rather than about the person himself. People talk about “will” for one reason because they feel a need, rightly or wrongly, to talk about some integrative power over their separate pushes and pulls. I should like to hear Professor Eysenck say more about how far his therapy is not necessarily aversion therapy, and whether the other kinds of conditioning therapy are concerned with helping to build up these integrative functions in a person. If you are just correcting a particular bit of maladjusted behaviour, it is rather like undoing a bit of knitting that’s gone wrong, and then you are back to the beginning again, but not necessarily helping forward development in integrative powers.

H. J. Eysenck

The bits of behaviour are quite specific, and so what is done *is* like picking up the knitting and changing specific items. These may cover quite a wide area, but the treatment does not attempt to go beyond that. The kind of concepts that you mention are well beyond the empirical at the moment, and there’s nothing we can do about them. Freudians claim they can, but there’s no evidence that they really do or can.

Dorothy Emmet

I think we are in a difficulty here if we say these things are beyond the empirical and so we can’t do anything about them, in that then we seem to have a dichotomy between the things that can come within a fairly tight scientific method, so that you say this is a problem that you can deal with, and the things which you will say are just vague, or anecdotal, or mystical, or what not, and right outside the range of any kind of scientific, or even rational treatment. What do you do about this kind of hinterland, where there is a good deal of knowledge and wisdom of an unsystematic kind, which is possibly a sort of proto-science?

Ted Bastin

Dorothy’s point is that a great deal of the traditional knowledge is directly experiential and only fails to qualify as part of what Medawar calls the “art of the possible” because it is not within the

currently accepted framework of ideas. But now these frameworks of ideas are really very much subject to change and – at worst – to fashion, and the ordinary intelligent man must have some protection for his own judgement in singling out those things to which he will attach primary importance with some independence of what happens currently to be thought “possible” in Medawar’s sense.

H. J. Eysenck

What sort of things are you referring to?

Dorothy Emmet

He is thinking of the wide range of factual knowledge claimed by a consensus of contemplative traditions. But in relation to our present problem can I ask you what is currently known now about such things as personality structure? What do you think is really solidly known in character analysis?

H. J. Eysenck

I think quite a good bit really.

Dorothy Emmet

Some psychologists would talk about the “ego”. Would you?

H. J. Eysenck

Oh, well, no. Now we are outside the “art”. No. I think this would be dealing with a different meaning of the term “personality”, from any which I think scientifically feasible. There are certain invariants in people’s behaviour – certain patterns of behaviour which are reproducible. These can be described fairly accurately in terms of certain dimensions, and we may even be able to go beyond them and find physiological and anatomical attributes which can be linked with these dimensions, and which serve as causes or partial causes for kinds of behaviour. But when you come to “ego” and suchlike terms, though they are used widely by different people in different ways, they mean nothing to me.

Dorothy Emmet

But one trouble in sticking to the more detailed questions where you feel you understand the terms, and in leaving out this hinterland of a vaguer kind of talking, is that some of the questions that arise in this

hinterland are questions that people are very concerned about. Take the hippy world, where they are searching for “expansions of consciousness”, and are exploring powers of the personality, often at great risk. If the scientists say, “All this is outside our purview and we can’t say anything about it,” you can get, and in fact are getting, an anti-scientific backlash in which all kinds of things like astrology come back, with these people saying their world is something completely different from the scientific world.

H. J. Eysenck

But the scientist doesn’t leave this out at all. We have studied the personality patterns of drug addicts and others, and they fit perfectly intelligibly into the general scheme. We have studied methods of treating drug addiction, e.g., heroin addiction, through aversion therapy, and we have shown that it can be done.

Dorothy Emmet

That’s treating the abnormalities of these things, isn’t it? It’s not asking “What is it that these people are after”? Perhaps that’s a philosophic question.

Derek Corcoran

Can I give you a concrete example? It may surprise you that some years back we were thinking of starting on a programme of applied psychology on water divining – not that we felt that there was necessarily anything in this, but a few of us felt that there might be. We got some experts down to talk about the phenomenon. In a few experiments there was a high hit rate and a high false alarm rate. We never got around to doing the research properly because of financial and time considerations, but there was a general feeling, amongst a few of us anyway, that these were the kind of problems which psychologists really ought to be dealing with. If one goes a step further and looks at the sort of thing which mystics of various kinds are able to achieve, is there a clear method by way of conditioning techniques to study this sort of behaviour? Are you thinking in these terms or not?

H. J. Eysenck

Well as you know, I’ve always been interested in E.S.P. We’ve done some work on relations between personality and E.S.P. performance

in conditioning of automatic responses, and things of that kind. What I'm really saying is this. We are restricted at the moment in saying anything scientific about most things, because not enough research has been done. I'm all in favour as you know, of a vast increase in good scientific research into all these fields, but until it's done, it's no good guessing or speculating what it might result in, or what I think might happen. You can formulate your hypothesis, you can get the money, you can do the research and then you know. But at the moment, when the research hasn't been done, and nothing worth while is being done in these areas, what can one say? After all, the only reason why you talk to me or anybody wants to talk to me, is because these are things I *know*. It is useless for me to talk about things I don't know, because there I'm no better and no worse than anybody else.

Dorothy Emmet

I'm puzzling a bit about your saying that people don't want to talk to you, or ask you about the things that you don't know. Don't you discuss with your colleagues things you would like to know and possible kinds of investigation that might be done? Mustn't there be an exploratory proto-scientific stage besides the much more formulated stage of scientific work?

H. J. Eysenck

Yes. But this is because of its relationship to problems we've already solved.

Dorothy Emmet

Certainly. But can't you extrapolate out from this into other problems?

H. J. Eysenck

Oh, yes, but you do it in the interests of the methodology, to see how best to do it and so on; you are not concerned with hypothetical answers. Almost every day, sometimes more than once a day, the papers and the B.B.C. and so on keep ringing me up and say what about this, that, and the other, and in about 95% of the cases, I say there's a psychiatrist on the other side who can give you an answer to everything you can possibly ask, but I've no idea what the answer is. Psychiatrists will speculate on all these things, and

they all have their theories, but they're all different of course, and there is no real experimental evidence on any of it, so it's useless. The only thing I have to contribute is experimental knowledge, and where there isn't any, I have nothing to contribute. I don't even tend very much to think about these things. It is an attitude of mind which infuriates many people, but that is the kind of contribution I make. Philosophers make a different one, psychiatrists make a different one, psychoanalysts make a different one, everybody has his own contribution to make, but this is mine. Accurate, factual, empirical knowledge and theory based very closely on that.

Derek Corcoran

What do you think the contributions of some of these other people are?

H. J. Eysenck

Well, by and large I think they tend to be negative rather than positive.

Dorothy Emmet

That's hardly a contribution, is it?

H. J. Eysenck

Well, that is an opinion of course. Many people do find them interesting, so they must feel that they do contribute something.

Dorothy Emmet

And do you feel at all that any of them are calling attention to problems that might be investigated if someone could hit on techniques for investigating them?

H. J. Eysenck

There isn't much point in going on calling attention to things that people have been calling attention to for two thousand years or more. I mean, the thing is to give experimentalists more money and facilities. That is all that is needed. We don't need to have our attention drawn to these things that need study, we know it only too well.

Ted Bastin

As a physicist I certainly would not be able to agree with that,

because I'm all too well aware of the troubles and worries that arise when one hasn't the concepts in terms of which even to formulate the questions one wants to investigate experimentally.

H. J. Eysenck

This is not our problem.

Ted Bastin

Isn't it? I'll take as an extreme case that vast area which is covered inadequately by the words "Extra-Sensory Perception". We don't know how to deal with the situation in which more complex relationships exist than can be explained by a simply ordered, universal time, and yet I am very empirical over this. I experiment myself and have persuaded myself "precognition" happens, but we have not got the ideas in terms of which to deal with it. Now it looks as though what is true of this admittedly extreme case is true very generally in psychology. Besides you've given your case away with your remark about "the art of the possible". There must be a place for people who are trying to make new conceptual areas "possible". I strongly suspect that your hard case experimentalism is a reaction to current bad thinking rather than to thinking *per se* in psychology.

However, I don't think we pursued the place of the will in therapy far enough. You see, on the one hand you said you thought in principle there was no reason why the support of the person should be obtained before you went in for aversion therapy. On the other hand you said that as an ethical man you wouldn't ever go ahead without having procured it. Could we discuss your hunch that there is no reason in principle why you shouldn't, quite independently of the question of expediency?

H. J. Eysenck

One obvious answer is that occasionally the conditioning has side effects which were not intended, which were not approved by the person or by you, but which nevertheless occur. As an example, take heroin addiction. The kind of conditioning that has been used was with Scoline which is a drug which produces paralysis of the musculature of the chest wall, and therefore completely stops breathing for a period of ninety seconds. The procedure is that the person is injected with the Scoline and it can be monitored quite accurately within a second or so. He is then told to inject himself

with the heroin, so the heroin injection is immediately followed by paralysis and fear of dying because he can't breathe. But of course, he'll be dead anyway within five years if we let him go on, so that this is justified, and of course, he's given his consent to it anyway. This is done four or five times, and works extremely well. But one of these people had to go into hospital after a year or more, for an operation, quite unconnected with his addiction, and one could not give him an injection for the anaesthetic, because he just about went out of the window. He just couldn't tolerate an injection. It was injections he feared, not the heroin. Even in this quite different connection, it was still impossible for him to accept the injection. So I'm sure there's no doubt if you take this kind of Scoline injection as an aversive stimulus it has such a profound effect that whether a person wants to collaborate or not would make very little difference.

Dorothy Emmet

I gather from your book "The Cause and Cure of Neurosis" that for a good many of these treatments there has been *less* emphasis put on the aversion types of therapy and more on some of the reconditioning, reinforcing types and that aversion therapy is more of a last resort.

H. J. Eysenck

Aversion therapy produces a lot of discussion and comment, but if you take the number of actual types of treatment administered, it forms less than 1% of the total; it is very rare in fact and usually only done on an experimental basis. Phil Heldman is doing some work on homosexuals in Birmingham, and one or two other people here have done some, but that is about the lot.

Ted Bastin

If you produce an aversion to people of their own sex, do patients acquire a liking for the other sex?

H. J. Eysenck

Not automatically. What you try to do is to produce that by inverting the whole process. The procedure would be that they are shown a picture of a nude male and given a shock, and then the offset of the shock is accompanied by the disappearance of that picture and the

appearance of a nude female, so that the relief, the positive reinforcement, is associated with a female and the aversive feeling with a male. You have to condition a positive response to the female and a negative one to the male. They're both probably equally important, but of course, you have to go a lot further than that. You have to teach the person the technique of meeting women and becoming familiar with them and talking to them. You have to go a long way beyond the simple aversive conditioning, which is only the first step. There is a lot more to an active treatment than just the conditioning part.

Derek Corcoran

The technique of imagining a noxious stimulus seems to be very effective. This technique seems to be possible only with full co-operation from the patient. If it doesn't work, therefore, it would seem wrong to use aversion therapy on this patient, who has already demonstrated his unwillingness for therapy. It follows that one should always try the "imagination" technique first, but if one fails one should not use aversion therapy because one has by definition an unwilling patient.

H. J. Eysenck

That doesn't follow, because many people find it difficult to imagine things at all, and so they just can't imagine strongly enough to have any effect, though there is no doubt they are trying very hard. The "imagination" technique just doesn't work with everybody. But it is a very useful and good method, although, frankly, I would rather have the not very severe shocks you get than imagine rather disgusting scenes as you have to do in this method. You see, people complain about "torture", but the shocks are so mild usually, that I wouldn't mind having them at all. I'd rather have the shocks than go to the dentist any day. In fact in many cases it's just a loud noise, not a shock at all. They are very mildly aversive stimuli.

Dorothy Emmet

Do you find there are cases in which people come to like them?

H. J. Eysenck

No.

Dorothy Emmet

Not a kind of masochistic enjoyment?

H. J. Eysenck

We have tried the treatment with masochists. We find if the aversive stimuli are reversed, they are masochistic only about a certain highly specific kind of stimulus, not the kind we apply. They dislike these just as much as anybody else.

Dorothy Emmet

And this is something you have got wise to? But we've said that these techniques are really to decondition something that has gone wrong, like the mistakes in a piece of knitting which you can start again. What about the kind of processes that are building a person up, not necessarily correcting something that has gone wrong? This would be a matter that would be very important for educational psychologists, and in the whole sphere of contemplative development. What sort of things show that people are making advances in these powers of integration?

H. J. Eysenck

I've tried to deal with questions like that in my book on "Crime and Personality" where I suggested the building up of an integrated conscience is in fact a simple conditioning therapy.

Dorothy Emmet

I wonder about that. Granted that this is a lot of the picture, again there is the question of internal effort – this something that the old people called "will". Would you say something about self-motivation? If you set tasks in which there would be a kind of inner satisfaction in getting further in surmounting the tasks, how does that fit into the conditioning model?

H. J. Eysenck

I don't know. I'm not really over fond of things which are subtle. I have a very simple mind, in fact most of my critics say I tend to over simplify, which I think is perfectly true. I think you must in science, certainly at the beginning. If you take too many things into account and are too subtle, then nothing happens.

Ted Bastin

But the association theory on which you're working is pretty subtle. It's only that you're used to it – conditioned to it.

H. J. Eysenck

You might say its elaboration has many subtle elements which only the experts can appreciate, but in essence it is a very simple way of looking at things. It's a simple conditioning model.

Ted Bastin

If I tried to write out the presuppositions for you, I don't mean in a formal way, but in a quite straightforward way, I think I might find that it was a very complicated task.

H. J. Eysenck

There are two opposites to "simple". One is "complex", the other is "subtle". I think learning theory is probably quite complex. But it isn't subtle in the sense of, for example, Cromwell Taylor's work. What is subtle about that is that it takes into account interpretations of very slight movements and reactions and so on, which are hardly quantifiable in any sort of way. This is "subtle" in the psycho-analytic sense, in the sense of the good observer as it's sometimes called. I think this is quite a different thing to the kind of complexity that we deal with. An example of simplicity – by contrast – can be seen in the treatment of children, and others too, who injure themselves, bang their heads, maybe cut their retinas and become blind. These presented a very grave and severe psychiatric problem which demanded attention and which nobody really had ever been able to solve. The usual psychiatric technique of saying to the children "how terrible" and trying to comfort them and be nice and kind to them, had the opposite effect. It only made them worse. So they worked out a very simple hypothesis, that the children were actually being reinforced in this kind of behaviour by the attention given them and that the answer was, the moment they started this behaviour, to take them to a room, and leave them there for 15 minutes by themselves. Don't talk to them, don't upbraid them, don't blame, don't say anything, simply pick them up, put them in a room, lock the door. Full stop. After 15 minutes they are let out. Still nothing is said. The moment they behave in this fashion again, off they go again. And within a matter of weeks the children were completely cured.

Ted Bastin

Now I'm sorry I've missed the moral of this. Is this aversion therapy?

H. J. Eysenck

I suppose it is in a sense. It is a simple contingency of negative reinforcement. You could call it aversion therapy.

Dorothy Emmet

It's a method which on a crude level parents with small children have often adopted.

H. J. Eysenck

Of course. It is an extremely simple method. You might say the background is sophisticated and complex, but the thing itself is as simple as any method can be. Anybody can be trained to do it, and the theory itself is relatively simple.

Ted Bastin

Well, myself I accept the difference between subtle and complex, and let me put up another simple theory, by which I mean a theory which is not subtle, rather traditional in fact, but I'm not sure how widespread it ever was. It deals with what we might call aversion therapy, but with an entirely different gloss, not the association gloss. Now, traditionally, contemplatives have indulged in various forms of disciplining themselves, which they hope will produce good results. Some of these of course, have been very extreme and violent, but let's consider those cases which were not violent, even the sort of public school business of having a cold shower in the morning, which actually I think is horrible, much worse than your electric shocks. Then of course, there are the forms of mild flagellation, "taking the discipline" as it's called, which, being an enquiring kind of person, I've experimented with, and again it isn't as bad as cold showers; it might be slightly worse than your shocks, it's probably much the same. Now an interesting thing happens, and this is very general. You break through a sort of crust of inertia and dreaminess, and you actually get back to something nearer to your real will, your real personality; you can do it rather fast this way. Some unfortunate people who, I suppose, are schizophrenic, but I don't know, find this almost impossible to do, and more fortunate people have elements of schizophrenia and elements of other things; but they are familiar with, for example, working themselves up to give a lecture, and they know they've got to break away from this sort of imaginative wandering on the surface, and get down to something

else. Now I have no space to look in detail at the effects of the violence (which does not have to be physical). It seems natural to compare it with your aversion therapy, but I bring it up in order to suggest that there might be a different background theory from yours. You see, it is possible to decide as an intellectual policy that a change whose desirability you cannot at the present feel, is yet necessary, and then to take steps which change your state of mind in a predictable way so that you come to feel it.

H. J. Eysenck

Yes. I am not sure I quite understand what you are asserting. I have a feeling we probably disagree profoundly on the status of mental activity, which to me would be a response in the behaviourist sense, and it is very interesting that you can change mental activity of this kind just as you can change any other response by behaviour therapy. For instance, take psychotics who have delusional systems and talk about them. On the behavioural hypothesis, you could say that they do this because they are positively reinforced by people actually listening to the stuff they say. Therefore if you now tell all your nurses to turn away and go off, the moment they start talking about these delusions and hallucinations and God knows what, they would very soon stop doing this and behave in a perfectly normal and rational manner. And indeed they do.

Ted Bastin

But that can't be true; I thought schizophrenics poured the stuff out whether you listened or not?

H. J. Eysenck

They love every psychiatrist to listen to them, that is their *raison d'être* as it were. The moment you take the opposite line, within a very short period of time they stop, just as with these children whom you put in the room, when you simply turn and go away and never listen to them, and make sure that nobody else will listen to them.

Derek Corcoran

But even if they stop the talk of hallucinations and so on, would they ever stop being schizophrenic?

H. J. Eysenck

That's a good question. But is a person schizophrenic who does not in fact show any symptoms of this?

Derek Corcoran

Well, if at any time anybody is willing to listen to them again, one would expect them to start talking about hallucinations.

H. J. Eysenck

This might be true of people who are not schizophrenics.

Derek Corcoran

Now, if I may ask a question on slightly a different level, about this emphasis upon neurotic behaviour as being learned and so on. How do you get from the assumption that neurotic behaviour is learned, to a statement like its being "located in the limbic system of the brain"?

H. J. Eysenck

Well, the answer would be that people differ innately in the strength of their emotional responses to stimuli, pain, surprise and so on, that neurotic and maladaptive responses are usually conditioned emotional responses and the stronger the innate emotional response, the more likely the person is to acquire these neurotic conditioned responses which are abnormal, unusual and gimmicky, but classifiable.

Derek Corcoran

So the limbic system acts as a sort of emotional well: the neurotic response is present in the cerebral cortex, which feeds information to the limbic system more frequently in neurotics than in normals? Or is the information fed from the cortex perhaps different in neurotics from what it is in normals?

H. J. Eysenck

Well, no. It is simply that an occasion arises when an emotional reaction becomes conditional to certain neural stimuli which happen to be present. In another person the reaction is rather weak and therefore the conditioned response is rather weak and easily extinguished. In the person with a strong reaction it does not extinguish but produces a whole host of after effects and he begins to develop a neurosis. He is predisposed to this because he has such a very strong emotional and autonomic reaction to this particular situation where another person might not have one at all.

Ted Bastin

He's more frightened in fact of people.

H. J. Eysenck

Yes.

Derek Corcoran

So that the basic statement of the difference between normals and neurotics is the extent to which the limbic or anxiety system, or whatever you like to call it, reacts in one and not the other.

H. J. Eysenck

That is one essential difference. Yes.

Derek Corcoran

What you say rather suggests that you equate neuroticism with lability in the limbic system so that neurotic tendencies tend to strengthen people's emotional responses.

H. J. Eysenck

What I'm saying is that people with a strong emotional response are predisposed to developing neurotic disorders. It's like saying that a person with brittle bones is liable to fractures more than a person with very strong bones. It doesn't mean that he must get a brittle fracture because he may never go out skiing or expose himself to this kind of danger while another person who has very strong bones may jump from an aeroplane and break his legs. Naturally, there is no perfect correlation; all I'm saying is there is a much greater liability in such a person, particularly when strong emotional response is linked with introversion and a greater conditionability. If neurotic responses are conditioned autonomic reactions, then obviously a person who conditions easily and a person who has strong autonomic responses is predisposed to neurosis. He doesn't necessarily get it, but there's a strong predisposition.

Derek Corcoran

What about the psychopath? He's neurotic so presumably he has a high autonomic reaction, yet he's neurotic because he hasn't learned to be socialised. This seems a bit strange doesn't it? Because in this case you've got somebody with a high emotional drive who has totally failed to be conditioned.

H. J. Eysenck

Yes. In him the conditioning apparatus is working poorly. There is an experiment I did with rats, criminal and neurotic rats, in which we laid down a rule that we rang a bell and at the same time we deposited food in a trough, and then we laid down a rule that within three seconds no rat was allowed to eat. If they did, they were given an electric shock. If they waited three seconds then they were perfectly all right and could eat. Now we tried this on two groups of animals that had been specially bred for high emotionality and low emotionality, and the prediction was that in these groups there were three possible reactions, one being the psychopathic criminal one, where they go and eat within the three second period, get their shock, and yet eat at the same time. That's the criminal reaction.

Derek Corcoran

They don't care, they're going to eat anyway.

H. J. Eysenck

That's right. In the integrated normal reaction, they wait and then eat, and in the neurotic reaction they go in the corner and won't eat because the danger is too strong for them. And the hypothesis I had of the effects of emotion was that emotion would push the extremes further apart. In other words, that there would be far more criminals and far more neurotics in the emotional stream than in the unemotional one, who would be mostly integrated, and this is what we did find.

Ted Bastin

What was the definition of "emotional"? I mean the criterion.

H. J. Eysenck

The criterion for emotionality was the open field situation, in which you put a rat in an arena which is very brightly lit with a lot of loud noise, and then count the number of faeces it deposits within three minutes. This is a very good sign of fear reaction, and it correlates very highly with other autonomic reactions – other fear reactions of various kinds.

Dorothy Emmet

But when *people* come to you for therapy, you have said that you look for their co-operation. Doesn't this mean they see their condi-

tion as presenting them with a problem they can't solve by themselves, and they want you to help them? Isn't their being prepared to co-operate with you a rational effort on their part?

H. J. Eysenck

I think people are far too optimistic about the effect of reason on anything. I'm very pessimistic.

Dorothy Emmet

Reason may not come in much, but the possibility of the therapist being able to enlist interest in the problem ought not to be ignored. Obviously this would come into the kinds of therapy which claim to uncover underlying causes of neuroses. You don't proceed like this; but in your method, bad conditioning constitutes at any rate a practical problem in the patient's life, and he can be seeing it as such.

H. J. Eysenck

The real question is, what does a person regard as a problem? I remember a very amusing occasion when Aubrey Lewis, who was a Professor of Psychiatry and a very clever and learned man, had an argument with a patient who was a psychopath, who was also very clever and he had a philosophy degree from Cambridge. . . . Anyway, the psychopath was arguing that it wasn't reasonable for him to be here because he was behaving in a perfectly rational and simple manner and Lewis was arguing that he was not. Now I could have predicted, in fact I *did* predict, that Lewis was bound to lose the argument, as he did in fact, because if you want to have an argument you must have premises which are agreed. If the premises are not agreed you can't have an argument at all. He was appealing to premises of a religious or generally social nature; and the psychopath was not willing to admit the premises; therefore he was obviously in a much stronger position, since he could always deny what Lewis was saying. The two people had a quite different problem; Lewis was trying to make this person behave in a socially agreed fashion, while this person had quite a different problem which was to deal intellectually with this attempt. He found it much easier. If he had had the same problem, saying "I'm a criminal, I do wrong things, how can I be cured?" then your point might be relevant. It might help, but this problem was precisely not his problem intellectually.

Dorothy Emmet

So when you talk about co-operation, you are not meaning that co-operation is possible to the degree that you and the patient both see the situation as a problem?

H. J. Eysenck

This was impossible with this particular person.

Dorothy Emmet

This person was a psychopath, but with your kind of patients, or many of those we were talking about in the beginning, co-operation does mean a common ability to look at the problem and think there may be a solution to it, which is, after all, a rational exercise.

H. J. Eysenck

Yes, but they wouldn't come to you if they could solve it rationally.

Dorothy Emmet

They're coming to you to support a rational bit of themselves by particular methods, aren't they?

H. J. Eysenck

No. They are anxious and depressed, they have worries and so on which are recognized as unreasonable, or they are suffering sexual difficulty – there may be all sorts of reasons – and they come to you because they cannot see how reason applies to this at all. Why am I afraid of cats? It's ridiculous. I know cats are nice animals, they don't hurt you. Why am I so mortally afraid of them? What can I do?

Dorothy Emmet

But what I mean is, there's a sort of reasoning involved here isn't there? *Why* am I afraid of cats? Or rather, how can I get out of this state of being afraid of cats? And this is asking a question to which they want you to help them get an answer.

H. J. Eysenck

Yes, but the point is they can't answer any of these questions rationally, and even to explain to them that the reason is that there has been a conditioning incident in the past doesn't help them either, though intellectually they are quite happy to agree to this.

Dorothy Emmet

Doesn't it even help them to know there has been a traumatic experience in the past that has produced this condition?

Ted Bastin

Do they admit their fears are unreasonable?

H. J. Eysenck

Oh, yes; a neurotic knows perfectly well that his fears are unreasonable and there's nothing he can do about it. He's still got them, and no argument will ever do anything to help them, just as with your heroin addict or your alcoholic. Reason doesn't come into these things.

Ted Bastin

This is not where I wanted to inject reason into it. Is this where you wanted to put reason in, Dorothy?

Dorothy Emmet

No. I wanted to put reason in in connection with this business of co-operation – whether you are not much more likely to get co-operation if the person is seeing that there is a problem and this in itself seems to me to be reasonable if there is indeed a problem. I don't mean that he understands the nature of the problem and its solution, for after all there are all sorts of degrees of rationality, but if he is aware of a problem at all, you have got at any rate a bit of his thinking on your side.

H. J. Eysenck

But essentially people come because they are unhappy.

Dorothy Emmet

And they are saying "Why am I unhappy?"

H. J. Eysenck

They find they are struggling and they can't do anything about it.

Dorothy Emmet

They are saying "Why am I afraid of cats?", and what you are doing in behaviour therapy is something which gets their body onto the side of whatever it is in them that is wanting to be cured of their phobia.

H. J. Eysenck

Exactly. There is a specific connection in their nervous system between the autonomic reaction and a particular stimulus or set of stimuli which has gone wrong. You don't have to worry about the rest of their personality at all. This doesn't come into it in the majority of cases. We simply have to worry about deconditioning this particular conditioned response. Just as when I've got a broken arm, you don't have to worry about the rest of my personality, you've just got to set the thing, and let it knit.

Dorothy Emmet

And you are satisfied that there isn't a symptom substitution in some cases, where you cure one condition and then another appears?

H. J. Eysenck

This just doesn't happen.

Dorothy Emmet

So it comes back, doesn't it, to yours being a method for dealing with particular maladapted bits of behaviour rather than an interest in more central things about how people develop and grow, and solve problems, and so forth, which might indeed be another kind or branch of psychology even if a pretty inexact one?

H. J. Eysenck

Well, it certainly is an aspect of psychology which is important, but one of which we know very little.

Ted Bastin

What is the change you want to produce with your kind of treatment? What would you like in principle to do to a person – experimentally? Let me lead up to my question. I know a woman who was mentally tortured by Russian Secret Police at the time of the Bolshevik revolution; she was a Russian noblewoman. Their object appeared to be to break her down. They greatly admired her, but in a certain sense they wanted to put her to the test and see how much she could take. She survived several years of this, and in the course of it her husband was shot. She went through it, and finished up a very remarkable personality capable of pulling all sorts of people out of psychological trouble rather easily. Now is this the sort

of thing you are imagining? I gather you are trying to get rid of arbitrarily learned reactions. I imagine, for you, there isn't anything underneath that, or you don't know what it is, so you don't want to talk about it. Is that so?

Dorothy Emmet

I think if you're talking about the brainwashing technique of the Russians and the Chinese, the people who do this are taking a great deal more on themselves than a therapist would, in trying to remove one set of values and instill into the person another set of values.

Ted Bastin

Now is that a separate process, or do people automatically take on the values that are suggested to them? The woman I'm talking about definitely didn't take on the suggested values. She stood up to the treatment, but I think there probably was a state when she felt completely stripped of everything but something in her survived.

Dorothy Emmet

She said she mainly stood up to the treatment because she is also an artist and a writer, and she had an intense interest in what might be going on in the minds of the people who were cross questioning her and in trying to imagine the situation from both points of view. She had a kind of novelist's interest in it, and this kept her going. This is what I would call in a broad sense a rational response. She said that if they got you into a hysterical, emotional state, you were done; and I would have thought torturers were trying to get you into an emotional state and then change your values.

Ted Bastin

I think they were trying to get her into that state. Well, now, can we ask what you make of this? Do you want to say maybe there is such a personality which continues to exist beyond all the, so to speak, arbitrarily learned associations or do you say you doubt such a thing exists, or what? Dorothy and I have come to this position without any collusion because we usually think quite differently.

H. J. Eysenck

Well, I would take a rather Kantian view if you will forgive me.

Dorothy Emmet

We'll certainly forgive you.

H. J. Eysenck

A person has a sort of pre-ordained and innate system into which he feeds these accidental learning experiences that are necessary to make up what we recognize as a personality. Without that there would be nothing – without categories of space and time and that kind of thing. Personality as we know it is in fact these experiences in this framework.

Dorothy Emmet

If I may also be Kantian, I'd say, yes, all that, but there is also what Kant called the "original synthetic unity of apperception", that is to say a kind of integrating power of saying that experience is *my* experience, bringing each new experience into relation with the rest of one's experience. Maybe the trouble with some of these neurotics is that, their experiences are detached from that integration, so that this doesn't happen.

Prototypic Organisms: The Slime Mould*

There exist among the rotting leaves on forest floors, a class of creatures known technically as the *Acrasiales* (from the Greek, meaning *unmixed*) and popularly as the slime moulds.

As they perform their ecological function of contributing to the decay sequence they live as amoeba, freely, each wandering separately over its chosen area ingesting bacteria by *phagocytosis*, by surrounding and enclosing its prey animal, incorporating it literally into its flesh. The following description of its behavior, while generally true of all the eight or nine species of this class, refers particularly to the species *Dictyostelium disocideum*, which was identified in 1935 by a soil chemist named Kenneth B. Raper, who worked at that time for the United States Department of Agriculture in Washington. Raper found that this particular species of slime mould (unlike many others) submitted easily to conditions of captivity, flourishing under a wide range of humidity and temperature gradients. Because of this it soon became the primary animal used by laboratory students of its behavior.

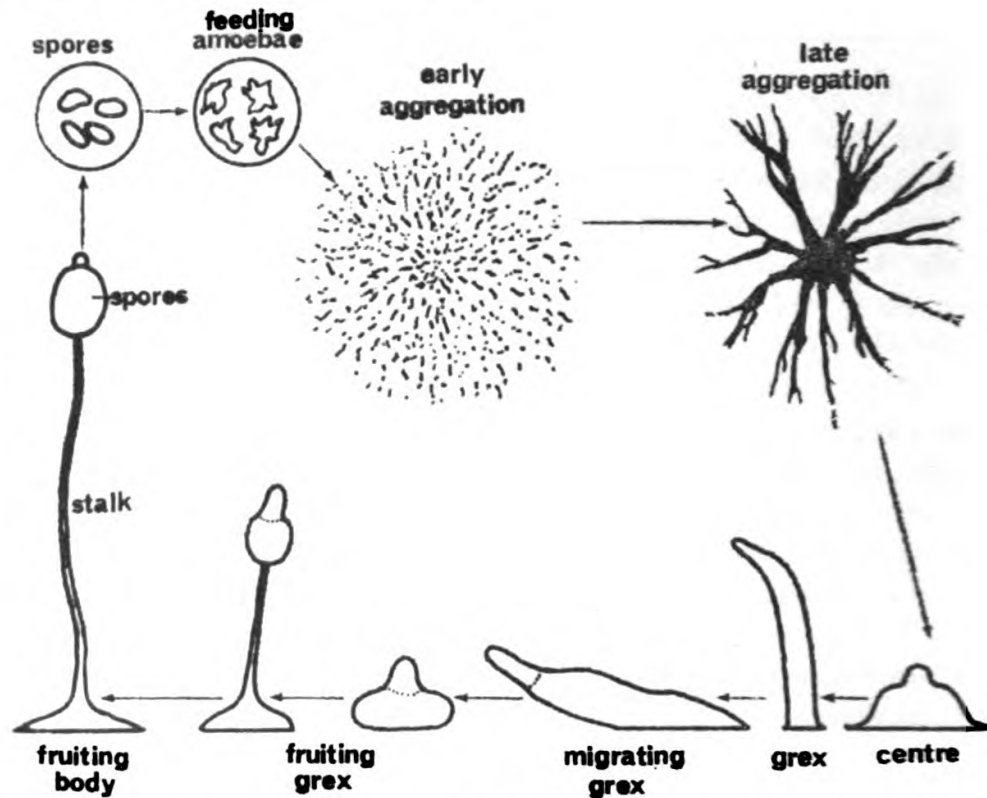
This behavior is unique, and as a result, fascinating to a variety of biological disciplines – to cytologists, embryologists, geneticists, and others. It should be the object of study for sociologists as well, since this tiny brainless, nerveless animal has evolved a complex system of social interactions; yet for some strange reason it has remained neglected. Perhaps it is because animal sociology still remains in its infancy, and seems to be progressing backwards down the ladder of biological complexity from the more easily observed and presumably more easily comprehended social behavior of vertebrate forms to the social behavior of more simply constructed beings.

While in their free-living state, each amoeba lives alone, moving about along the substrata either by elongating and then contracting its entire body, or else by extending and then contracting extruded portions of itself called *pseudopodia*. Its form is always in flux.

When food is plentiful and other conditions appropriate, every

* This account of the Slime Mould is taken from *The Parable of the Beast* by John Bleibtreu to whom we are indebted, as also to the Macmillan Co. of New York and Victor Gollanz, Ltd., for permission to republish.

Life cycle of *Dictyostellium discoideum*.



Drawing by Brian Shaffer, Department of Zoology, University of Cambridge.

amoeba multiplies by simple cell division once every three or four hours. Eventually this geometrically expanding population exhausts the available local supply of bacteria, and as this happens the amoeba commence the enactment of an incredible series of activities. These activities are a literal metaphor for the organization of cells in a multicelled individual, or the organization of individuals into a social unit, whether that unit be an ant colony, a baboon troop, or a human society.

As their food gathering becomes more difficult, the wandering amoeba begin as individuals to cease their feeding and begin to form communal aggregations: First a few individuals clustering around a dominant (or attractant) individual, and then this group joining other groups until (as seen on an agar dish) clumps of organisms discernible to the naked eye form themselves, giving the surface of the dish a stippled effect. Now the clumps begin still another aggregation – they begin to join one another, clump to clump. They form straggling streamers of living matter, which now

begin to orient themselves toward central collection points. At this stage the dish seems to be covered with numerous, regularly spaced, many-armed swastika-shaped patches of slimy mould. At the hub of each central aggregation point, a mound begins to form as groups of amoeba mount themselves atop other groups, which have already arrived at the central hub. This hub gradually rises first into the shape of a blunt peg, and then into a distinctly phallic erection. When all the incoming streams of amoeba are almost completely incorporated into this erected cartridge-like form, it topples over onto its side, now looking like small, two-millimeters-long, slimy sausage. This slug begins now to migrate across the forest floor to a point where, hopefully, more favorable ecological conditions will prevail. At this point the communal mass that forms this slug is known as a *migrating pseudoplasmodium*. It seems to possess a discrete envelope, almost a skin; but this is a sheath of slime, and as it migrates it leaves behind a trail of slime. It looks exactly like a minute garden slug, except that it lacks the extensible horns of these snails.

As the slug migrates, it continues to attract scattered solitary amoeba, which had not participated in the original aggregation. These join the mass and become immediately incorporated within it. Estimations about the size of the population that comprises the average slug vary, but generally it is thought that perhaps some half a million amoeba are involved.

When he discovered this animal thrived in the laboratory, Raper experimented with directing the course of the slug's migration and found that it responded to light and warmth; such little light, as a matter of fact, as that provided by the luminescent dial of a wrist-watch shining in the dark, and such little heat as 5/10,000 of a centigrade degree. He found he could lead the slug around over a smooth surface by the light of a watchface just as one can lead a donkey with a carrot on a pole. Raper also noted that the slug narrowed quite obviously into a point at its front end. "During migration," he writes, "the point, the apical tip, as it has been termed, is constantly to the fore and apparently guides the migration of the entire body." Raper cut this tip off the slug and found that when the community was thus deprived of its leadership, migration stopped dead in its tracks. "When the anterior portion of a migrating plasmodium is removed," he writes, "the decapitated body ceases migration, nor does it respond to light. The amoeba comprising it,

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crowd forward to the line where the excision was made, and there collect in a rounded body. . . . In only a few isolated cases has a pseudoplasmodium thus decapitated been observed to form a new apical tip with accompanying directive center.”

After migrating for a variable period of time (which can be two minutes or two weeks) in the direction of light and warmth, this slug, this wandering community, now ceases its movement and enters into another phase of its communal history called “culmination” or “the formation of the fruiting body”. Exactly what causes migration to stop is not yet known, but as it ceases its forward motion, the slug gradually erects itself once again into its phallic shape until it is standing on its tail. John Tyler Bonner, a zoologist at Princeton who has spent the major part of his working life studying these fascinating creatures, describes what happens: “In the apical tip of the pseudoplasmodium, a group of cells near the tip becomes rounded off and enlarged. The whole group is either round or oval in shape, and its outer limit is smooth, bounded by a visible wall. . . .” This oval shape gradually assumes the form of a candle flame, bellied at the bottom and coming to a point at the top. As the belly forms, a waist also appears between the base, the tail of the now-erect slug, and the candleflame section which is forming directly above it. This waist gradually lengthens and becomes a stalk, pushing the candleflame section ever upwards into the air. This brittle stalk continues to rise, carrying the candleflame section which now tends to become more spherical in shape, up and up, either in a straight line, or in a wavering direction, depending on certain conditions. Normally the end of this culminating stage produces a brittle form which looks exactly like an old-fashioned hatpin except that it is smaller – only half an inch or so high. The candleflame pod atop the stalk is known as the spore mass. As this process unfolds over the course of some two or three hours, it seems as though the stalk, growing from the bottom upward, lifts the sorocarp or fruiting body into the air. But what actually happens (as Bonner demonstrated by staining certain cells and noting the direction of their movement) is this: Amoeba from the apical tip migrate downward through the forming fruiting body, thus erecting the stalk. As the process actually occurs, it resembles a slow motion movie of a rising water fountain run backwards. Bonner describes it somewhat differently: “. . . to accomplish this transformation, the slug first points its tip upward and stands on its end. The uppermost

front cells swell with water like a bit of froth and become encased in a cellulose cylinder which is to form the stalk. As new front cells arrive at the tip of the stalk, they add themselves to the lengthening structure. . . . Each amoeba in the spore mass [the fruiting body] now encases itself in cellulose and becomes a spore. The end result is a delicate tapering shaft capped by a spherical mass of spores. When the spores are dispersed (by water, or contact with some passing creature such as an insect or a worm) each can split open to liberate a tiny new amoeba.”

Thus the cycle of the community begins again, with the amoeba population thriving and growing on their newly located bacterial food, until this food supply is exhausted and the cycle of aggregation and culmination begins anew. This microscopic, brainless creature enacts in the course of its life history the parable of all communities. As they do in all communities, certain members of this microcosmic society seemingly take upon themselves the responsibilities of leadership, initiating the activities of the group.

Just how this happens, was demonstrated by a young Cambridge zoologist named Bryan M. Shaffer, who went to the United States in 1956 and worked first at Bonner’s laboratory in Princeton and then in Raper’s laboratory, which had by this time been moved to the University of Wisconsin. To prevent aggregating cells from mounting one another in clumps, thus obscuring what each cell was doing, Shaffer devised what he called a “sandwich” technique, a complicated arrangement of oil and water films floating between glass slides, which forced the amoeba to aggregate in a single layer without clumping. In this way he discovered the existence of what he called “founder” cells. He wrote in his description that “a founder varied somewhat in appearance [from ordinary amoeba] at the time it became active. In many cases it was oval or almost completely circular in outline and stationary. . . . Because it was less expanded, it frequently appeared smaller than most or even all of the cells that responded to it, and also darker. . . . It abruptly began to affect its neighbours over a considerable area. These elongated toward it within a few minutes. . . . The first to reach the founder began to encircle it, either in one direction, or, becoming temporarily Y-shaped, in both. Whether it was able to surround it depended partly on their relative sizes and partly on how soon further cells arrived, for these competed for the founder’s surface. Such intimate contact was established that a two- or three-celled

center could sometimes be mistaken for a single giant cell. Occasionally, perhaps five or ten minutes after starting to attract, a strong founder became less circular and less refractive [dark] and stopped attracting. The responding cells became less elongated and tended to produce pseudopodia from other parts of their surfaces; and then perhaps five minutes later, the founder rounded up again and the others moved toward it."

Shaffer wondered whether their role as founders was pre-determined by their particular genetic heritage, or whether any amoeba could become a founder, whether it was mere chance that determined which amoeba would first feel the pinch of food shortage and become impelled to disseminate the signal for assembly.

The nature of this signal was chemical – a gas. This had been determined several years previously by Bonner, who had designed a series of experiments which systematically excluded possible nonchemical signals, such as electrical fields or other chemical communication systems, like contact or molecular trails left by amoeba in the course of their travels. Though unable to isolate the chemical molecule which comprised the gas, he named the substance acrasin, a coinage from the technical class-name of the animal which produced it.

There are no clear-cut conclusions to be reached as a result of the experiments Shaffer subsequently conducted. He seeded a culture, permitted it to flourish for a period, and then deprived it of food until a founder cell formed. "If this", he writes, "was immediately killed, and the culture at once returned to darkness, the residual cells did not re-aggregate. But if it was left in the light, a new founder eventually did appear."

However unhappily inconclusive this work may have been the presumption remains from other evidence that varying different social roles may be assumed by many members of the population. As early as 1902 biologists were bringing slime moulds back to their laboratories, and doing what almost any child would do – seeing what would happen if a migrating slug were cut into several sections. And what happened was this: Each section ceased its migration and promptly entered into the culminating stage, producing a fruiting body that was somewhat smaller than normal in size, but seemingly perfectly normal in all other respects. From its spores perfectly normal new populations would spring.

Among the slime moulds the question of whether differences of

behavior pre-exist in differing members of the population, or whether any behavior can be assumed by any member of the population, is still open. If the migrating slug is cut apart, new migration leaders will not appear. Migration as an activity ceases. But leaders that initiate other specialized social roles do appear. Stalk-building, a social role which would normally be assumed by the leadership cadre at the apical tip is now assumed by other amoeba quite distant from the tip. In the case of the slug which is cut into three sections, certain amoeba in the terminal section far removed from the apical tip will nonetheless commence filling themselves with water, encasing themselves in cellulose and beginning to migrate backwards through the mass of their fellows in order to form the stalk. Under normal circumstances these animals would not form the stalk, but would remain anonymous members of the sorocarp; each one would have transformed itself into a spore, not a bit of stalk.

It is also curious that in the slime moulds the individual members of the community that form the leadership group are non-reproductive. Only those animals that form themselves into spores contribute genetically to subsequent generations. The amoeba at the apical tip seemingly perform a totally sterile role in the future of the community, by bearing the mass of their fellows aloft, raising the community away from contact with the earth, thus assuring the community more favorable possibilities for dispersion. This is curious, for it has a relationship to human societies; it overleaps the evidence of most vertebrate communities where the dominant animals, particularly males, have greater sexual opportunities and generally pass on their genetic characteristics differentially – in a larger statistical degree – than low-ranking, non-dominant individuals. Often in human societies many of the most valuable members are non-reproductive; members of celibate religious orders, ascetics, homosexuals, and so on. Reproduction flourishes on the lower levels of societal competence, the marginal members often reproduce disproportionately large numbers of themselves.

Marvellously instructive as this parable of the slime moulds will very likely be – in furthering our understanding of how cells aggregate to form the foetal stage of multicelled organisms, how our understanding of slime mould behavior can contribute to our understanding of human growth and wound-healing and many other related phenomena – it is somehow still surprising how little is known about the actual process itself.

Sin and Insanity: A Social Psychological View

Phillip W. Warren

I. GOLDEN TEXTS

Any paper which has the title "Sin and Insanity" should, by the logic inherent in the title, also begin with words of wisdom. I begin with words attributed to two of the wisest men in history; two spiritual giants. The first quote is from Gautama Siddharta, the Buddha:

"He abused me, he beat me, he defeated me, he robbed me" – in those who harbor such thoughts hatred will never cease . . . in those who do *not* harbor such thoughts, hatred will cease. For hatred does not cease by hatred at any time; hatred ceases by love – this is an eternal law.

The second quote is from Jesus, the Christ:

Judge not, that you be not judged; for with the judgment you pronounce you will be judged, and the measure you give will be the measure you get. Why do you see the speck that is in your brother's eye, but do not notice the log that is in your own eye? Or how can you say to your brother, "Let me take the speck out of your eye", when there is a log in your own eye? You hypocrite; first take the log out of your own eye, and then you will see clearly to take the speck out of your brother's eye.

The key to insanity and the key to optimum spiritual health is contained in these passages. The direction we must go is given here. The direction has been clear for centuries and the message has been repeated again and again. The problem is that too few take heed in action, although most would agree with the essential validity of these statements if asked their opinion on the matter. However, when it gets tough, when things get down to the nitty gritty of every-day life we fall short and we hate, kill, blame, judge, complain, snarl, seek revenge, seek pity, become victims, victimize, etc., etc., etc.

The reason so few take heed in action is that they are unable. Christianity has failed because it does not know how to train people to take the logs out of their eyes so that they may see clearly. In the history of Christianity or Buddhism there has been no effective training program to teach their followers how to carry out these simple

requests. Any effective religion must develop these programs. Don't tell a man what he should do. He already knows what he *should* do. Show him *how* to do it – if he can't then keep refining your ways of training until you do reach him. Saying "Your hatred is foolish and self destructive. Look to your own sins, be responsible for them, and then your life will be filled with love and beauty," will do no good. All will agree but no one will be able to do anything about it. Never expect someone to have an ability unless you know how to teach that ability to him. Ability goes with a training program and not with a lecture or a sermon or a paper on how to do it.

Each of the great religions founded to uplift man has so far failed because its training program has failed. No religion can survive unless each of its churches is a powerhouse of activity, unless its ministers can see what abilities their parishioners lack and then set up a program to *teach* them these abilities. It has ceased to be fashionable to live the Christian virtues. The Sunday sermon certainly has very little to do with improving moral and ethical *behavior*. A passive audience of parishioners never learned anything. We have created the riches of kings but can not create spiritually healthy people. Bodies are healthy while misshapen souls live within. We are a civilization of wealthy paupers, dying of spiritual bankruptcy. We need able people or we will perish by our inability. We are a civilization of giant weaklings living in the excrement of our consumer goods.

Man is now capable of seeing a war and hating all its aspects. Modern communications have permitted, as never before, man to judge for himself the morality of the act of war but they have not provided him with a means of effecting a change. He is frustrated by his inability to act and effect change although he may still be making the same kinds of moral judgments that he has always made. Modern man's hellish existence is exaggerated when he recognizes his own impotence in the face of the Viet Nams, racism, poverty, much less his immediate problems. And thus we arrive at Hell and Heaven.

II. HEAVEN AND HELL

A. *Is Hell other people?*

Jean Paul Sartre said in his play *No Exit* :

You remember all we were told about the torture-chambers, the fire and brimstone, the "burning marl". Old wive's tales! There is no need for red-hot poker. Hell is other people.

and later in an interview in *Playboy* (1965)

Other people are hell insofar as you are plunged from birth into a situation to which you are obliged to submit. . . . Then you have a cut-and-dried future mapped out, a future made for you by others. They haven't created it directly, but they are part of a social order that makes you what you are. If you're a peasant's son, the social order obliges you to move to the city where machines await you, machines that need fellows like you to keep them going. So it's your fate to be a certain type of worker, a country kid who has been driven away from the country by a certain type of capitalist pressure. Now the factory is a function of your being. And that being is the job you're doing, a job that masters you completely because it wears you down – along with your pay, which classifies you exactly by your standard of living. All this has been thrust on you by other people. Hell is the proper description of that kind of existence. And the exit from this destiny is the action you can take against what people have made of you and transform yourself.

Erich Fromm suggests :

Contemporary man feels powerless not only because he does not understand the revolutionary changes that have occurred, but most of all because he, as an individual, is dealing with giant bureaucracies – those of business, government, the armed forces – which are impersonal, and for which the individual is merely a cypher to be used for the growth and smooth functioning of the whole. It is not that the individual is badly treated. On the contrary. He is treated as a valuable piece of the machinery.

Man's opportunity to observe his environment has vastly increased by television, films, radio and the rest of the mass media; his ability to affect his environment hasn't increased proportionately. To affect this increasingly complicated world with which we are faced, we need greater and vaster methods of coping with it. Though the problems have become more complicated man's answers to them have remained on the same simplistic level. (Solberg.) Indeed, because man is increasingly faced with a world he can not confront he is driven more and more to denial: of the problem, of the world, of the humanness of his fellow beings, of life and death, of his own worth and dignity. Anything would be better than this agony of soul, this pain that gnaws but never hurts quite enough to say *enough!*

And so it is that the citizens of hell walk about on earth. They are the complainers, the righteously indignant, the snarlers, the blamers, the ones who cannot forgive because they never did anything wrong, the ones who tell you endlessly how badly they have been wronged. Someone who cannot take responsibility for anything bad that happens sees the source of all that is bad in other people's actions. Since he sees himself as having no part in the evils of the world, he cannot do anything about them. And thus the wrongs

hurts and sins persist, multiplying. And there he sits in the middle of it all, in his living room viewing it on color TV. Suffering but unable to stop anything and having no hope that he can or ever could.

Donald Kingsbury put the mentality of these people in the form of "Hell's own catechism": (*A goal for man*, p. 7.)

- | | |
|---|---|
| Q. What did you do? | A. Nothing. |
| Q. What did he do? | A. Everything. |
| Q. Who created your sorrows? | A. Them. |
| Q. How can your pain be lifted? | A. When they lift it. |
| Q. How can pain be avoided? | A. Don't see it, hear it, feel it; be invisible, speak not and touch not. |
| Q. What are your powers to turn bad to good, foul to fair, hate to love, sorrow to joy, misunderstanding to understanding, insanity to sanity? | A. I have no legs to walk with and no arms to hold the fallen and no breasts to nurture love and no tongue to speak forgiveness. |
| Q. What can you do? | . . . |
| Q. For what do you wait? | A. I can attract but cannot control: I can respond but cannot cause. |
| Q. How do you call upon him? | A. A saviour, someone to live for me. |
| | A. By crying out against those who have wronged me and by remembering my innocence. |

These half-crazed creatures who are more or less adjusted to a mad world are normal average men. Under the banner of mutual loyalty and concern, men become nonthinking tools of the group. All those who belong to the group are WE and merit its protection and privileges; those who stand outside the chosen few are THEM and deemed the enemy. This "demonic group mysticism of WE-THEM" can evolve into a "brotherhood unto death" as is true in any society at war. "Induce people all to want the same thing, hate the same thing, feel the same threat, then their behavior is already captive—you have acquired your consumers or your cannon-fodder." (Laing, p. 95.) This WE-THEM ethic has the cataclysmic credo: "to remain true, one for all and all for one, as we plunge in brotherhood to our destruction." (Laing, ch. 4.)

To live in a world with unprecedented problems and potential we need unprecedented people, religion, science, business, government. Instead we have normal, adjusted people, religion, science, business, government. Normal includes every kind of disability known to man. Apathy in the face of limitations, acceptance of the unacceptable, inability to act when action is essential, satisfaction with

minimal accomplishment. The normal man only survives during periods of quiescence. He is a weakling who lives only because nothing is testing his strength. Unable to stop war the normal man builds intercontinental ballistic missiles armed with civilization destroying warheads and waits in an underground bunker muttering statistics about "over-kill" and "mega-deaths". This man has been chosen for his normality. He is alert, intelligent, conscientious and probably cares a great deal about mankind; he loves his family. But, he is defeated or he wouldn't be in the bunker. There he sits with this vast electronic sensorium and world destroying machines, calm, efficient, orderly, performing this desperate mockery of peace. (Kingsbury, 1965.)

Take another normal man. He has a well-adjusted family; his business goes well. He has a routine and the abilities to go with this routine. He is happy because whatever he cannot handle he refuses to speak to and see. The disasters in his immediate environment he notes in the most unreactive and intellectualized way. He only sees his faults in others. He is defeated. The goal of a full life has eluded him. One Sunday in September, 1967, some normal people had just gotten out of church in downtown Minnesota, and they were confronted with an atypical sight. There was a National Guard riot control exercise taking place. Most did not realize that it was a simulated exercise and this is what they said: "Why don't the soldiers get out of the way and let the trucks get in there and run over the demonstrators?" Another indignant churchgoer said: "No one made them come to State College. If they don't like our town they can leave." And still another said "Open fire on the _____; teach them a lesson." (*St. Cloud Daily Times*.)

Normality can be dangerous. Normal Jews went about their routine of life in Europe as the German armies and the "Solution of the Jewish Problem" marched in on them. Eichman was judged to be sane by the psychiatrists in the testimony of his trial.

Normality can be pitiful. Three dozen normal people went to bed one night in Queens, New York, after leading their adjusted normal lives. Several screams pierced the night air. Curious, these normal people went to their windows to see what was happening. There they saw a man killing a young girl with a knife. Just like on TV. A hero had fantasies of helping the girl and yelled out. The attacker ran away and Kitty Genovese crumpled to the street. Wounded she got up and tried to escape. The action was no longer enough to keep the

viewers' interest so they closed their windows and went back to bed; just like the late late show. The attacker returned. Kitty screamed in terror as he tore at her clothing and stabbed the knife into her. Up went the windows. Our normal people found vantage points from which to watch the drama. It was horrifying and they felt horror. For a while it looked like she would escape and there was hope, and they felt hope. But he caught her again and used the knife again and again and again. That was sad and tragic. Some couldn't watch any more and went back to bed. These people wanted to help but they were normal and did not have the ability to burst out of their houses and control a madman. They couldn't even call the police because that might upset their routine and make them unhappy for a while. Kitty died, stabbed, bleeding after crawling into a neighbor's entrance where her normal watchers, seeing that she had reached safety, closed their windows and left her. (Darley and Latane, Rosenthal.)

In Kansas City, Missouri, Primitivo Garcia was studying to become a naturalized citizen. One evening in late 1967 after class two young hoods accosted his teacher, who was five and one half months pregnant at the time, as she stood on the school steps waiting for her ride home. When the hoods got no reaction to some random obscenities, one grabbed her purse and ran with it to the opposite side of the street where Primitivo and others were gathered. She followed. With so many normal respectable people around, she could not believe that she was in danger. The two hoods were joined by others and they all danced around her. One pulled her legs from under her; the others lifted up her skirt and fondled her. Primitivo was outraged. Plunging into the group, he knocked down the one with the purse and punched another in the face. "Shoot him! Shoot him!" they yelled. The purse snatcher did just that. A bullet ripped into Primitivo's stomach. He staggered to the school where his teacher called an ambulance and took him to the hospital. Not one of the normal people around the school bothered to call the police or interfere in any way during the ten minutes it took for the scene to play. Primitivo died but the normal people lived to be normal for another day. (*Time*.)

Another illustration of the level of functioning of normal people comes from experimental social psychology. (Milgrim.) Since science is modern rational man's religion this description must therefore be the most valid. The research involved the study of the limits of the

power of obedience to cause someone to inflict pain on an innocent victim. The subjects were most normal American college students and adults. A subject, call him John, arrives at the appropriate building on that holy of holies, the campus of Yale University. He is told the experiment he has been requested to participate in involves learning theory. John is introduced to another person who he is told is a fellow subject. They draw straws to determine who will be teacher and who pupil. Because the other "subject" is actually part of the experiment and the drawing is rigged, John invariably becomes the teacher. The two are led into a room containing a large chair equipped with straps and electrodes. John's companion is strapped to the chair and the electrodes attached. John is then led into another room. An intercom connects John's room with the room with the chair. Every detail of the setting is arranged so that John is completely convinced that he is administering shocks. The shocks are administered by a machine on which the voltage level is plainly marked starting with 15 volts and increasing by 15-volt steps to 450 volts. The levels are also labelled; at one end "barely perceptible" through "strong tingling" on to 300 volts "intense shock", 420 volts "danger, severe shock" with the two highest levels labelled "XXX". John is given a 45-volt shock so he has some idea of what will be going on. John is told to read a prepared series of questions into the intercom. The accomplice makes frequent errors in accordance with a prearranged schedule, and since John has been told to increase the shock by 15 volts after each error, he has to keep increasing the severity of the shock. The replies become more filled with protest as the shock level goes up: "I didn't realize it would be like this", "Let me out!! I have a bad heart I did not tell them about!" At 300 volts the accomplice pounds the wall and thereafter stops signalling answers. At this point John is told to regard failure to respond as an error and to continue to administer shocks. The accomplice pounds the wall once more at 315 volts and then is not heard from again. Whenever John demurs, the experimenter tells him to continue, with increasing urgency. The most forceful command is "You have no other choice, you *must* go on." The intent of the study is to see at what point John will refuse to inflict shock.

What were the results? *All* subjects administered shocks up to 300 volts ("painful shock") and 62% went to the maximum – 450 volts (two levels beyond "Danger, severe shock"). Even when a struggling, screaming victim's hand had to be held on the shock plate

in full view of the subjects, 30% went on to give the maximum shock. The main determinant of how far John will go in inflicting pain seems to be determined by how much the experimenter brings into play the habits of obedience that are ingrained in us all. John feels absolved of guilt since the responsibility rests with the experimenter. A person who submits to authority of another hands over his conscience. Since the authority decides what is right and wrong, the subordinate's own conscience is suspended. (Frank, pp. 83-4.) People in our society live out their lives in authoritarian situations – in schools, jobs, politics and religion. When they must confront unknown situations, they can only conceive of them in the models they have for their own lives. We must create people who can act on their own without orders from the top. We desperately need a new model of life and of man if we are to survive. Unfortunately the normal man is the goal of much of the modern health profession. I wish to consider now the idea of a super-normal, optimum, fully-functioning, self-actualizing human being.

B. Heaven as ability: the super-normal human being

The philosophy of adjustment is a philosophy of apathy. It is to want to be happily defeated and weak and make the best of it; to be happy and adjusted and content in the knowledge that due to the limitations of our existence we can do nothing. The Nazi guards in the concentration camps were not disturbed and neither were the people in the nearby towns.

The concept of the super-normal person is very ancient. Modern humanistic psychology has revived the idea and referred to it using a number of terms: optimum (Warren 1964, 1967-8, 1969a), fully-functioning (Rogers), self-actualizing (Maslow, Goldstein), life adept (Kingsbury, 1965), high level wellness (Dunn, Jourard). The method of attaining this state was thought to be quite simple to begin with. If you pleased the gods, the gods lent you their strength. The *Iliad* is full of such events. Everywhere in the ancient world it was the same with variations. If you gave him enough grain, or flattered him with song, or obeyed his commandments the god blessed you. To be blessed is to have the strength of a god, his serenity, intelligence, courage and joy. (Kingsbury, 1965.) Listen to Psalm 3:

Thou, O Lord, are a shield about me,
my glory, and the lifter of my head.
I cry aloud to the Lord,
and he answers me from his holy hill.

I lie down and sleep;
I wake again, for the Lord sustains me.
I am not afraid of ten thousands of people
who have set themselves against me round about.

When Buddha and Christ spoke they were offering us a god's strength in exchange for obedience to a higher will or law. The obedience desired was far more sophisticated and effective than the earlier propitiative rituals. The actions were themselves the essence of a strong man; one who is in contact with his own God-like inner self. Christ said:

So if you are offering your gift at the altar, and there remember that your brother has something against you, leave your gift there before the altar and go; first be reconciled to your brother, and then come and offer your gift.

This action of reconciliation builds strong super-normal men. Christ has been grossly misinterpreted by his followers and by the church. The god referred to is the God-like higher self which is a potential in everyone; the kingdom of God *is* within you. The great mistake of Christianity was when God was externalized instead of internalized. The external God is dead. But God is not dead; He resides within and the task is to recognize this truth and actualize this Godly potential in us all. Thus, regardless of whether external gods exist or not, the person who can reconcile his differences with his fellows has one of the abilities of the super-normal person. Such a person can end the cycles of hate and revenge and heal the wounds of old hates. He can produce love where there was once hate. This person is love and is loved. His strength is his own, its source is an ability which resides within. (Kingsbury, 1965.) Again Christ defined an ability of the super-normal person when he said:

You have heard that it was said, "An eye for an eye and a tooth for a tooth." But I say to you, Do not resist one who is evil. But if any one strikes you on the right cheek, turn to him the other also; and if any one would sue you and take your coat, let him have your cloak as well; and if any one forces you to go one mile, go with him two miles.

This is a skill that any super-normal person must possess if he is to *stop* action with which he disagrees.

Non-violent resistance looks easy. Turning the other cheek looks like an easy act that any normal person can do; but it isn't – it is one of the most difficult skills that a super-normal person can master. First you must have a cheek tough enough so that you can take the blow without being hurt. If you *do* get hurt, you defeat

yourself. It won't work if you are hurt and pretend not to be. In the game of slaps the slapper's intention is to put you into apathy, where you will avoid pain through non-action; or to put you into propitiation, where you will do what he wants you to do in order to avoid pain. If you can completely absorb his force harmlessly – and are willing to acknowledge and totally confront his act – you win. Through your acknowledgement he sees that his intention has failed this time. If you don't acknowledge, you lose, because muteness is taken as a sign of pain and defeat. The acknowledgement must carry the information that no damage was done. It must come out serene and with intention. Controlling a situation like this is the skill of a super-normal person. It has to be learned. If someone slaps you and your stuffings come out, you are not super-normal and you shouldn't try to act like one without training; nor should you be ashamed of your fragility. You are what you are and you start from there. (Kingsbury, 1965.)

Another skill of the super-normal person is that he can remember what he caused and can differentiate his acts from what other men have caused. Someone has sinned against another and cannot confront what he has done. He denies and represses this and puts his attention on what the other has done to him. He puts his own self-hatred into his condemnation of the other. With his voice of judgment he judges himself. "I hate him because I hate myself." Listen to him and you will know how he feels about his own sins. Once you repress and deny the memories of what you did and replace them with exaggerated memories of the wrongs others did to you; once you see everything bad that has happened to you as the effect of someone else's cause, you forfeit your free-will and in so doing damn yourself to your own brand of hell. The only way out of this hell is through your own action and once you deny that you can initiate action you seal yourself in. If you cannot remember what you did you cease to be responsible for it and your action becomes the effect of some external cause. If you falsify what you have done, to yourself or others, you can never reap the joy of having done it or make amends for some mistake or even change your ways of behavior. "I did that!" is the key to freedom. Causing events – good or bad – and knowing it, *is* free will, is creation and being a god of sorts. (Kingsbury, 1965.)

How do we, the normal people, get out of hell, become super-normal and in contact with the God-like potential in us?

III. THEORY AND TECHNOLOGY OF HELL

In order to escape our own private hell it is necessary to find out how we got there. The fundamental idea is that it is only your own sins which drive you crazy. What others do to you doesn't really matter.

A. *Definition of sin*

When the word "sin" is used it does *not* refer to most of the types of actions that the Christian church refers to with the word "sin". Indeed, many of the actions which the church defines as sin were so defined for the purposes of control over their members. Certain very human actions were defined as sinful and the church was the only place where one could obtain absolution. Thus, since most people performed these acts and felt guilty they kept coming back to the church to be forgiven. The cycle was endless and by changing the definition of what was considered sinful the church could tighten or loosen its hold over members. This is rather standard procedure of social control for any group. However, the potential for corruption and enslavement is very great as even the most cursory examination of the history of religion, east or west, will reveal.

The definition of sin used in this paper is primarily social-psychological or interpersonal. *A sin is a harmful act performed by me against another person based on an error of judgment or perception.* This is the fundamental sin. Along with sins there are also justifiers. *A justification for my sin is the harmful things done to me by another person which I use or magnify to defend and make my own harmful act appear reasonable.*

B. *The process of sin and insanity*

This is how we build our own custom made hells. First, there is a misunderstanding, misperception, error of judgment, mistake. On the basis of this I commit a harmful act against someone. Harmfulness has both an objective and subjective definition. Kingsbury (1963) defines it as "an act you do to someone that you would be unwilling to have anyone do to you". Christ said "Do unto others as you would have them do unto you". The objective definition depends on a set of ethical principles and values (Glasser, Warren, 1969a) and if I accept these principles as my own then the objective and subjective definitions of harmfulness coincide.

Because this act was based on a misunderstanding the act will be felt by me, at some level of awareness, to be unwarranted or inappropriate; that is, the other person did not really deserve the harm I did to him.

Now, unless I take responsibility for my own act and recognize that it was unwarranted, I will try to justify my harmful act. The way in which I justify it is to seek some "reasons" in the other person. These are usually the harmful acts that he did to me. These reasons must be of comparable magnitude to the harmful act I committed in order to fully justify and make reasonable my act.

If the other person is not sinful, that is, if he is relatively clean and pure of harmful acts to me or if he is relatively clean of unfavorable traits, then I must distort and magnify the other person's faults. Thus you get statements of the form "Joe hasn't really done anything to me but the reason I did him dirt is that HE is sneaky." If there is very little in the other person to pick as a reason for my harmful act then I have to become more and more out of touch with reality. I have to blow up little things or invent nasty traits and deeds of the other in order to justify my behavior. One interesting implication of this process is that if you are going to sin pick a sinful person to do it against, because the purer the person against whom you sin the crazier you will become trying to explain why you did it (assuming that you do not accept responsibility for your act). The tactic of non-violent resistance provides a good example. By being comparatively pure, the resister is not giving the aggressor any good reasons for his brutality and aggression. Thus the aggressor goes progressively more insane as the process continues. This is typical of any case of persecution of a relatively benign minority by an aggressive majority. The majority must go insane and distort reality and develop a form of social schizophrenia. Illustrations of this are the Nazi treatment of Jews, the use of non-violent resistance in the civil rights movement, the Viet Nam war. The only way out is to assume responsibility for our own bad deeds and quit blaming others. In diagrammatic form we have:

Misunderstanding,—→Harmful act
misperception, etc. Sin.

- 1 = withhold, hide, non-action, not assume responsibility.
- 2 = not withhold, reveal, confess, constructive action, assume responsibility for act.

- 1 Justification: Seek reasons (the harmful acts of the other) of comparable magnitude to my harmful act to justify or make reasonable my act. If the other is not very sinful then I have to magnify the other's harmful acts or invent some so that they are comparable. This process of distortion and magnification is insanity. Hell
- 2 Recognition, confession, restitution, undoing, clean hands, sanity, serenity, ability. Heaven.

Any person who listens to someone's justifiers will be driving that person insane. If you wish to send a person to hell just keep asking him "What did someone do to you?" This is the way to kill with kindness because he will be delighted to tell you all about what *they* did to him. The problem is that, unless he is already super-normal on responsibility, in which case he will not be interested in playing the game, he will tell you in terms of his justifiers. Every time he gives you a justification for his behavior the associated harmful act (sin) which he is hiding will turn on and become active. However, you most likely will miss this sin and so he will have to put more effort into denial and repression. The more he plays *this* game (in some cases it is called psychotherapy) the worse he will feel. If he keeps it up long enough he will be certain that life is not worth living, that he is useless, that he cannot help but only harm, that he is evil and down and down he goes, faster and faster until he has reached his own private hell. (Kingsbury, 1963.)

IV. THE THEORY AND TECHNOLOGY OF SALVATION

A. *The vicious circle*

Unfortunately, sending persons to hell is much easier than saving them.

How can you drive people sane? Or at least how can you prevent them from becoming more insane? Suppose John has sinned, in his own eyes, against you. What can you do? If you already know you are on your way to being super-normal, the very first thing you must do is simply be *totally* and *completely* aware of what you have done to him and be *totally willing* to assume responsibility for this. The reason this is necessary is that if you are not totally aware and responsible he will find this out and he will use your sins on him as his justification. Then you will be forced to justify your acts and you will be throwing your own justifications back at him. This will eventually result in the exchange of accusations which will eventually result in mutual destruction if you continue to interact. More likely, it will result in a break of communication and total lack of ability to confront each other. (Newcomb.) This is the result in any situation where you are not being responsible for what you have done. It will not happen to a person who is being responsible, for the responsible person does not need to justify what he is doing. He just acts and he acts in the best interests of all.

B. Two simple questions and an action

The way out of this trap is theoretically quite simple. Technically it is very tricky since most of us are normal and thus do not have clean hands. The way out is basically a two step process. First you have to answer two simple little questions with *total honesty*.

1. "What have you done to.....?" (You are especially interested in things you disapprove of and are thus hiding and withholding from others.)
2. "What have you withheld from.....?"

These two questions are asked and answered alternating, first 1 then 2 and so on until *everything* has been revealed. To be effective nothing must be held back, denied, suppressed, hidden. At first, you will only be able to remember the good things you did and withheld from the other. You will remember the favors you have done, the gifts given, the compliments made, etc. or remember that you withheld telling the other about a favor, gift, or compliment. When you become sufficiently able and aware you will start remembering the bad and shameful things done or hidden. This is the pay dirt and the digging must be total – unearth it all. It helps a great deal for the "digger-helper" to have clean hands when he is digging after your dirt. There is going to be a great deal of resistance on your part to having all these nasty little deeds exposed and it takes a very astute digger to notice when you have become aware of a memory of sin and should disclose it but do not quite have the courage to do so. The gentle nudging, probing, encouraging persistence of the helper is crucial at this time and the real skill of a helper is tested. He must know when pay dirt has been hit and must have the certainty and courage of his ability so that he will persist and not let you slip anything by which must be disclosed for your health. A super-normal helper can do this since there are no distortions in his perception of you and he can observe and listen with total awareness of your beingness (this, by the way, can be a rather unnerving experience for you).

If these two questions have been properly worked then the action necessary will be relatively simple for the person to perform. It is necessary however to perform this action since confession is not sufficient in itself, although it is a necessary first step. The person must make amends, restitution, undo the damage done, and restore the communication lines that have been cut.

What can you do either to bring people closer to the heaven of super-normality and contact with their God-like potential or at least prevent their sinking further into hell and insanity? You can, if you have the skill and if they are willing, unearth their sins. At least you can be able to communicate and to help them. (Warren, 1969b.) If you have clean hands then this will be easy. If you are living your life on justifications this simple act will be next to impossible. The reason for this is that the very first thing that will happen to you when you communicate and help and grant beingness to a person who has sinned against you, will be his response of fear, hostility or hatred. (Newcomb.) Only a person with clean hands can handle that serenely. By being nice to the other person you are creating a shortage of justifications for his own sins against you. The way a person hides his sins from himself is by keeping his attention on his justifications. If he does not have enough of these justifiers to occupy his attention, his sins keep coming into his awareness. His sin is precisely what he cannot face and so the spiral of hate begins. He has to hate you with a passion just to find in you enough justifications to keep his sins buried and repressed in his subconscious.

If you are clever enough to find out exactly what this sin is which he committed and calmly acknowledge it, his hate will evaporate and turn into love. It is vital that you do not tell him what this sin is even if you know. He must discover it and reveal it himself. You can lose more friends by telling them about their sins, especially if you have hit real sin.

Thus, all you have to do is handle people who have sinned against you with serenity. Do not play the game of being their victim since being hurt is a justification for you and indicates that you are not clean and thus are vulnerable. Be able, be effective, be patient and always be able and willing to communicate and to help. Avoid violating the moral-ethical code you have chosen, but when you do violate it, be willing to take the responsibility for it and undo any harm that may have occurred. (Kingsbury, 1963.)

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The Cross Fighters*

Thomas Merton

The Black Power movement in the United States is a violently critical rejection of white supremacy. It proposes (among other things) a separate Negro nation and threatens a violent break with white society in general by means of guerilla warfare in the inner cities. This may be new and disquieting to white Americans: but there have been racial wars before and it is instructive to study the causes, the development and the outcome of one such war that was waged over a hundred years ago in Yucatan.

The traumatic clash between races is, of course, one of the standard problems of our time. Everywhere it tends to take somewhat the same form. The purpose of this essay is not simply historical, still less political. It is intended as a study of the human and cultural elements in a typical case of interracial conflict. I am particularly interested in the ways in which an oppressed and humiliated "primitive" civilization seeks to recover its identity and to maintain itself in independence, against the overwhelming threat of a society which can rely on unlimited backing from the big powers, precisely because it is white.

1

Yucatan in 1847 was hardly what one would call a "great power". It had fairly recently become independent of Spain and was now undecided about accepting incorporation in Mexico. Yucatan wanted to be an autonomous nation but it could hardly stand on its own feet. It was split by political parties that were always ready to take up arms against each other and which also sought to make use of Indian manpower in their internecine struggles.

The Maya Indians, overcome by Spain three hundred years before, exhausted by war and disease, had been allowed to survive with their traditional *ejido* system. In many parts of Guatemala and

* The copyright of this article, sent us by Thomas Merton before his death, is now the property of the Merton Legacy Trust, 333 Sixth Avenue, New York City. It has also appeared in the "Unicorn" Journal, Santa Barbara, California.

Yucatan they were isolated in their own communities. This set-up was disrupted by the new government. Indians were forced into debt peonage on the haciendas that began to grow rich on henequen. Independence from Spain and "liberal" government brought no special advantage to the Maya. On the contrary, the new system meant greater instability, it uprooted the Maya from his village communities and his beloved cornfields. It threw him into closer contact with the Ladino and mestizo whom he consequently came to know better and trust even less than before. This close contact between races served only to emphasize the fundamental contrast between two ways of life: that of the Indian, essentially rural, hierarchic and religious and that of the white in towns, cities or on big haciendas, more and more frankly secular and anti-religious (though welcoming the help of the Church in "keeping order").

The conflict between the Mayans and the Ladinos of Yucatan was more properly a cultural and a caste war rather than a battle between two races. It is in fact known in history as the *Guerra de las Castas*. Whereas in the United States the racial character of the conflict between Black and White is brought out by the fact that a Negro with white blood is classified as a Negro whether he likes it or not, in Yucatan an Indian with white blood is a *mestizo* and may, in effect, choose one side or the other. Generally his choice is for the white *culture*. He tries, as far as possible, to live like a Ladino, and no one hinders his integration in the society. His problem is economic rather than racial.

Speaking of the situation in Yucatan at the time when the Caste War began (1847-1848) the best authority on the subject* says:

We know the country was divided by race, but even more it was split by opposing conceptions of a common world. Corn, a mere commodity to the white man, was sacred to the Maya; for the white man uncultivated land was simply waste land, but for the Maya it was the rightful home of the forest gods. (p. 47)

Of course it must be remembered that the Maya had accepted Christianity wholeheartedly. The remarkable synthesis of Christian, Biblical ideas with the vestiges of a Mayan social structure, built on the elaborate and quasi-mystical calendar system that went back to the days before Christ, took on a profound eschatological character

* In this article I am heavily indebted to an excellent book by Nelson Reed, *The Caste War of Yucatan*, Stanford University Press Paperback (SP 52) reprint 1967.

in the Mayan books of Chilam Balam. These prophetic and apocalyptic books had been preserved and studied in secret since the time of the Conquest, and they hinted at the coming retribution that was to be visited upon the conquerors from the rising sun, not because they were Christians but more precisely because they were *not* Christians.

It is curious to see with what fervor some of the Maya prophets at the same time accepted the message of Christ and rejected the messengers as unworthy (while admitting the need for Catholic priests as mediators). In the Chilam Balam book of Chumayel we read the following appraisal of the Conquest:

The "most Christian" men arrived here with the true God; but that was the beginning of our misery, the beginning of tribute, the beginning of "charity", the cause of secret discord coming to light, the beginning of fighting with guns . . . the beginning of debt slavery and of debts pinned to the shoulders. . . .

This was Antichrist on earth, the tiger of peoples, the mountain cat of nations, drinking the blood of the poor Indian. But the day is coming when the tears of the Indians' eyes will reach God and the justice of God will descend upon the world with one crashing blow!

There had been a brief rebellion, brutally suppressed, in the mid-eighteenth century. Now, in the ferment of restless change, the Mayans were beginning to evaluate the new situation in their own terms which were those of Chilam Balam. We know that the book was once more in circulation (the printed Spanish edition of the Chilam Balam of Chumayel is based on a manuscript that changed hands in 1831) and the Indians were reinterpreting their role in the revolutionary world of the time: they must once more affirm their own identity and repudiate the wicked society of their conquerors, and perhaps even prepare the way for the judgement of God. Indeed, it might turn out that they themselves were instruments of that judgement. Obviously such ideas were mulled over by a few in secret and were not widely published. But they had their effect!

In the eyes of the Maya the "unchristian" character of the Ladino society seemed evident not so much from a lack of formal orthodoxy as from a contempt for man, for growing and living things, for the land, for the sacred corn plant, the gift of the gods – and for the Indian himself! A spokesman for the Mayan Indians summed up the reason why they intended to resist the whites, if necessary, by violence.

We poor Indians are aware of what the whites are doing to injure us, of how many evils they commit against us, even to our children and harmless women. So much injury without basis seems to us a crime. . . . If the Indians revolt, it is because the whites gave them reason; because the whites say they do not believe in Jesus Christ, because they have burned the cornfield. They have given just cause for the reprisals of the Indians, whom they themselves have killed. . . .

(The declaration continues that no matter what force the whites use against them, the Mayans are not going to give up because . . .)

We are God's sacrifices. They will have to say whether God gave them permission to slaughter us all, and that we have no will in the matter. . . . Therefore, if we die at the hands of the whites, patience. The whites think that these things are ended, but never. It is so written in the book of Chilam Balam, and even so has said Our Lord Jesus Christ on earth and beyond, that if the whites become peaceful, so shall we become peaceful.

(Quoted in Reed, op. cit., pp. 48-49)

2

Unfortunately the whites could not "become peaceful". The Indian who had spoken these words was apprehended and shot. All the others now saw clearly what they themselves could expect. The lesson was driven home still more clearly when the farm of one of the Maya leaders was sacked and the women raped by whites in July 1847. The leader himself struck back on a white village, massacring the Ladinos and thus bringing on even more furious reprisals: several Indian villages were destroyed with atrocities and the desecration of Churches by whites. A change was made in the Constitution, Indians were stripped of their recently gained civil rights, the whipping posts of colonial times were set up again, and peaceful Mayas were apprehended, tortured and made to "confess" an imaginary plot for a general massacre in the capital city of Merida.

In fact, the white population was now seized by racist hysteria. A draft was proclaimed to raise an army of defence, with the warning "only whites need apply". In a short time 17% of the Ladino population was under arms (10% of the U.S. population was under arms at the height of World War II). Meanwhile the women of Merida, on the night of the imaginary massacre, were waiting with jars of boiling water to pour from the rooftops on the expected rapists and killers!

The war actually began in September 1847. When one of the (white) political leaders of Yucatan tried to seize power, and the army moved to prevent him, the Indians ravaged the area of Valladolid, and acquired enough money from the haciendas to buy

guns and ammunition in British Honduras. The fight was on.

In February 1848 the Indians who had risen in force all over eastern Yucatan, were besieging Valladolid and it was evident that the situation was serious.

At this point the Church spoke out for peace and letters were sent to the Indians urging that they desist and withdraw. Bishops took the opportunity to issue the now familiar denunciations of godlessness, secularism, freemasonry and so on, suggesting that the horrors of war had been sent in punishment for all these evils. Unfortunately, as Reed observes, there were no freemasons among the Indians. The Mayan leaders replied to this fervent Christian appeal:

And now you remember that there is a True God. While you were murdering us didn't you know that there was a True God? You were always recommending the name of God to us and you never believed in His Name. . . . And now you are not prepared nor have you the courage to accept the exchange for your blows. If we are killing now, you first showed us the way. . . . Twenty-four hours we allow you to give up your arms. If you are prompt, no harm will come to you nor to your houses, but the houses and haciendas of all whites who do not give up their arms will be burned, and they will be killed besides, because that's how they have taught us; thus everything the whites have done to us, we shall do the same and more.

Another leader wrote less truculently and in some detail, pleading with one of the bishops for a genuine settlement of Indian grievances: protection against arbitrary violence on the part of whites, relief from an intolerable burden of taxation, and a lower "price" for Baptism and Marriage as well as for other religious ceremonies.

The Indians are fighting, he says . . .

To defend themselves against the killing that the sub-delegate D. Antonio Trujeque started among us. . . . He began the fires, burning the town of Tepich and he began to catch the poor Indians as you catch animals in the woods. . . . The Indians don't know if the superior government has given orders that they should be killed, and they won't stop until the government has made a pronouncement. . . .

(Both quotes from Reed, p. 78)

Peace talks failed, and in March the whites prepared to evacuate Valladolid. But when an accident blocked the road, the column of withdrawing troops and refugees was slaughtered by the Indians, and all Yucatan was thrown into panic.

It was at this point that the government of Yucatan began sending

out desperate appeals for help to the great powers, even offering Yucatan as a colony to anyone who would come in and deliver the Ladinos from this menace of destruction. A bill to aid Yucatan was introduced in the U.S. Congress but was dropped when, in March, news came of a peace treaty which had given the Mayans "all that they asked for". Unfortunately, this treaty was only a trick with a dual purpose of stalling for time and of dividing the Maya leaders against each other. It failed, and the Mayan armies advanced with further victories.

By May of 1848 the Indians were in control of most of Yucatan. Three columns were reaching out for Merida, the capital, and others were advancing on the eastern port of Campeche. The whites had been pushed all the way to the east coast and many were leaving the country on anything that could float, even though the government had passed a law forbidding emigration. The Bishop of Merida departed for Havana and the Governor had actually written out a proclamation declaring the evacuation of the capital, but it could not be printed because there was no paper in the city. The Governor packed up and prepared to go south to Campeche, for a last stand against the onslaught that would probably bring victory to the Indians and make them masters of Yucatan. But the final attack never came.

What happened?

The difference between two utterly opposed world views had led to the war, and it was the difference between those two world views that led the Indians to relax their grasp on certain victory. The son of one of the leaders gave the following explanation, years later.

(When the army was before Merida) . . . all at once the winged ants, harbingers of the first rain, appeared in great clouds. . . . When my father's people saw this they said to themselves and to their brothers "Ehen!" The time has come for us to make our planting, for if we do not we shall have no grace of God to fill the bellies of our children. . . .

The next morning, the Mayan soldiers said to their Chiefs "We are going" and with rolled up blankets, started home to their cornfields. Then the Chiefs went into council and decided that there was nothing left but for them to go home too.

The Indian rebellion was in a certain sense apolitical. The leaders did indeed formulate clear and reasonable political demands, but the thinking of the Mayan masses was not political and even the leaders had no long range objectives. Though they were now capable

of taking over the whole Yucatan Peninsula by military force, the Mayans showed by their actions, that they were not interested, and that if they had gained power of Yucatan they would not have known what to do with it. In fact, one may surmise that they themselves were as surprised as anybody else at their own extraordinary military success. Their refusal to take advantage of it was an admission that they had reached the limit of what they could cope with, politically, culturally and psychologically. What happened then was a curious regression, a falling back upon psychological positions that were familiar and traditional. And these positions were basically peaceful, constructive, humanly healthy. But from the point of view of modern political life this instinctive regression was a disaster, and modern man can only look upon it as a complete collapse of reason, a farcical proof of our contention that primitive races are "inferior". The Mayans failed because they did not know one of the main axioms of modern life, an axiom on which is based the American pragmatic imperative to push for the competitor's unconditional defeat. "In war there is no substitute for complete victory." The Mayans failed because they were still too willing to listen to the voice of peaceful and constructive human instinct – a voice which has to be silenced if efficiency is to be total!

3

The whites immediately regained all that they had lost, pushing the Indians back into the western jungle and, incidentally, harvesting their cornfields in the following summer. With this sudden change of fortune, the whites now had everything on their side, including some Indians of the west coast who had not been properly informed about what was really going on. There were also some volunteers from the U.S., men who had been mustered out at Mobile after the Mexican war and thought Yucatan was going to be fun, just like Texas. They were disillusioned. (Incidentally, much later on, a group of American Confederates who had moved to British Honduras after the Civil War fought Maya raiders there in 1872.) The Ladino forces were now receiving aid from abroad and the Indians, who had so far subsisted on what they took from towns and haciendas, had practically run out of supplies.

Nevertheless, the war did not end. It merely entered a new stage. The south-west jungle area of what is now called Quintana Roo remained Maya territory and eventually became what was *de facto*

a separate Maya nation where whites might hazard raids but not with impunity.

Meanwhile, the population of Yucatan had been *cut in half* in four years of war! The Governor, a Liberal Democrat and former “friend of the Indians”, was now raising funds by selling captured Mayas to Cuba as slaves, on ten year work contracts (from which of course they never returned). With the proceeds of these transactions, the Governor financed an expedition against a small fortified town in the southwest in order to have a beachhead in the Maya-controlled area. Later, another such expedition was financed by loans on the anticipated sale of Indian war prisoners to Cuba. When the whites were beaten, friendly Maya were sent to Cuba to pay the debt instead!

What happened now was perhaps the most significant thing in the whole war. Forced back into the jungle – which was after all their natural habitat in any case – cut off from all direct contact with white society except for British Honduras, where they procured their arms, cut off even from the Catholic Church on whose priests and sacraments they had hitherto depended in spiritual things, the Indians now began the creation of a new segregated society of their own. It was not a return to ancient traditional Mayan civilization. The memory of that had been more or less effectively wiped out in three hundred years. It was not Ladino Catholicism. It was not a mestizo imitation of white society. It was an authentic, Indian society built of Christian and Indian elements fused together in an organism with a complete and fully coherent identity of its own. In other words, the Indians of the Southwest jungles successfully formed a separatist nation based on an ethos of resistance and on the refusal of white domination. The religious and apocalyptic character of the society, its military and prophetic identity, made it an exemplar of the structures which many racial resistance groups and nativistic movements have been building in the last hundred years. It reproduces familiar historic patterns – notably that of the Maccabean resistance in Post-exilic Judaism: the ideal climate for apocalyptic literature.

The resistance of the jungle Maya was built around a religious-military capital, a shrine called Chan Santa Cruz. This was not a city, but a focus of religious activity like the ancient Maya cult centers. The archaic Mayan “city” was in fact a collection of tombs, temples, ceremonial ball-courts, observatories and so on, where the social and religious life of the people came to a focus, where the complex

evolutions of the Mayan calendar were worked out, and where men and Gods met in worship and in prophetic guidance. Chan Santa Cruz reproduced this pattern on a much smaller and rudimentary scale, in a Christian instead of an archaic Mayan form. The Indians of the resistance lived, like their forefathers, in small villages scattered through the jungle which they cleared for corn in small slash-and-burn plots (*milpas*). They came together at Chan Santa Cruz for religious worship and for prophetic instruction which was delivered, in times of crisis, by the "miraculous" Speaking Cross enshrined there.

We still do not know nearly enough about the ancient Mayan religion and philosophy of life to judge it correctly. Obviously the decadent religion of pre-conquest times does not tell the whole story, still less vestiges of superstition, magic, prophecy and so on which continued after the conquest. Maya religion of the classic period was centred in a complex cosmic and liturgical mystique of time cycles in which the directives of the gods to their people were interpreted by a sophisticated system of mathematics, historic chronicle art and religious rite. Later, the veneration of votive objects, statues and other things kept in hiding and perhaps endowed with speech, kept people in contact with what the gods, and eventually what Christ and His saints, demanded of them. The books of Chilam Balam were supposed to have been dictated by mysterious voices. When the Maya came together it was second nature to them to want to hear God *speak*, and speak directly: not in the words of a book or of a medium or through a prophet. The key idea in the understanding of the "Speaking Cross" is then the Maya's need for *direct* contact with the True God, the God of the Bible and of Christ, not through a Church of Ladinos who had proved themselves murderers, cheats and liars. The Maya wanted to hear God speak in their own convocations, and they were convinced that He would do so because they felt they were His people.

Now much has been made of the fact that the "speaking" of this Cross was produced by ventriloquism. Recognizing the psychological importance of the Speaking Cross, the Ladinos made special efforts to discredit it. The war on the Indian became, in a special way, a war on the Speaking Cross. By unmasking the "deceit" of the Cross and destroying the Indian's faith in it, the Ladino hoped to shatter the Indian's sense of community and identity and reduce him to cultural and psychological dependance. And this seemed to him to be almost

absurdly easy. All he had to do was show that the Cross did not work miracles, that it was a fanatical, superstitious myth, and so on. Hence repeated attacks and raids were made on Chan Santa Cruz, as long as it remained a defenseless village of huts, where the Cross was displayed on the trunk of a sacred Jungle Tree. The Ladinos concentrated with impassioned intensity on the Cross as material object and on the "voice" as a material fraud convinced that this was the way to strike the heart of the Indian's resistance. In 1851, the Cross was stolen. It was immediately replaced by another. In 1852 the supposedly miraculous tree was cut down and later on the ventriloquist arrangement (a pit in which the speaker was hidden) was exposed and ridiculed. None of this had any effect on the Indians who remained passionately devoted to the Cross and believed everything it said to them.

Was this an "intentional deception"? Or was it a kind of prophetic rite? The workings of the system were known to the Indians themselves. They were aware that a man was speaking, yet they still elected to believe that God was speaking to them through him and that the words, whatever their immediate source were prophetic. They were the "Words of the Cross" uttered in their sacred assembly.

4

The phenomenon of Chan Santa Cruz, in this as in other respects, resembles the Cargo cults which sprang up later in Melanesia, Polynesia and elsewhere. There too, confusion, frustration, resistance, and a desperate attempt to cope with the economic, social and spiritual disruption colonialism had produced in native society, led to spontaneous emergence of apocalyptic and nativistic groups. Men obeyed voices, centered seemingly absurd hopes on promises of prophets. Mysterious cult objects appeared – or imitation radio-stations and airstrips invited communication with an affluent world of ancestors. In the Cargo cults also we find an intense *will to believe* in prophetic promises which are often, from our viewpoint, wildly irrational and utterly hopeless. In the Cargo cults there is in fact a far greater residue of magic thinking mixed up with a semi-Christian eschatology than we find at Chan Santa Cruz.

In either case, however, the religious phenomenon is absolutely central to the resistance and the militancy of the movement. Hence, rather than trying to "explain" the apparent irrationality or fanati-

cism of the movement by tracing it to an obvious hoax, we would do better to consider the phenomenon – in this case the *Speaking Cross* – as a spontaneous living expression of the new sense of community and identity which has been called into being by a spirit of resistance. In other words, instead of spelling it out in our cause-and-effect terms by saying: “religious fakers persuade the people that they have been commanded by God to resist the whites”, we should understand it in some such terms as these: “the overwhelming need to recover a sense of community and identity, in order to resist the whites successfully, made the Indians singly and collectively devote an intense energy of faith to the worship which was the heart of their resistance movement”.

Just as Camus’s newspaper, *Combat*, was an articulate voice of the French resistance, denying and challenging all the claims made by the Nazis in occupied France, so the *Speaking Cross* was, for a more primitive and religious minded people, the articulate voice of their own resistance, guaranteeing their identity, affirming their right to resist, and giving them the strength to do so. The words of a quavering voice in the dark were not by themselves sufficient to do this: but the spirit of community and the sense of solidarity which required this dramatic expression. The rite and mystery were appropriate to a small, embattled, apocalyptic group, convinced that it was the victim of great injustice and believing that the Ladinos were under the judgement of God for the wrongs done to the Indians.

The importance of this cannot be neglected. In the first place, we must admit that the Indians were quite right: they had been treated with monstrous injustice – and those of them who submitted to white society continued to be so. In the second place, the *Cruzob* or people of the Cross, who gathered together in the resistance movement around Chan Santa Cruz, were the only Mayans who managed to retain a clearcut social identity and dignity of their own, while other Mayans drifted away and more or less disintegrated under white pressure. The *Cruzob* at least maintained a social order of their own. They maintained a culture that was completely independent of the white Ladinos and was fully capable of protecting itself against them. In Reed’s words, the *Cruzob* resistance produced “the only creative response of the rebel Maya to the attack on their world view”. Under the shock of war and the threat of annihilation, but favored by the protecting Jungle in which they could travel light with few needs and could outwit the white man in guerilla war, the Indians not only

survived but created "a unique example of Spanish Indian cultural synthesis . . . a real synthesis on more than the village level".

5

The theocratic military society of the Cruzob was a radical adaptation of traditional Mayan village life. It involved an instinctive return to many ancient patterns and structures. Communal and democratic to a degree, the society depended on the dedication of its members and on their willingness to perform their various offices, to take their turn at guard duty (which was demanded of every healthy man over sixteen) besides cultivating their own cornfields and participating in the more or less elaborate hierarchical system of worship and celebration characteristic of Indian society. In spite of obvious distortions, Chan Santa Cruz does give us some hints about life in ancient Maya cities which, in the classic period, must have depended not on slave labor but on the willing co-operation of free men who took pride in the sacred cities which they had built with their own hands and where they enjoyed the splendid religious festivities which filled their lives both with meaning and with pleasure. (It must always be remembered that human sacrifice, slavery and other by-products of war were *not* characteristic of the most ancient classic Maya society: they were brought in by the Toltecs and Aztecs when Mayan culture began to decline.)

In the beginning of the resistance, and during the war, the devout Catholic Maya depended to a great extent on captured priests in order to have Mass, sacraments and other religious celebrations which they felt to be essential. The Cruzob had to make a rather radical decision: to get along without priests, in order to be completely independent of Ladino Society. Indians who had good memories and who had learned the Latin prayers as altar boys, or seminarians, officiated not only in singing the Salve Regina and other anthems highly valued by the Indians, but also in "saying Mass" which was offered with tortillas of corn and honey. At Chan Santa Cruz – as also in some European monastic communities at that time – there were two Community Masses each day in the shrine: the first an early Low Mass, the second a late High Mass complete with band music. The Cruzob had a taste for this kind of thing, and in 1860 when they drove off a white expedition with a smashing defeat, they took great care to capture all the band alive with their instruments, and set them to teaching the children how to play cornets, trombones and clarinets.

There were, in fact, slaves at Chan Santa Cruz: Ladinos and mestizos who had been captured in raids, and also some Chinese. Where did the Chinese come from? In 1866 the S.S. *Light of Ages* landed at Belize, British Honduras, with 480 coolies from Amoy to work in the logging camps. Anyone who has read Traven's *Rebellion of the Hanged* has some idea of what life in the logging camps was like! The coolies shrewdly sized up the situation and one hundred of them took off into Yucatan. Four of these eventually got to Merida where they opened a laundry, but most of the hundred did not make it through Cruzob territory. They were taken as slaves. They probably did better than the others who remained in the camps and rapidly died of fever.

The Cruzob subsisted for over fifty years as a *de facto* separate nation (Reed has an amusing account of an interview of an envoy from British Honduras with the Speaking Cross. The Cross took a dislike to the envoy and the interview was unpleasant.) In 1884 the Cruzob even came to a formal agreement with Mexico which recognized their right to autonomous existence and guaranteed them against attack, provided they consented to form part, at least theoretically, of the Mexican Nation. This treaty was without effect, but the fact that it could be made was significant.

Life in the Jungles of Chan Santa Cruz was never paradisiac. Though the war petered out in 1851 due to the disintegration of the Yucatan army (the men were starving and deserted by the hundred), Chan Santa Cruz was constantly threatened. The whites of Northern and Western Yucatan did not want the Cruzob even as remote neighbors. Expeditions were frequently sent out against them, and the Cruzob in their turn raided white settlements along their borders. But the Cruzob population declined. So did the morale. Finally, in 1901, under the dictatorship of Diaz, an army was sent to clean out the Cruzob territory and run a railway through it. This job was done by a brutal and unscrupulous General called Inacio Bravo who liked to torture Indians and burn them alive. Bravo made a fortune out of Quintana Roo where he had a hand in everything that went on. He furnished (Mexican) political prisoners to the logging camps at 25 pesos a head F.O.B. Vera Cruz. Chan Santa Cruz became the capital of the new state, and was renamed Santa Cruz de Bravo in honor of the General who had at last brought civilization.

Even then, the story did not end. A revolution got rid of Diaz and put in Madero. A Yucatan revolutionary leader gave Santa Cruz

back to the Maya (in 1915). The remaining Cruzob who had been hiding in the jungle returned, destroyed the railway and the telegraph, refused to reoccupy the desecrated town and established themselves with a new Cross elsewhere. But the old sacred separatist society never came back into existence. There was no longer a real need or a real motive. On the contrary, between 1915 and the great crash of the twenties, the Maya of Quintana Roo made a relatively comfortable living on the chicle which was taken from their jungle to make chewing gum for Americans.

Chan Santa Cruz is now Felipe Carillo Puerto, but there are still Cruzob in the jungle. Reed, in his last chapter, speaks of visiting one of their leaders. When he had finally gained the man's confidence and convinced him of an authentic interest in the Cruzob, the man got a knowing look and started to talk business: What about some guns? "I had gone looking for recollections of the Caste War" Reed remarks, "and now I was invited to enlist."

6

Some reflections and conclusions. The rebellion of the Maya Cruzob is a paradigm of literally thousands of sectarian eschatological movements which spring up spontaneously and independently everywhere today. As a matter of fact, such movements have been characteristic of the Western world since the Middle Ages, but in our own time their multiplication is both universal and extraordinary. From the Cargo cults of Melanesia and Polynesia to the nativistic sectarian Churches of the Bantu Prophets in South Africa to the Black Muslims and the Black Power movement in the United States and even, in some sense, to the Cultural Revolution in Red China and to Zionist Israel we see the spread of militant eschatology in one form or other, now religious, now revolutionary, now fanatically conservative, but always radical. In every case the phenomenon is one of crisis and adaptation: an effort of a minority to interpret, to evaluate and to implement its own struggle for survival in a radically new and threatening situation. There is always a definite break either with the past or with established power or with an encroaching alien intruder. There is a regrouping around an ideological or religious center. There is a display of militancy and of force. There is an aggressive affirmation of identity and of certain basic demands. The symbols and expressions of power may take forms that seem fantastic and illogical, but if we look behind them

we usually find real problems and genuine grievances which cannot be dealt with by existing political or cultural means.

The fifty year life span of the segregated and sacred society of the Mayan "Cross-people" would seem to be about normal for a radical and sectarian minority movement of this kind. The intense feelings of revolt and separatism, nourished by voices and miracles, cannot be sustained much longer than this: but the revolutionary fervor of the beginnings can always subside and give place to a working political existence in which things settle down and become "normal". This means of course that relations with the rest of the world are also normal. The complete isolation of the Cruzob from the rest of the world – an isolation which maintained their zeal and on which they built their hope of survival, was in fact their ruin.

With a deeper fund of experience, of political knowledge and of international awareness, it is conceivable that the Mayans could have taken over Yucatan and run it as an Indian nation – especially if they had received aid from outside. That was out of the question a hundred years ago. But today, with revolutionary groups in all parts of the world becoming more conscious of each other's existence and even able to some extent to help one another, the situation is different. However, many other factors enter into the picture to complicate it: technology, world revolutionary movements, modern warfare, cultural and economic explosion and the widening gulf of bewilderment even among those who think they are in control: all this makes it unlikely that a few "pure" sects might aid one another in isolated and "sacred" self-affirmation. The complexity of all these factors, nevertheless, seems to guarantee that there will be many more such scattered movements of apocalypse and resistance in our time.

Review Discussion

*The Teachings of Don Juan: A Yaqui Way of Knowledge**

I *Rupert Sheldrake*

The shared experience of ordinary reality forms the basis of communication; experience which goes far beyond the normal range becomes incommunicable, the experience of the mystic or the madman. Madmen are locked up and the incomprehensible insights of mystics are systematized into the external observances of religion, or if less successful in the world, left in the obscurity of obscure books. The result has been that for most people mystical and direct religious experience are removed in time or place, beyond the range of possibility. But with the increasing availability of hallucinogenic drugs these comfortable limitations are disappearing. A minute dose of a drug such as lysergic acid diethylamide, LSD, will profoundly change the consciousness of anyone who takes it. The experience is described at the very least as "dramatically mind-opening", and for many people achieves the intensity of religious revelation. "I have repeated the biochemical and (to me) sacramental ritual several hundred times, and almost every time I have been awed by religious revelations as shattering as the first experience;" (Timothy Leary)¹. Anyone of us could take LSD tomorrow if we had access to supplies and were not afraid. And if we wanted to change our consciousness in other ways we could use other drugs: DMT, mescaline, MDA, hashish, all mind-expanding to different degrees. In recent years the use of such drugs has opened up for many people regions of consciousness never before glimpsed or suspected: for some this has led to madness or suicide, for others to a pursuit of direct religious experience by Hindu or Buddhist techniques of meditation and for a few, like Leary himself, to persecution and imprisonment.

The subjective explorations of Leary, Aldous Huxley², Ken

* *The Teachings of Don Juan: A Yaqui Way of Knowledge*, by Carlos Castaneda. University of California Press and Penguin Books. Page references are to the latter edition.

¹ Timothy Leary: *The Politics of Ecstasy*. MacGibbon & Kee. 1970.

² Aldous Huxley: *The Doors of Perception*. Chatto & Windus. 1959.

Kesey³, William Burroughs⁴ and many others have much in common with those of mystics, the main difference being the means used to reach another order of reality. The use of drugs rather than other physiologically effective methods such as fasting or meditation means that major changes in consciousness can be achieved very easily; it may be this very ease which leads so many people to discount the significance and importance of the use of psychedelic drugs. There is a strong more or less unconscious feeling that profound religious experience must be hard-won and available only to a remote and devoted few, and that instant revelation produced by such drugs as LSD involves taking a short-cut, cheating; that its effects are somehow counterfeit. I think this is an unreasonable reaction and in this article I want to argue that drug-induced religious experience is not merely a modern Californian curiosity, but of central importance in many religions, both past and present. Religions are not founded on unstructured hallucinations, but drugs can be used as a means of reaching that different order of reality in which the subjective certainty of religious experience lies.

Peyote, the small crown of the cactus *Lophophoria williamsii*, contains as its major active principle mescaline. It has been used for centuries in Central America; and its use spread to the South Western United States about 90 years ago, where it is employed in the ceremonial rites of the Native American Church which has over a quarter of a million followers. Scientific knowledge of its effects is very limited and was summarized in a recent review as follows: at first it "induces nausea, tremor and perspiration. Then in one or two hours these unpleasant effects subside and a dreamlike intoxicating phase follows in which the user has vivid kaleidoscopic visions before falling into a deep sleep"⁵. Here our knowledge of peyote and its use would end if it were not for the publication of *The Teachings of Don Juan* by Carlos Castaneda. Castaneda, an anthropologist, tried to question an old Yaqui Indian, Juan, about the use of peyote; he wanted objective answers, and could find out nothing. But after a year, Juan, who had a reputation as a sorcerer, told Castaneda that he had chosen him to serve a kind of apprenticeship. For five years he was led by Don Juan through a series of experiences of non-ordinary reality, induced by drugs. Three drugs were used.

³ Tom Wolfe: *The Electric Cool-Aid Acid Test*. Weidenfeld & Nicholson. 1969.

⁴ William Burroughs: *The Naked Lunch*. Grove Press. 1959.

⁵ N. R. Farnsworth: *Hallucinogenic Plants: Science* 162, 1086-1092, 1968.

peyote, which Juan related to the acquisition of wisdom, and two “allies” *Datura inoxia* (jimsonweed) and a mushroom, probably *Psilocybe mexicana*, which were related to the acquisition of power. It is not possible to summarize his fascinating and vivid descriptions of, for example, his meetings with the peyote god Mescalito, or the sensation of disembodiment after smoking the mushroom, or his powers of divination after smearing a paste of *Datura* mixed with lard on his temples. I quote only one passage, which describes the effects of applying the *Datura* paste to the legs, conferring the power of flight.

“My legs were rubbery and long, extremely long. I took another step. My knee joints felt springy, like a vault pole; they shook and vibrated and contracted elastically. I moved forward. The motion of the body was slow and shaky. It was more like a tremor forward and up. I looked down and saw Don Juan sitting below me, way below me. The momentum carried me forward one more step, which was even more elastic and longer than the previous one. And from there I soared. I remember coming down once, then I pushed up with both feet, sprang backwards, and glided on my back. I saw the dark sky above me, and the clouds going by me. I jerked my body so I could look down. I saw the dark mass of the mountains. My speed was extraordinary. My arms were fixed, folded against my sides. My head was the directional unit. If I kept it bent backwards I made vertical circles. I changed directions by turning my head to the side. I enjoyed such freedom and swiftness as I have never known before. The marvellous darkness gave me a feeling of sadness, of longing perhaps. It was as if I had found a place where I belonged – the darkness of the night. I tried to look around, but all I sensed was that the night was serene, and yet it held so much power.

Suddenly I knew it was time to come down, it was as if I had been given an order I had to obey. And I began descending like a feather with lateral movements.”⁶

Castaneda’s experiences were interpreted by subsequent discussion with Don Juan into a whole structure of a reality greater than and beyond the world of ordinary reality. It was through these experiences with Don Juan to lead him that he started to follow “the way of knowledge”; and it is through Castaneda’s experiences that we can glimpse the different order of reality in terms of which Don Juan interpreted the world. The interpretations would have

⁶ *Teachings of Don Juan*, pp. 125-126.

meant nothing to Castaneda without passing through the stages of experience which led to them; they would simply have been a dogmatic religious system.

The witch-cult in Europe may have been very similar: it too involved an interpretation of the world in terms of a greater reality directly experienced by means of drugs. The witches may have used the fly agaric, *Amanita muscaria*, which grows throughout the Northern Temperate regions. It is still used by tribesmen in Siberia but unfortunately we have only a "scientific" description of its effects: "light euphoria characterized by macroscopia, visions of the supernatural and illusions of grandeur. Religious overtones – such as an urge to confess sins – frequently occur. Occasionally the partaker becomes violent, dashing madly about until exhausted, he drops into a deep sleep".⁷ The witches certainly used the deadly nightshade, *Atropa belladonna*. This is closely related to *Datura* and the mandrake *Mandragora officinalis*; all these plants contain the same active principles, atropine, scopolamine and hyoscyamine. The witches' preparations of deadly nightshade were mixed with fat or oil and smeared on the limbs. The effects must have been similar to those experienced by Castaneda with *Datura*. In their confessions witches frequently described how they flew through the air after anointing themselves with the flying ointment. They also claimed to be able to transform themselves into animals⁸; again there is strong similarity to Don Juan's powers: he felt he could turn himself into a crow and fly with other crows, which Castaneda also came to feel after smoking the mushroom mixture. And the lizards used by Don Juan for divination parallel the use of small animals, familiars, for similar purposes by witches. The claims that witches could fly and transform themselves into animals, made both by the witches themselves and their persecutors, have frequently been dismissed as examples of extreme superstition and credulity but if they are re-read in the light of Castaneda's drug induced experiences, they make very good sense.

It was not entirely on the subjective evidence of their confessions that witches were condemned; there was one objective criterion which was taken as certain proof in the identification of a witch, namely the possession of the Devil's Mark. This was apparently made at initiation ceremonies and involved cutting or tearing the

⁷ R. E. Schultes: *Hallucinogens of Plant Origin*. Science 163, 245-254, 1969.

⁸ M. A. Murray: *The Witch Cult in Western Europe*. Chapter IV. Oxford University Press, 1921.

skin, sometimes on the hands or sometimes elsewhere. For example it was stated of one of the Somerset witches tried in 1664 that “the Devil prickt the fourth finger of her right hand between the middle and upper joynt (where the mark is yet to be seen)”⁹. Castaneda describes without comment an incident which bears a remarkable similarity to accounts from witch trials, “He took my left hand, and with a very fast motion separated the middle and fourth fingers as far as he could. Then with the point of his knife, he stabbed me right between the two fingers and ripped downwards on the skin of the fourth finger. He acted with so much skill and speed that when I jerked by hand away it was deeply cut and the blood was flowing abundantly”¹⁰. The resemblances between the European witch cult and Castaneda’s experiences with Don Juan are so great that they may indicate a historical connection. Witches reached North America and were tried at Salem, and since Mexico was conquered and colonized over a hundred years earlier it is conceivable that influences from the European witch cult could have combined with the religious practices of the Aztecs and other Indians already based on similar drugs. But whether or not this is so, Castaneda’s book makes it possible almost to see something of the witch cult from the inside; the great interest and importance of his descriptions are magnified further by the realization that a similar way of knowledge to that which he followed was widely known and practised in this country until so recently. The general view of European witches is that they used their “way of knowledge” malevolently, but we only see them in the light of propaganda against them, Don Juan was explicit that to use these powers for one’s own ambition was the third enemy of man of knowledge¹¹. Many of the European witches may have been similarly disinterested. So effectively was the witch cult persecuted, suppressed and forgotten that it is only with Don Juan as a guide that it is possible to begin to appreciate its nature.

Unfortunately we have no such guide to the many other cults and cultures which use hallucinogenic drugs. The Indians of Southern Mexico, in addition to the drugs taken by the Yaqui, regularly consume the the seeds of morning glory, *Ipomoea*, which contain various lysergic acid derivatives¹². This plant is believed to possess a deity of its own. Various tribes in Brazil and Colombia take a snuff made

⁹ M. A. Murray, op. cit., p. 89.

¹⁰ *The Teachings of Don Juan*, p. 76.

¹¹ p. 86 (See *Sentences* at the end of this number. Ed.)

¹² R. E. Schultes, op. cit.

from the resin of jungle trees of the genus *Virola* which produces powerful effects related by those who take it to the spirit resident in the drug. *Cannabis* in one form or another is used by tens of millions of people, mostly in Asia and Africa, and although it does not produce effects as dramatic as the hallucinogenic drugs, it leads to an intensification of feeling and sensation which can assume a religious significance. It has been used for over 2,000 years by worshippers of Shiva in India and in some sects in the Congo it is smoked as a matter of duty¹³. Indians in the west Amazon use a drug *yaje*, or *ayahuasca* made from the bark of a tree. "Its effects are in some respects similar to intoxication with hashish. In both there is a shift of viewpoint and extension of consciousness beyond ordinary experience. But *yaje* produces a deeper derangement of the senses with actual hallucinations. Blue flashes in front of the eyes are peculiar to *yaje* intoxication. All medicine men use it in their practice to foretell the future, locate lost or stolen objects, name the perpetrator of a crime, to diagnose and treat illness."¹⁴ It is also used more widely by some groups, being taken by all the men, as a direct means of access to the spirits who appear and talk to them¹⁵.

There are a number of other examples of the use of hallucinogenic drugs, but even less is known about them than those that have been mentioned. But if extraordinarily little is known about the effects of drugs and their use at the present, even less is known about the use of the same or other drugs in the past. Our knowledge of the witch cult dates only from the middle ages; this cult was almost certainly the remnant of a much more widespread and ancient religion. In the Rig Veda there are more than a thousand hymns to *soma* which have been preserved; their drug was the basis of the cult brought to India from the north by Aryan invaders about three and a half thousand years ago. The plant was deified and its juice was drunk in religious rites. Although its identity is not known, it seems likely that it was the fly agaric, *Amanita muscaria*¹⁶. It is a pity that the philological arguments used by Allegro in *The Sacred Mushroom and the Cross* are so incredible and implausible, because they obscure the possibility that he might in part be right, in that it is conceivable that

¹³ L. Lewin: *Phantastica—Narcotic and Stimulating Drugs*. 2nd ed. Routledge & Kegan Paul, 1964.

¹⁴ William Burroughs, *op. cit.* Appendix.

¹⁵ M. Huxley and C. Capa: *Farewell to Eden*, p. 110, Chatto & Windus, 1965.

¹⁶ R. E. Schultes, *op. cit.*

a group like the Essenes were a drug taking cult. There is no evidence against the use of hallucinogenic drugs such as *Amanita muscaria* by groups in the Middle East, and it would be strange if cults based on the use of drugs had not existed in that region, since they are known to have existed or still to exist almost everywhere else in the world. Certainly many of the supernatural events and revelations reported in the Bible are closely paralleled by experiences induced by drugs. For example in one of the temptations Jesus is taken by the devil to a parapet of the temple and encouraged to throw himself off, when according to scripture angels should bear him up. Under the influence of drugs such as LSD a disregard for height and a feeling of the ability to fly are often induced. In the United States a number of people have been killed as a result of yielding to this temptation and stepping out of windows or off high bridges. Of course, such parallels do not prove that Jesus took hallucinogenic drugs, and in any case, he resisted the temptation to think height could be disregarded. Similar effects can also be produced by fasting and extreme austerity, which both John and Jesus subjected themselves to in the wilderness, but the possibility that drugs were also used cannot be dismissed.

In some ways this controversy is irrelevant. I doubt whether the subjective experience of other orders of reality, in which direct religious experience lies, occurs spontaneously in anyone regarded by our society as sane. Such experiences can be deliberately induced in three ways, all of which fundamentally affect the physiology of the brain: by drugs, by transcendental meditation¹⁷, and by fasting and self-mortification. In all of us there are other potential realms of consciousness; in almost none of us are they ever entered. But with half a gram of mescaline, for example, the threshold can be crossed. "The first phase, generally accompanied by unimportant physical sensations, consists in a kind of removal from earthly cares and the appearance of a purely internal life, sense hallucinations, miracles which affect the individual with such force that they appear real. During the greater part of the time they are accompanied by modifications of the spiritual life which are peculiar in that they are felt as gladness of souls or similar sensations, impossible to be expressed in words and quite foreign to the normal state, but nevertheless quite full of delight. No disagreeable sensations disturb these

¹⁷ R. K. Wallace: *Physiological Effects of Transcendental Meditation*, *Science* 167, 1751-1754, 1970.

hours of dream life. In comparison with the material world which now manifests itself, the ordinary world of everyday life seems pale and dead"¹⁸.

All religious interpretation of the world in terms of another and greater reality depend on the subjective certainty of experience of a different order of reality. In the absence of direct religious experience, religion depends on superstition and fear, or at best on a tortured faith in dogmas and explanations which are necessarily inaccessible to ordinary experience. In Western Europe, since the witch cult was stamped out, direct religious experience must have been rarer than in almost any other society at any time. At present, for an increasing number of people, the first awareness of the possibility of other realities comes not from religion or even the example of gurus, but from hallucinogenic drugs. Perhaps the growing mysticism should be opposed because it threatens technological society; the fear and horror with which the use of drugs is regarded by many may indeed be well-founded, not only because of their manifest dangers to the people taking them, but because the widespread use of mescaline or LSD could transform society more radically than any advance of technology. But the change might be for the better. The fear is more a fear of mysticism than of drugs; it is the extreme ease with which drugs can become available that dramatizes the fear. The path of meditation is a more disciplined path to spiritual experience, and perhaps a better one, but it will always be a path for the few. It poses no major threat to our civilization, which is based on the denial of non-ordinary reality; but drugs do, and have been widely used in cultures that have not made this denial.

(I thank Roger Freedman for many helpful discussions.)

II *Mich Snelgrove*

I was interested in this book for two reasons. I have studied the culture of the American Indians (I haven't unfortunately been able to visit them, but I have read all I can about them), and I noticed how the use of peyote was part of their religion, which helped them to keep their end up against the encroaching Whites and the pressures of the missionaries. Also I have seen a good deal of drug taking and its effects among people in London. This has set me

¹⁸ L. Lewin, *op. cit.*, p. 102.

thinking about the difference between the use of drugs in the peyote cult and their indiscriminate use.

First, there is the actual drug. Peyote (a cactus, *Lophophora williamsii*) is hallucinogenic, but it is not habit forming. But it is difficult to obtain in this country, and most of the people who take drugs in London take LSD and mix it with other drugs such as methedrine ("speed") which are very deleterious. The Indians take peyote in the context of ceremonies which enhance their unity with each other in their tribal society, and which are meant to enhance their inner strength. This leads up to dancing in a trance-like state. For the Plains Indians, eating peyote as a preliminary to dancing only came in when their traditional Sun Dance and Ghost Dance were taken away from them. The object of eating it is to build up their spirit, not to get ricks or to escape. Sometimes it is eaten in a sacramental ritual. In fact this is the only way it is eaten in the peyote church proper. But besides this ritual eating in the peyote church, there is also the individual taking of peyote, and also the Jimson Weed (*Datura*) among certain tribes of the South West and Mexico, including the Yaqui. This is done under an experienced guide, and its object is to obtain the inner strength and vision to discover what is called "the way with a heart in it" for that individual. This went back to the old practice of many Indian tribes, where a young man before initiation as a warrior sought a guardian spirit which appeared to him usually after much fasting and meditation. The guardian spirit could be anything—star, moon, sun, or an animal. It remained with him throughout his life, and usually some token of it would be incorporated in his medicine bundle. The Indians of the South West took peyote as a means to the obtaining of spirit visions, and there were teachers who guided them in this.

Don Juan was evidently a master in this tradition. Castaneda met him by chance in a bus station, and it looks as if he needed a pupil to preserve his teachings, and was prepared to take on this young man from an alien culture, though it was a full year before he consented to do so. Castaneda went on for about five years under Don Juan's tutelage. He failed in the end to stay the course; he says he succumbed to the first enemy of a "man of knowledge"—fear. Some of his experiences were indeed terrifying. But I find it difficult to see how he could ever have been Don Juan's complete pupil. For one thing, his commitment could not be total. He went back to his

own people in the University in between his visits. Moreover, Don Juan was obviously a master carefully watching the effects of the substances on his pupil, and Castaneda was a man of extreme courage and sincerity. But the difference in their cultural backgrounds prevented them from going all the way together. Castaneda doesn't seem to have had enough help from his own background in thought about perception and the interpretation of inner experiences to make his own estimate of what was happening to him, and he could only have accepted Don Juan's interpretation of the nature of the "non-ordinary reality" which he perceived in these states by losing his own intellectual identity, and this he was not prepared to do.

Don Juan doesn't seem to have talked about himself. He had a firm sense of affinity with the ways "Mescalito" pointed out, and he knew what to expect. So though he realized there were great risks involved, he was never confused. In his tradition, the "man of knowledge" had to have the qualities of a warrior. Any ulterior motive, even the one of wanting to study the effects of medicinal herbs, which was what Castaneda started from, could prevent the absolute purity of intention necessary to stay the course. Could Castaneda have had complete "full heart", or was he only half-hearted, with U.C.L.A. at the back of his mind, knowing that he must return there to present his Ph.D.?

A final note: in talking of the properties of the different hallucinogenic substances which can be "allies", Don Juan speaks of the mushroom *Psilocybe mexicana* as being gentle with beneficial effects, whereas the Jimson weed, *Datura innoxia* is said to be violent and unpredictable. But *Psilocybe mexicana* used constantly can have a deleterious effect in producing premature aging in facial features, as was found among the Toltec males.

III *Ruby Rae*

This book blew my mind. When you do field work, you say you are going to sit at a person's feet and learn from him, but when you come to write it up, you write quite differently. You come to your field work, at any rate if it concerns people's beliefs and moral practices, with a sceptical attitude, and you may show how what they think can be coherent for sociological reasons, but this is very different from personal involvement, or even deep intellectual sympathy. There is a real dilemma here; you can't just "go native"

and remain a sociologist, because as a sociologist you are committed to giving an objective assessment, which means you have to examine as well as share people's attitudes and systems of belief. But unless you can really feel there is something important they are after, you will come to have a "tongue in the cheek", especially about the beliefs. When this happens you can very well be conning your informants when you talk to them. This means you ought to take as your field work people who are doing and thinking about things you yourself think are important. If you don't feel like this, you will probably confine yourself to factual surveys – things like "name, age, voting behaviour", and you will just see people under these labels.

In this book, Castaneda's account of his apprenticeship to Don Juan certainly wasn't a tongue in the cheek affair, and it wasn't simply a survey of the incidence of peyote taking in the Sonora desert. He really wanted to understand Don Juan's teaching as a "way of knowledge", and he went a very long way at great personal risk. But he couldn't go all the way, not only because it was a way very few actual Indians could have followed right through, but because he couldn't solve the dilemma of dealing with the two ways of thinking. Anthropologists on the whole avoid trying to interpret the "inner world" except in external terms of social relations ("what kinds of people in what social positions would think like this?"). "Most of our social scientists, one feels, regard the introduction of poetic vision into their work in much the same way a pious monk would regard bringing a whore into the monastery. But for the counter culture it is indisputable that the poets have known better than the ideologues, that visions mean more than research" (p. 98, *The Making of a Counter Culture, Reflections on the Technocratic Society and Its Youthful Opposition*, Theodore Roszak). "Poetic vision" will mean here trying to see how the world appears to people from inside, and also being able to participate in their excitement about it. We talk about "participant observation", but most of us are only occasional, short term participants. I myself am a research student in the early stages of becoming a sociologist, and I am looking into "the underground" sub-culture, particularly in London. I thought I had gone quite a long way in living with people in communes and Arts Labs. But I have never taken drugs, and even if I had experimented with them once or twice (as Jabousky did, as described in *The Hippie Trip*), I should not have got to know what is meaningful about them to people to whom they are part of

a way of life.

I admire Castaneda's courage here; and I know that I am limited by not being as involved as he was. But anyhow, "participant research" doesn't mean one must give up one's judgment. What one would like to see would be a co-operative mutual relation between the investigator and the people investigated, in which they know you are trying to interpret them, and they trust you to do so, because they know that you are not just detached. You genuinely sympathise, even where you yourself don't personally share their ways of thinking or behaviour. This is possible in working with the "underground" because it is part of their outlook that everyone must be allowed to "do their own thing", and no-one has in fact asked me to take drugs. But unless one's involvement with the people one is investigating is more than a temporary and surface one (sending out questionnaires or sampling opinions), I don't see how we sociologists can really understand anything worthwhile.

Sequence of Metaphysical Poems

I THOUGHTS, INTERACTING WITH A TYPEWRITER

But God, where are you? Nowhere, it appears –
And Man gets nowhere also nowadays.
We've nothingness in common – but to praise,
We'd have to see you, Monarch of the Years.

It might be difficult for you to show
Yourself on such a narrow spectrum-band.
A God's supposed to wave a magic wand
And make his captive constellations grow.

We're your vestigial experiments,
The proofs of your existence all around?
In us, in all we lack, may you be found,
If not in churches, chapels, governments?

Some have inherited an expertise
For making Mumbo clearly jumbify,
But such a bastard medium as I
Can't make you present, huddling on bare knees.

The whole, however, the divine ideal –
Please up to that kindly approximate,
Keep with your poorest creature just one date
And let it show the world how well you heal.

The need, it happens, Sir, is rather great,
And only you, by definition, could
Correct the flow of this enquirer's blood
By modulation of terrestrial fate.

If Omnipresence is too much to hope,
A small exception locally'd suffice
To hoist a foolish soul to Paradise,
With due respect to Cardinal and Pope.

If you were everywhere, we'd have no hole
To hide in for a change of company,
You'd track us as our mortal enemy
And celebrate compulsion with each soul.

It's quite a symptom of nobility
Not to insist on forcing into line
One's delicately randomised design,
Even at risk of slight futility.

"Creator Limited resists all leaks,
A member of Imperial Tobacco" –
Your evening press produces this faint echo
Of what the businessman obliquely seeks.

Not such the Lord to whom antiquely cling
Ladies and gentlemen on rural beats
Who count on Him to bless their country seats
And in His service regularly sing.

Not such, again, the doubtful candidate
For ecumenic honours whom we call
Long-distance: "Take no notice of us all,
But kindly be, and supervise our fate."

Walter Roberts

II TRIP AND TANTRUM

(i) *Tolkien 1970*

Clouds drift across the sky,
So soft and white,
they seem just right,
in my poor sight.
To turn me on,
and create a song,
I'll lay me down,
way out of Town,

and let my thoughts,
go round and round.
To blow my mind,
with my own kind,
to love each other,
and have no bother,
with fuzz or folks like that,
and we'll have a cat,
big and fat,
to sit around.
We'll share our hash,
and what little cash,
we have.
There'll be a chick or two,
For Tom and Ed,
and me and you,
To tell our troubles to,
There'll be a love-in,
T'aint no sin,
To wear beads and
eat some seeds,
To make us high,
and we'll do our thing,
and have a sing,
and I'll wear my ring,
like in the book
which when I shook
out jumped a hobbit,
upon which, I made
him sit,
and tell me tales,
of Gandalf's Garden,
of Elvins, dwarfs,
and things called men,
All of which are written,
by the lovely hand of Tolkien,
A land of childhood,
dreams come true,
for Tom and Ed,
and me and you.

My travelling friend,
Now is the time,
to close this tale
of nursery rhyme.
I'll see you another
time, adieu.

(ii) *Existence*

Does Existence mean this to me,
that I break my heart, upon
its rocks, which, if I believed,
in God, would seem to have been,
made for this?

No!

Sweet Existence,
disillusion me not, I pray,
from memories which are sweet,
and fancies, which I cherish,
I drift in my web, a spider,
waiting for my mate, to devour
me,

and so I can maybe transcend
Existence.

I reached, each time lost,
in the hopelessness of it all,
for that fleeting color which lures
me to my doom, or hope,

I trust not neither,

Or I tell Existence,

blow your mind,

Sweet Maid,

and come with me, to taste,

Nirvana,

dip into nothing,

cares to smash to pieces,

into nothing,

it's all nothing,

this Existence, just nothing.

Mich Snelgrove

III FROM WELLS OF SILENCE AND DELIGHT

(i) *Christ Crucified*

From wells of silence and delight
All action and emotion come.
They spring and shine into a height
And know that Heaven is their home.

United with their place of birth
They soar to vision out of dreams,
Then fall again upon the earth
To flood it with their fruitful streams.

From depths of quiet and delight
All action and emotion flow,
And when they cut their channel right,
That Heaven rings with joy, they know.

But when they strike into a course
That fouls the water from the well
Or misdirects its living force,
The pain this gives, we cannot tell

Unless we hang before our eyes
And take into our living thought
This Figure of the Love that dies
To mend the ruin we have wrought.

And looking long upon that sight
And buried in that Heart, we know
The plentitude of peace and light
From which his Act and Passion flow.

(ii) *On a plaque of the Crucifixion*
In all this rich and subtle work, for me
The piercing-point of beauty was to see
How della Robbia fashioned the two thieves.
See, one rejects our Mercy, one receives:
One looks away with lost, averted face,

**One gazes, thirsting, on his Well of Grace.
The world still hangs upon this choice today,
To be so fixed, or so to turn away.**

A. K. Clarke

Comment

“Where Countryside Planning Must Begin”

*Summary of notes sent by Geoffrey Cowley, S.P.Dip.M.T.P.I.,
F.I.Min.E., County Planner of Bedford.*

Geoffrey Cowley's main criticism of John Dyson's article is that it does not go nearly far enough; that it does not come within sight of the extent of what the executive town and country planner is up against.

Why should countryside planning start with gravel? In Bedfordshire, where there is a whole-time mining engineer on the planning staff, they say they mine almost everything except gold and diamonds; and each mineral, whether clay, sand, chalk or gravel has the same set of problems, though each needs a specific solution. Nobody wants a mineral working of any description at the bottom of his garden, yet each extract is as essential as every other. Bedfordshire has 4,490 acres set aside for brick-working alone; the restoration problem here is totally impossible without a regional and national policy behind the County Planner, who would welcome such a plan as much or more than John Dyson.

Gravel is the least of the County Planner's worries in Bedfordshire, because he has had the foresight to come to terms firmly but amicably with the commercial developers, and they work on restoration together. Much more difficult to heal are the scars of bulk minerals such as clay and chalk. With this in mind, Geoffrey Cowley, in 1967, produced a planning report on the Bedfordshire brickfield problem, which shows clearly that the local situation is bound to deteriorate unless within a national framework, there is consultation and co-operation between all interested parties.

Bedfordshire produces about one fifth of the total national supply of bricks. To produce this, planning permissions were given by the Ministry of Housing and Local Government as far back as 1947-52, with conditions laid down (not very specific) about tree planting and screening, infilling or water-filling and landscaping. Subsequent additional permission even by the local planning authority carry conditions much tighter on time working methods, but meanwhile, the amount of derelict land spreads every year. Now the Ministry

keeps an inventory of derelict land, and reclamation costs are spread and eased by grants to Local Authorities. But if such land has been subjected to planning conditions, it is not officially derelict, therefore hardly any Bedfordshire pits are available for grant aid, though there are about 1,400 acres of worked out sites not yet reclaimed.

What hope has the local planner of enforcing reclamation conditions on private companies? These have continuously planted trees with varying success. Casualties have occurred through poor soil, exposure, insufficient maintenance, and mysterious sickness, now found to be due to atmospheric pollution, partly caused by the industry itself, partly by the consequent turnover in farming from stock to arable because of pollution danger to animals and the effect of both industry and farming on the water-table. So in this flat land of tall chimneys and diminishing hedgerows, dying trees add to the general depression. To combat pollution, brick chimney heights have risen to as much as 300 ft., which in turn makes nonsense of screening regulations. Since the passing of the Civic Amenities Act, with its encouragement of public tree planting and maintenance, and the new technology for shifting semi-mature trees, the local planner may hope to be luckier in his control of this aspect of reclamation, but only if there is enlightened co-operation between brick companies, landowners and farmers as well as Rural and County Councils.

Infilling is a much knottier part of the reclamation programme. Less than one third of the permitted areas have yet been worked, and already there are 91.2 million cubic yards of derelict land to be filled. What with? Only two likely materials are available in quantity, domestic refuse from the Greater London Council, or colliery spoil from Notts. G.L.C. has already said the transport costs are too high. Here we have a nationalised industry and the country's largest Local Authority with waste to dispose, of an industry producing 20% of the national brick output, with a restoration problem; we have a national transport system, Local Authorities charged to improve their environment and a government department concerned to eliminate dereliction. But for lack of an overall national arrangement about costs, the solution goes by default. Without more informed, active public support and wider powers, how can the local planner enforce restoration agreements?

* * *

John Dyson rightly wants initiative and imagination, and there

follows a brief address recently given by Geoffrey Cowley, which shows a clear idea of the new kind of flexible planning which is needed to match new technology.

“Planning Control of Restoration”*

I am billed to declaim on “the planning control of restoration”. Could I, in these permissive days, begin with the planning control of sin, as we have been hearing all day about activities where the sins of the fathers have certainly been visited on the children for far more than the biblical “three or four generations”?

A representative of a large organisation wrote recently to ask if he could call in and have a talk with me about what he called “committing the sin of development” in one of my villages. If development is a sin then dereliction a crime – a crime technically committed as soon as the mineral operator turns the first sod – a crime for which we punish him by sentencing him to work *sine die* with the constraints of conditions governing methods and phasing of excavation and restoration – conditions which are frequently out-of-date almost as soon as they are imposed.

An enlightened society has, in the judicial field, seen the merits of the probation system as a means of control without imprisonment – I wonder if a similar approach might be valid in relation to the control of mineral excavators: whether they could not be put, as it were, on probation, required to report regularly and to conduct their activities responsibly, with the control exercised over them reflecting the confidence they from time to time evoke and the results they gradually achieve.

A planner’s constant misery today is trying to enforce the unenforceable: requiring an operator to back-fill when no filling material is available; to landscape where the trees will not grow; to adhere to a phased programme geared to superseded machinery and a changed market. What chiefly is lacking is flexibility and allied to that, I would say, faith.

First – flexibility – reflecting on to-day’s walking drag-line machines and the amalgamation of a legion of small operators into mammoth sophisticated organisations since the end of the war, the mind boggles at what new changes the twenty-first century will bring – thoughts prompted by “Apollo 12”, “Tomorrow’s World” and

* Address given to the Civic Trust Derelict Land Conference, Stoke-on-Trent, 1970.

“Doomwatch”. Will, I wonder, the rather cumbersome and rigid controls of today be able to match the speed of diversity and change in the industry? What lies ahead:

1. Brine is mined today by hydraulic methods involving little or no excavation – could this method perhaps have other applications or would a cost/benefit analysis throw up even more expensive problems related to the consequent pollution of river water?
2. Pipelines are commonly used for the bulk transport over vast distances of a host of materials of all sorts – solid, liquid and gas – could this pipeline technology revolutionize the transport, both of the mineral itself and of filling material?
3. Atomic fission and fusion are commonplace – is perhaps sonic separation of mineral from crude excavation just around the corner?
4. The carpet of air that supports the hovercraft conjures up visions of underground mining with seams supported by a cushion of compressed air and the cavities slowly deflated to achieve controlled gentle settlement?
5. Even our beer today is stored in plastic containers – could we make huge plastic bags for the storage of fuel or gas in our worked-out pits?
6. The protein-reinforcement of cheap foods by plankton injection for use in underdeveloped countries is already a viable practice. Maybe there is a possibility of waste heat from atomic power stations providing the appropriate thermal conditions in flooded pits for a plankton cultivation centre or perhaps a fish farm?

I am sure that the message of these musings is that strait-jackets are out: our controls must be so fashioned as to be capable of continuous up-dating to meet new conditions, new machinery and new outlets. Trust on both sides is, I am sure, a prerequisite of the required flexibility: frankly though, I cannot see this controlled flexibility emanating from the present system of outline and detailed planning permissions, granted, withheld or qualified by a multiplicity of local planning authorities of varying knowledge, of varying ability and of varying sympathy. I don't know about the Greeks, but the Latins had a word for it: “*Quis custodiet ipsos custodes?*”

Reverting to trust, for which read “faith” – in the well-known book of “Hebrews” you remember:

**By faith the Israelites crossed the Red Sea
By faith the walls of Jericho fell down
– and so on**

Well in my rather less well-known planning book of Bedfordshire :

By faith have Vauxhall Motors dug sand to build their test-track from places within their perimeter where for landscape reasons no mineral operator has previously been allowed to excavate.

By faith do Rugby Portland Cement pump chalk via a 57-mile underground pipeline to Rugby in a slurry of Dunstable's sewage effluent.

By faith this year will a 250-acre water-sports centre begin to take shape at Stewartby Country Park following the bequest by the company of the site.

These are products of mutual trust and co-operation and not directly of rigid planning controls.

Sentences

The Four Enemies of a Man of Knowledge*—

As I was getting ready to leave, I decided to ask [Don Juan] once more about the enemies of a man of knowledge. I argued that I could not return for some time, and it would be a good idea to write down what he had to say and then think about it while I was away.

He hesitated for a while, but then began to talk.

“When a man starts to learn, he is never clear about his objectives. His purpose is faulty; his intent is vague. He hopes for rewards that will never materialize, for he knows nothing of the hardships of learning.

“He slowly begins to learn – bit by bit at first, then in big chunks. And his thoughts soon clash. What he learns is never what he pictured, or imagined, and so he begins to be afraid. Learning is never what one expects. Every step of learning is a new task, and the fear the man is experiencing begins to mount mercilessly, unyieldingly. His purpose becomes a battlefield.

“And thus he has tumbled upon the first of his natural enemies: Fear! A terrible enemy – treacherous, and difficult to overcome. It remains concealed at every turn of the way, prowling, waiting. And if the man, terrified in its presence, runs away, his enemy will have put an end to his quest.”

“What will happen to the man if he runs away in fear?”

“Nothing happens to him except that he will never learn. He will never become a man of knowledge. He will perhaps be a bully or a harmless, scared man; at any rate, he will be a defeated man. His first enemy will have put an end to his cravings.”

“And what can he do to overcome fear?”

“The answer is very simple. He must not run away. He must defy his fear, and in spite of it he must take the next step in learning, and the next, and the next. He must be fully afraid, and yet he must not stop. That is the rule! And a moment will come when his first enemy retreats. The man begins to feel sure of himself. His intent becomes

* From “The Teachings of Don Juan: A Yaqui Way of Knowledge” by Carlos Castaneda. © The Regents of the University of California, for the University of California Press, to whom and to the author acknowledgment is made for permission to quote this passage.

stronger. Learning is no longer a terrifying task.

“When this joyful moment comes, the man can say without hesitation that he has defeated his first natural enemy.”

“Does it happen at once, Don Juan, or little by little?”

“It happens little by little, and yet the fear is vanquished suddenly and fast.”

“But won't the man be afraid again if something new happens to him?”

“No. Once a man has vanquished fear, he is free from it for the rest of his life because, instead of fear, he has acquired clarity – a clarity of mind which erases fear. By then a man knows his desires; he knows how to satisfy those desires. He can anticipate the new steps of learning, and a sharp clarity surrounds everything. The man feels that nothing is concealed.

“And thus he has encountered his second enemy: Clarity! That clarity of mind, which is so hard to obtain, dispels fear, but also blinds.

“It forces the man never to doubt himself. It gives him the assurance he can do anything he pleases, for he sees clearly into everything. And he is courageous because he is clear, and he stops at nothing because he is clear. But all that is a mistake; it is like something incomplete. If the man yields to this make-believe power, he has succumbed to his second enemy and will fumble with learning. He will rush when he should be patient, or he will be patient when he should rush. And he will fumble with learning until he winds up incapable of learning anything more.”

“What becomes of a man who is defeated in that way, Don Juan? Does he die as a result?”

“No, he doesn't die. His second enemy has just stopped him cold from trying to become a man of knowledge; instead, the man may turn into a buoyant warrior, or a clown. Yet the clarity for which he has paid so dearly will never change to darkness and fear again. He will be clear as long as he lives, but he will no longer learn, or yearn for, anything.”

“But what does he have to do to avoid being defeated?”

“He must do what he did with fear: he must defy his clarity and use it only to see, and wait patiently and measure carefully before taking new steps; he must think, above all, that his clarity is almost a mistake. And a moment will come when he will understand that his clarity was only a point before his eyes. And thus he will have

overcome his second enemy, and will arrive at a position where nothing can harm him any more. This will not be a mistake. It will not be only a point before his eyes. It will be true power.

"He will know at this point that the power he has been pursuing for so long is finally his. He can do with it whatever he pleases. His ally is at his command. His wish is the rule. He sees all that is around him. But he has also come across his third enemy: Power!

"Power is the strongest of all enemies. And naturally the easiest thing to do is to give in; after all, the man is truly invincible. He commands; he begins by taking calculated risks, and ends in making rules, because he is a master.

"A man at this stage hardly notices his third enemy closing in on him. And suddenly, without knowing, he will certainly have lost the battle. His enemy will have turned him into a cruel, capricious man."

"Will he lose his power?"

"No, he will never lose his clarity or his power."

"What then will distinguish him from a man of knowledge?"

"A man who is defeated by power dies without really knowing how to handle it. Power is only a burden upon his fate. Such a man has no command over himself, and cannot tell when or how to use his power."

"Is the defeat by any of these enemies a final defeat?"

"Of course it is final. Once one of these enemies overpowers a man there is nothing he can do."

"Is it possible, for instance, that the man who is defeated by power may see his error and mend his ways?"

"No. Once a man gives in he is through."

"But what if he is temporarily blinded by power, and then refuses it?"

"That means his battle is still on. That means he is still trying to become a man of knowledge. A man is defeated only when he no longer tries, and abandons himself."

"But then, Don Juan, it is possible that a man may abandon himself to fear for years, but finally conquer it."

"No, that is not true. If he gives in to fear he will never conquer it, because he will shy away from learning and never try again. But if he tries to learn for years in the midst of his fear, he will eventually conquer it because he will never have really abandoned himself to it."

"How can he defeat his third enemy, Don Juan?"

“He has to defy it, deliberately. He has to come to realize the power he has seemingly conquered is in reality never his. He must keep himself in line at all times, handling carefully and faithfully all that he has learned. If he can see that clarity and power, without his control over himself, are worse than mistakes, he will reach a point where everything is held in check. He will know then when and how to use his power. And thus he will have defeated his third enemy.

“The man will be, by then, at the end of his journey of learning, and almost without warning he will come upon the last of his enemies: Old age! This enemy is the cruellest of all, the one he won't be able to defeat completely, but only fight away.

“This is the time when a man has no more fears, no more impatient clarity of mind – a time when all his power is in check, but also the time when he has an unyielding desire to rest. If he gives in totally to his desire to lie down and forget, if he soothes himself in tiredness, he will have lost his last round, and his enemy will cut him down into a feeble old creature. His desire to retreat will overrule all his clarity, his power, and his knowledge.

“But if the man sloughs off his tiredness, and lives his fate through, he can then be called a man of knowledge, if only for the brief moment when he succeeds in fighting off his last, invincible enemy. That moment of clarity, power, and knowledge is enough.”

NOTES ON CONTRIBUTORS

H. J. Eysenck is Professor of Psychology in the University of London at the Institute of Psychiatry, Maudsley Hospital. He has been a leader in experimental research on the structure and measurement of aspects of personality, as well as on Behaviour Therapy. Among his many publications are *The Psychology of Politics; The Dynamics of Anxiety and Hysteria; The Structure of Human Personality; The Uses and Abuses of Psychology*.

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Phillip W. Warren is presently supervisor of research for the Life Skills Division of Saskatchewan NewStart, Inc., Prince Albert, Sask., Canada, a quasi-governmental company developing programs to aid disadvantaged people. He has a Ph.C. in social psychology from the Univ. of Minnesota, has taught college for 6 years and has a continued interest in humanistic psychology, the scientific study of religious experience and spiritual abilities, including psychic research.

John Bleibtreu wrote *The Parable of the Beast*, from which this piece is taken. He served in the U.S. Navy, worked as a stockbroker in New York, and retired early to read and write at leisure.

Walter Roberts studied at Cambridge and Harvard, and has won prizes for poetry, including the Seatonian and an Olympic medal. In recent years he has become involved in the philosophy of science.

Amy K. Clarke graduated from Newnham College, Cambridge, in classics. She was Senior Classical Mistress at Cheltenham Ladies' College, and is now retired and researching into the poetry of Claudian (late fourth

century A.D.). Author of *The Universal Character of Christianity* (Faber, 1950), *A History of Cheltenham Ladies' College, 1853-1953* (Faber, 1953), and various volumes of poetry between 1922 and 1962.

Rupert Sheldrake has a Royal Society Rosenheim Research Fellowship in plant biochemistry at Clare College, Cambridge, where he is also Director of Studies in Natural Science. He researches into the control of growth and differentiation in the higher plants.

Mich Snelgrove has worked at various jobs as painter, bookseller, plumber's mate, cowman. He writes poetry, and has seen something of the strength and weakness of the "turned on" culture from inside.

Ruby Rae graduated in English and Philosophy in Belfast, and is now at Cambridge researching into the "underground" sub-culture. She has also been engaged on educational research in Pre-School Education in Priority Areas.

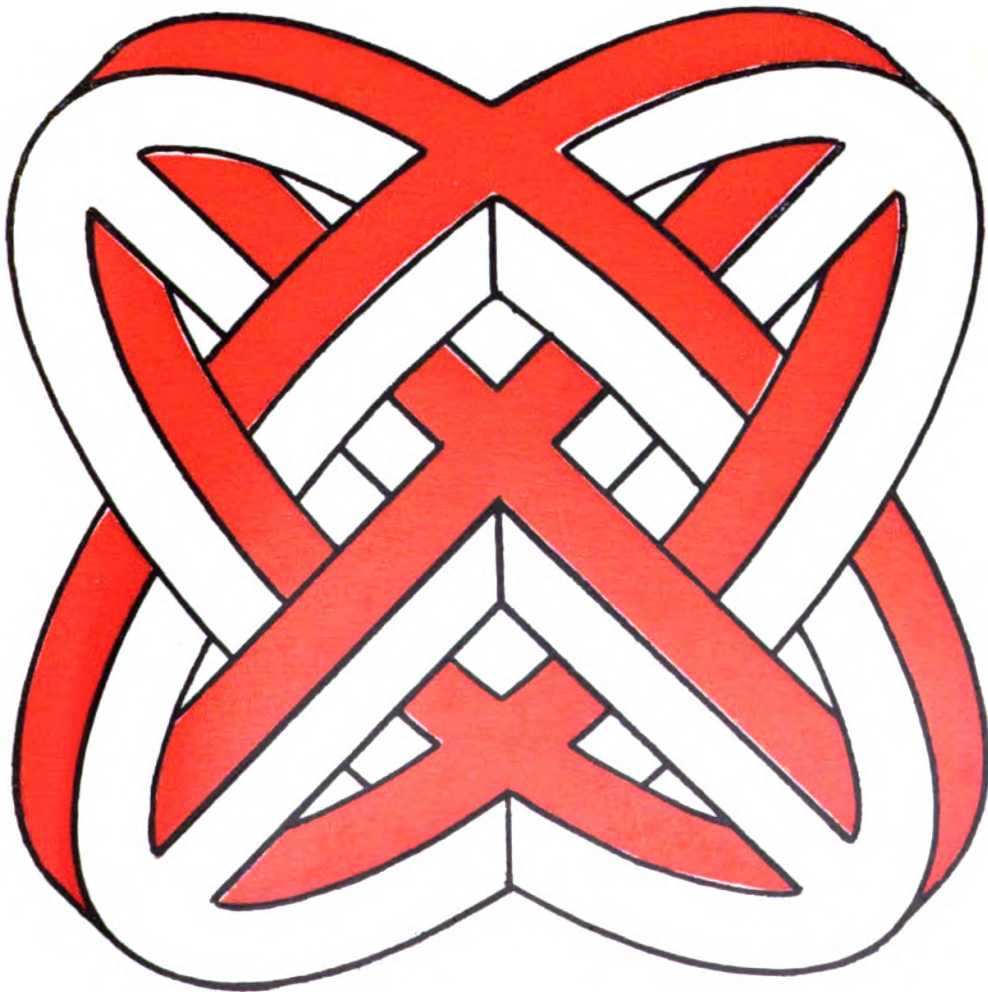
Christopher Clarke, who designed the cover, read Mathematics at Clare College, Cambridge, where he is now a research student. His main interest is Topological Relativity.

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Editorial

With this number we come to the end of a stage in the production of *Theoria to Theory*. This is the last that will be published by Pergamon. We are grateful to them for subsidising us and relieving us of financial anxiety for four years, and also for the sum they are giving us to help us make our arrangements next year. Preliminary discussions have been entered into with another publisher but nothing is yet clear.

More important, we have come to the end of a stage in our policy for selecting material for the journal. Since we began, five years ago, the intellectual climate has opened up. We've all thought about the death of God. It would be tempting to say that scientific materialism has now died, too, if it were not that the dying has been such a gradual process that it may have escaped general notice. There has been a change during the short period we have been publishing, however, which affects our policy, for it now no longer needs an act of faith *not* to believe in scientific materialism, and such a change is fairly sudden as major changes in the climate of thought go.

Freud is said to have asked Jung for an undertaking that he would not abandon "the sexual theory" on the ground that it was the only thing that could save us "from the black tide of occultism". The Freudian theory is scarcely scientific materialism anyway, yet Freud was standing for what the middle-of-the-road scientist feels, and voicing his worst fears of what is likely to happen if "good order" vanishes from science. After all, scientific materialism is only an emanation from middle-of-the-road science where the conceptual framework was so commonly agreed that no questions were asked about it. Those who were sensitive to the philosophic criticism of scientific materialism when it still needed an act of faith may now be in a better position than middle-of-the-road scientists—through their past experience of resisting dogmatism—to find some order in the newly accepted phenomena without letting in the occultism.

People are needed who have the courage to follow up the implications of their insights—scientific and religious. We have in the past criticised particular failings of courage, or insight, or both, so instead of saying, "We have done our bit—the situation has changed

—we can give up now”, we have decided to go on. We have come to the continuous hard work stage of the enterprise: there is no longer a fireworks situation, as when the Bishop of Woolwich was publishing and everyone else exploding. But this is not because the problems have been solved; rather it is because the issues have become more specialised and more difficult. At present it seems we need gradually to build a small institute to continue the investigations which have hitherto been carried on almost as by-products that have been produced in the process of writing in the journal itself.

When we circularised subscribers last spring we said that we were hoping to form some kind of society or association which could help to build up the thinking and research behind the journal. The business of *T to T* has been to assess and report on the state of the growing points in science and technology for their relevance to general questions about the nature of the human, scientific and religious, organism in relating to our total (religious and scientific) conception of the universe. This task has become too detailed and professional to be carried on solely as a journalistic enterprise. We need a minimum of organisation through which specialists in a variety of detailed disciplines can bring their understanding to bear on the general picture. We have no funds whatever for this development, but in any case all the best enterprises always start with no funds. We have the great asset of a closer relationship between readers and editors than is perhaps usual with quarterly journals, and we hope this will continue. In planning possible future issues we are taking note of the various criticisms we have received. In the past some readers have felt daunted by the technicality of an article, or have felt the poetry, for instance, uncongenial or wondered what it was in aid of. The answer to this may be to juxtapose articles so that they throw light on each other—to enlarge scientific understanding rather than run away from it.

* * *

In our editorials we usually have a discussion of some topic—not just journal affairs. This effort is represented this time in the notes on dowsing, compiled out of discussions among some members of the editorial board.

We have been in contact with Carlos Castaneda, the author of *The Teachings of Don Juan: a Yaqui Way of Knowledge*; he has agreed to comment on our discussion of his book, but his contribution

has not arrived in time to be included in this issue. We hope to be able to publish it next time.

* * *

Erratum: In the third line of the last verse of A. K. Clarke's poem, "From Wells of Silence and Delight" (*T to T*, Vol. IV, number iii, p. 86), "plentitude" should read "plenitude".

Dialogue:

Dialogue between Nick, Tom, Ray and Lee: Personal Contacts.

Nick Morse, Tom Robinson, Ray Doyle and Lee Marwood, young men at Finchden Manor Community

Nick. Some people seem quite happy without a lot of contacts. But other people, especially in places like London, are lonely, and think, "God it would be nice if you could talk to people."

Lee. Getting to know people takes time. You meet thousands, and you can't possibly talk to them all, let alone get to know them. Sometimes, though, you would like to talk to someone, but you feel he lives in a different island from you. People make friends in restricted islands, and when it isn't your island it is hard to get started. Also any situation may have a closed structure—what is supposed to be done and what isn't. For instance, when you are on a bus, it isn't supposed to be done to talk to people.

Nick. It's become the done thing not to talk because no one does it. But you can try and see what happens.

Tom. But it would be pretty unbearable if when you got on a bus you always said "Hi!" to the person next to you. I suppose it depends on whether you've got something to say. Bus journeys are generally too short anyhow to say anything worth while.

Nick. Train journeys might give you more of a chance. I tried it once on a train going up to London. There was a man and his wife sitting opposite each other, both reading their papers, then there was another guy who got in, and seemed quite friendly, but he got on with his paper too. Then a vicar came in. He was a sort of strong looking guy and I thought, "Ah, here's someone you can make conversation with, I mean everybody knows you can talk to a vicar." But he settled himself down on his coat comfortably, and seemed to show signs of not wanting to talk. He had a scarf round his neck hiding his dog collar, and he kept tucking it in. Gradually he got me more and more excited. I really wanted to try and say something, and kept looking at people, and then they offered me their papers, and I got reading, and finally the whole carriage was packed except one seat.

Then a woman came in. She seemed a real battle-axe, so I

thought. She really looked absolutely black. And I thought, now I'm really going to say something to her. I know what she's thinking: she's thinking, "This is a carriage full of men, and there's only one seat, and I'm going to show them that a woman can come in and sit down amongst men." You could see the look of determination on her face. She opened the door and came in, and I said "Good Morning!" and she absolutely melted: she wasn't a battle-axe at all and came out with a little piping voice all in a hurry and shy, "Oh, Good Morning," and then I started having a little conversation with her. But that didn't last long either, because she was a bit shut-eye, and so I sat there a bit longer, and then I got interested in the vicar who had been writing and went "Hmm!" and lifted his legs up a bit, so that I couldn't see what he was writing, but he didn't seem to want to appear rude or to show he was embarrassed by my looking. Well finally when we had been about half an hour into the journey, he looked at me and smiled, and I thought "Ah, this is it, I'm going to say something." So I sort of blustered out, "Oh, isn't it extraordinary how people sit on the train and they all want to speak to each other, and yet they are all too afraid to start?" That made everyone look up and stop reading a moment, but not a word was said, and they carried on reading again, and that was that.

People generally say "Isn't it awful how people won't speak to each other on trains?" In fact that was what determined me to see if I could make a carriage really have a conversation. When I explained this, the vicar said "Yes, yes, I've noticed you've been rather restless". And so he opened his suitcase and took out a couple of books. They were by C. S. Lewis: One was "Mere Christianity", and he handed them to me, "Here, read these!" It makes me roar with laughter just thinking of it. Anyway, I started reading, and got bored again, and he looked up and told me he was writing his sermon. Eventually, however, he cracked and we began to talk; I was so eager to have a conversation that we started off all about art or something like that, and of course it all became intensely intellectual and bogged down—there was no life in it at all. However, he said that during our conversation I'd said people wouldn't talk because they wouldn't break out, and he thought they were so used to refusing to talk that now they couldn't do it, and preferred reading their papers. Also, he said some of them had to travel every day, and this was when they *could* read their papers.

And then in the last five minutes just as the train was pulling into the station, he hurriedly returned to his notes, saying: "I must finish my sermon." So it does seem you can't have a conversation very often.

Tom. There is a society you can join, called the Society of Traveling Conversationalists, and you get a little badge which implies that if someone wants to talk to you then you'll talk to them."

Ray. I'd really hate to get into a carriage, and find all these people sitting there with their badges and smiling faces. I really would! See them sitting there with their badges all eager and waiting for you to talk to them. Yes I'd really hate that. You'd have the feeling they were intruding on your world.

Lee. But, as I said, getting to know people takes time, and people who always talk on trains can be lonely people who never get any further.

Tom. There are two kinds of small talk; one is just a way of passing the time, the other is "warming up". You can sense by talking about the food and the weather if the person wants to take the conversation further or doesn't. You can be casting around trying to sound a person out.

Nick. This isn't so easy. What do you do if you are taken along to a jet set party? You feel sure of yourself till you meet these ultra-cool people, and they give you Martinis . . .

Tom. You tread water: keep going somehow.

Nick. You might stay in your shell, in a conspicuous way, hoping someone will come and pull you out, but of course they usually don't.

Lee. Some of these ultra-cool people don't seem able to make just human contacts. I lived somewhere where there was a model who was ultra-cool. She used to walk with a sweeping air and motion, and talk quite mercilessly, but was remote from everything I knew and thought.

Ray. Surely you can communicate with *any* human-being, and have a deep relationship with them.

Nick. No, you can't always; not with someone like that, who probably thinks it fashionable to look bored, and who makes you feel you are boring so you feel rebuffed before you have said anything.

Ray. It seems to me that people are aloof because they think you are wanting to get on their scene. But if you have got your own

scene, and enjoy it, and they see you aren't trying to get on their's, they will accept you. You shouldn't impose upon another person's world or scene, but you can leave a space for them in your's.

Lee. I never got the feeling with this model girl that she wanted to know anyone else. She was like a breeze, fey, ethereal. She just seemed to cut through the atmosphere without being affected by anyone, as far as I could see.

Ray. She may have been put off by your trying to get a response from her.

Nick. If you didn't let yourself get annoyed by her indifference and were a bit cool about it yourself, it might work better. But I see your point, Lee, about that kind of girl. I knew a girl who would only go out with boys who wore leather jackets and had fast motor bikes.

Tom. Clothes can be a sort of badge.

Nick. Like a transvestite psychiatrist's.

Tom. What would he wear?

Nick. A Freudian slip, I suppose.

Tom. Some people wear their hair long as a sort of badge. Of course you had to have your hair short before the invention of D.D.T., etc., but now you don't have to bother about lice. And who wants beastly bits of bald patches on his head anyway?

For some people, being a hairy means that you want to be a certain kind of person. It's a community of a kind. It used to be like this over wearing Levi jeans, but now nearly everyone wears them so they are no longer a special badge. So you have to do something else. What about 300 hairies wearing dinner jackets (one club does!). You should be accepted by other hairies even if you cut your hair. It's really an attitude of mind, not what you look like.

Lee. But not if you grew your hair among the skinheads. Skinheads want to go around in a gang and be violent: people with long hair don't in the same way. Their attitude is supposed to be tolerant. They express their emotions differently.

Ray. People feel insecure in their identity and want to join a bigger body, and then they find a lot of the frills of this bigger body conflict with their own personal feelings, which they hadn't in fact got away from. They find they can't escape from some of their own personal ideas, and they become frustrated and violent, and lose faith in the bigger body as well as in themselves, and then

stop caring.

Lee. The hippy thing was originally a way of breaking away from the notion of a society where everything was laid on by people on top, and you wanted to do your own thing. Now it's just become another fashion. The commercialised world gets in and spoils it.

Ray. When people first went to pop festivals, they were warm; everyone put something in, and there was this feeling at first about the hippies. It's gone now, as people take it all too much for granted, as with the festivals. They go to take instead of to make. But a lot of the original hippies may now be married and have good relations with people. They have come home. But because they had broken out, they can sense new things and thoughts.

Lee. People who look as though they were rebelling are breaking out from something that restricted them.

Ray. Yes, your family for instance. You've lived with your family for say, 17 years, and they think they know you, and they can judge what you are doing, but you have found new things. They think they can judge by the old ones, and they won't accept that you have gone to a new thought, and are feeling things on a different level. They can really mess you up like that.

Tom. Fifty years ago people seem to have known their families better, and they stuck together; so there were remarks that everybody understood, like "Father's off making up his war exploits again."

Lee. The family used to have to stick together. You just had to join in and give what you could so that they could survive. Now there's more to attract you away.

Tom. Parents nowadays are prepared to give you much more materially; they seem to know what you need materially, but not emotionally.

Nick. The most obvious freedom you want is freedom to come and go physically, but the most valuable one is to be yourself.

Ray. But of course you can't get going just on your own.

Tom. You can't survive as a human being without other human beings.

Nick. By living with a group of people you can find out things which you didn't know. Suppose you are fishing, and there is someone you know who fishes: by talking to him and being with him, you gradually learn new things about fishing. Then there's your own behaviour. Small remarks and incidents can throw light on a

whole area of what you are. There was a student visiting here the other day, and the door was stuck; but she seemed to have to show us how to open it, although we all knew. She just always had to feel she was the person who was needed to help.

Suppose you don't have a sense of humour. You find people start teasing you. Mr. Lyward here says teasing wool is a way of combing it gently, and gradually getting the knots out, so that it is clear of tangles. Teasing can get out your tangles. When people joke with you about yourself, if it's warmly done, after a while you will be able to laugh at yourself and laugh with the others. Laughing dilutes.

Lee. Like water poured on acid so as to make it less concentrated.

Tom. And get rid of the sting.

Ray. When you first meet a person you put up with his eccentricities, but when you get to know him, then they seem to get in your way and it's too much of a hang-up. If you've got to live with him, however much you manage with them, it's irritating. You can laugh about it, but it doesn't always improve things.

Tom. "Managing" doesn't get you very far.

Ray. Well, what sort of group helps you to live and make deep contacts, not just surface ones? It would have to be one that can change and doesn't get stuck with its own fashions.

Tom. It needs to have the kind of *warm* small talk that makes contact so that you get through to the person, and get past his image, his "badges".

Nick. Here at Finchden you learn to lose a lot that you were preoccupied with: you see there are things you must lose whether you like it or not. But you learn to lose things that you know aren't valuable, so though you feel you are losing a lot, you know you aren't really. Think of a snake keeping all its skins year after year. What would happen if it had to get through a small door?

Lee. In a group like Finchden you find that you are more able to make contacts—there isn't any final answer as to how you do this. It depends on a lot of little things that must slowly add up.

Nick. Some people really have to give themselves, so that this kind of thing can happen. You go on in a kind of faith that it is growing, but you can't force it. All the same, sometimes you've got to take a calculated risk like me on the train, and try and make a difficult contact.

Lee. Sometimes there's a situation that shakes things up. But

you'd better not drop a C.S. gas bomb, like that guy in the House of Commons, just to get people talking, or ask someone if he spells his name with a "Y" in case his name is Brown.

***Tom.* But if you do get into an awkward situation, you can remember that it's an ill wind that gathers no moss and eats it.**

Analysis Analysed *Alfred Plaut*

Any psychologist must have some ability to put himself into another person's shoes. I shall try to do so when looking at my own job, and ask a number of questions intended to throw light on a profession which is surrounded by a certain mystique ranging from awe to doubts and suspicions. The origins of this state of affairs are complex and much older than the profession itself; it would therefore be better to start with a simple, more down-to-earth question like what do you mean by analysis? If I were to attempt an *ad hoc* definition I should be leaving out something that analysis prides itself on being good at: the tracing of historical roots. Without these one can have very up-to-date information, lacking, however, in depth and perspective. I am therefore going to attempt a "job analysis" of my profession. I do so in the hope that some historical roots can be inferred from my statements.

Academic and experimental psychologists can, no doubt, describe their work and aims more easily than I, writing as an analytical psychologist, but none of us can deny that some of our ancestral roots are in philosophy: it may well be that in our eagerness to become independent branches of knowledge—whether called experimental, clinical, dynamic or empirical—the denial of the philosophical roots has been too strenuous. However, one psychiatrist, more learned than most, was well aware of this when he wrote in his essay, "Philosophy and Psychiatry"*.

"It is in the nature of our subject that every thoughtful psychiatrist can choose only between having his philosophic standpoint explicit or leaving it implicit; a philosophical standpoint of some sort he must have . . ."

"The psychiatrist has to ponder on the relation of mind to body, in resolving the clinical problems of every patient he sees; he must address himself to questions of value whenever he has to decide whether a patient has become healthy after he has been ill, or whether a particular disturbance of mental anxiety is a sign of illness; if he is at all reflective he must examine the validity and limitations of human knowledge, gained through means upon which he relies for his understanding of himself and his patients, while at the same time recognising how deceived those patients can be when they too rely upon such means of knowledge; and, finally, the problem of causation is thrust on his notice so insistently that even the most unsophisticated psychiatrist is aware that

*Sir Aubrey Lewis. *The State of Psychiatry*. London, Routledge, 1967.

common sense will hardly serve his turn here. The psychiatrist then is confronted, whether he likes it or not, with many of the central issues of philosophy. It might be expected that he would therefore value a philosophical training. But this is far from being the case: he philosophises as best he can with little or no help from the schools; or he denies that he has any concern with philosophy: for him it is not charming, nor for that matter harsh and crabbed, but just useless”.

I agree that the word “philosophical” has become pejorative in the mouths of most psychiatrists, psychologists and even some analysts: “value judgements” are frowned upon. I mention this here because it is important to state plainly what is only going to be referred to indirectly.

Dispensing then with both definitions as well as an historical approach, I am going to attempt a job analysis or job specification, which means*: “to undertake a concise description of a given job—its duties and opportunities—and especially the qualities (physical, educational, intellectual, temperamental) required for competence in it.” However, the job is too complex to describe it by way of a “time-and-motion study”, as one could in the case of a skilled manual worker. Were I to do so it would perhaps result in “a day in the life of an analyst”, but this would require more dramatic skill than I possess and would certainly fill a book. So I shall have to content myself with answering an imaginary questioner without using technical terms. But I must ask the reader to bear in mind that any information about the state of analysis which may be forthcoming is personal, and, in any case, purely incidental to my major theme, which is this: an analyst can only speak from a position of uncertainty. But this uncertainty can be defined by relating it to other determinants of human behaviour. While he has a unique observational viewpoint which enables him to make sense of what appears at first glance irrational and bizarre, he is also aware that he is deliberately omitting other views as specialised as his own, but of which the proponent’s knowledge is less personal than his. Science, natural science, that is, has a way of specialising and subdividing knowledge into even smaller bits, put, as it were, under microscopes of even more powerful magnification. Analysts, on the other hand, cannot become specialists if that means someone who knows more about less; their job is to unify knowledge in as

*English & English. *A Comprehensive Dictionary of Psychological and Psychoanalytical terms*. 1959.

much as it shapes the world of individual (=indivisible) human beings, persons who have imagination and who experiment with their lives, especially in relationship to others, according to certain patterns.

Questioner. You have said a lot of things which obviously mean a great deal to you, but leave me puzzled. You have spoken about the analyst's uncertainty, yet to make sense of apparent nonsense he must feel sure that he has a method of understanding which goes beyond common sense. If that is so then he must have his own kind of microscope by which he recognises what you call "certain patterns." But the scientist can demonstrate what he sees, and can also be seen by other people. What is more, he shows how things work as causal systems. If I understand you correctly, the analyst makes a similar claim, but is aware of several causal systems. Yet to be incisive enough as a psychotherapist, he must be convinced of the validity of his own. So how does he know that when he uses his methods he is not being purely subjective, even idiosyncratic, in his views? What is more, are there not several dynamic schools of psychology, like Freudians and Jungians, all claiming to be right in their subjectivity?

Analyst. If you have read Polanyi's book* you will remember that personal knowledge is not the same as subjectivity. If I have a pain in my knee or down the side of my leg I can be very sure in locating and describing that pain subjectively. Yet my doctor, with the help of his anatomical knowledge and x-ray photographs, can demonstrate that the source of my pain stems from pressure on the nerves in my spine. So I have to take his causal knowledge in and add it to my subjective experience, and this becomes my personal knowledge. If I have no capacity to take in the impersonal knowledge of anatomy, to add it to my subjective experience, I would probably create my own original, but also mad or illusory theory of causation and, being convinced or "committed" as Polanyi calls it, go to a quack who agrees with my ideas. He may even "cure" me, but that was not yet your question.

I shall want to tell you something about the recognition of patterns of behaviour, but first let me quote a well-known scientist on the subject (which bedevils psychology) of subjectivity and objectivity. In his book, *Beyond Appearance*, Waddington points out that "man can never live, even momentarily, on only one definite

*Michael Polanyi, *Personal Knowledge*, London, Routledge. 1958.

level of being," and compares us to an amphibian, who does not only live like other creatures in diverse elements, but in divided and distinguished worlds. "There is no strict object—subject dichotomy," and: "The painter," he writes, "is *in* his painting, the scientist *in* his science." Most importantly, he goes on to say, "It is only for practical purposes that it is legitimate to isolate some small part of man's *whole being* (italics mine) for particular treatment".* While analysis started off—like so many other therapies have before and since—as a particular treatment "for practical purposes", it has always remained a method of investigation into man's thought processes and motivations. It is in this respect that various dynamic schools have discovered so much common ground that the similarities now outweigh the differences which divided the protagonists in their pioneering days.

Questioner. You are still too enmeshed in what is obviously of interest to you, but you forget that I want to know about the way you do your job. Since you mentioned practical purposes, let us be practical. So before telling me about what you see under your microscope and explain to me how you acquire one, how does one become an analyst?

Analyst. I am glad you ask me about *how* rather than *why*, because that is easier to explain, although I expect we shall have to look into the *why* in the end. The conditions for training vary slightly in different countries or states. First there are the preconditions for selection. Among these you will find that an applicant must have an academic qualification, if not in medicine then usually in psychology or one of the social sciences. Secondly, he must have had some experience with patients. There are many ways of fulfilling this condition: either as a nurse or social worker, or teacher in a school for mal-adjusted children, perhaps as a theologian. The main point is that he must have experience of how other people react under various stresses of life. If the preconditions are fulfilled, he will undergo a selection procedure, mainly by personal interview, when his own reactions to life, his capacity to feel for other people as well as to learn from personal experience, will be under review, as will also his motives for wanting to train. Is he healthy enough to work as an analyst, and will his own ill-health benefit from the work without

*C. H. Waddington, F.R.S. *Beyond Appearance, A Study of the Relations Between Painting and the Natural Sciences*. Edinburgh University Press. 1969. p. 239.

harming his patients, is perhaps the most important question to assess. If he passes this stage he will be required to undergo a training analysis, which means that for something like three hundred hours over 2-3 years he will be in the position of a patient with a senior analyst, with whose consent he can then apply for formal training, which includes his analysing under supervision of another analyst two patients over a period of at least eighteen months, as well as attending teaching seminars twice a week. If, during this period, it should turn out that the initial assessment of his suitability was wrong, his training can be stopped. Otherwise, he can apply for membership of the professional training body. His acceptance or rejection will largely depend on the report of the analyst(s) who supervised his work. He may also be required to write a clinical or theoretical paper which shows to what extent he has grasped the principles he has been taught.

Questioner. I can see that these conditions are as stringent as in few other professions and that they make high demands in terms of time and energy spent. But what bothers me is that uncertainty and open-mindedness about which you wrote in the preamble are not assured by the conditions of training. On the contrary, could it not be said that the whole set-up resembles a form of brain-washing?

Analyst. Indeed, it could and has been said. Of course, the techniques of brain-washing bear no resemblance to analytical training, so what you mean is indoctrination. Man in our time has such a strong hankering after the belief that all his actions are determined by reason—daily evidence in news-bulletins to the contrary notwithstanding—that ideas which show him how mistaken this notion is are certainly not welcome. To investigate his inner world systematically, to attribute to it many of his motives, has for long come up against man's most cherished belief. What analysis makes a person aware of, say the origins of anxiety, is not measurable as such. Although the physiological correlates may be quantifiable, for instance by an increase in the heart rate, we have to rely on subjective reports and our empathy in order to become convinced of the truth and significance of anxieties which often date back to early childhood. At that time logical thinking and the powers of abstraction were minimal compared with their presence in the adult conscious waking life. So, during analysis a going back to the magical way of thinking and feeling, hoping and fearing, takes place. The fact that a person

turns to another for help with a symptom or problem bears an obvious resemblance to a child who looks to his parent for help. I suppose that this is the situation which is deliberately induced and exploited in brain-washing. But here the resemblance ends: the ethics, aims and methods of analysts are entirely different.

I want to refer to another reason for such infamous allegations, which is or was grounded in the orthodoxy of medicine. This is, on the one hand, a safeguard against quack methods, on the other, it constitutes a hindrance to fresh thinking. Suffice it to say that until very recent times the doctor's training did not fit him to think of psychological illness other than in terms of physiology and neurology. The French Académie des Sciences (after two previous futile attempts by others) accepted Charcot's findings as regards the (erroneous) connexion between hypnosis and hysteria when he presented these in medical terms: modifications in muscular states, reflex movements and sensory responses. The fact that Esdaile had demonstrated the efficacy of "mesmerism" as an anaesthetic in many surgical cases 40 years earlier in India did not even result in his accounts being accepted for publication in medical journals. As Boring* puts it, "When the sheep growled magic the medicos beat it down, but when it bleated physiology they welcomed it in".

Questioner. I have heard about the interpretation of dreams, and I suppose it would be asking too much to describe analytical techniques and concepts in any detail if it takes five years to acquire these. But as regards ethics and aims, I assume that these must be the same as in medicine?

Analyst. Now you have really touched on what I promised would be my major theme: the analyst's position of uncertainty. There are important differences between other methods of healing, whether by behaviour therapy as used by psychologists, or psycho-pharmacology, employed by doctors. You could say that both are more successful at eliminating symptoms than analysis: as neither are as time-consuming (classical analysis often takes four hours per week, and five years is not an unusually long time) it is not surprising that more patients get cured simply because more can be treated. But this does not convince me that the methods as such are more effective; it depends on what you are aiming at. Let me make two points right away. Rivalries among the various forms of mind-healing are

*E. G. Boring, *A History of Experimental Psychology*. 2nd edition. New York, Appleton-Century-Crofts. 1950.

as outspoken as can be found anywhere, and I have no time for people who want to prove the superiority of their concepts and methods by showing up the inferiority of some other method. Secondly, there are many instances of initial success in the field of psychotherapy (and also of medicine) which in the fullness of time turned into disappointments. Experience has taught us that enthusiasm, although infectious, often does not stand the test of time. In this connexion a statement of Jung's* seems to me very much to the point. Allow me to quote it:

"In my psychiatric practice of nearly thirty years I have met with a fair number of failures, which made a far deeper impression on me than my successes. Anybody can have successes in psychotherapy, starting with the primitive medicine-man and faith-healer. The psychotherapist learns little or nothing from his successes, for they chiefly confirm him in his mistakes. But failures are priceless experiences because they not only open the way to a better truth but force us to modify our views and methods".

What it is we learn from our failures Jung does not say, except that he appeals to our open-mindedness in these matters. Nor does he tell us much about the criteria of success and failure. For some therapists—medical or psychological—there is just no question: a symptom or complaint is either cured or not. Unfortunately, such over-simplifications do not work in practice; other categories have had to be introduced into statistical assessments of results, like, "improved", "much improved", (rarely) "worse", and (not so rarely, depending on the period of observation) "relapsed". When you read the detailed case histories and follow-up studies of patients written by a therapist who has not too much of an axe to grind, and then look at the statistical presentation again, the involuntary distortions become even more obvious. Analysts, too, have tried to answer the challenge issued by their opponents by showing with the help of "brief" or "focal" therapy (based nevertheless on analytical principles) that they too can cure symptoms and help people to lead happier lives. But I feel that there is something essential missing in such assessments.

Questioner. I don't see what this has to do with the job analysis which you undertook, nor do I understand why you seem to make a distinction between "cure"—however relative—and success in therapy.

*C. G. Jung. *Collected Works*, 16, p. 38. 1935.

Analyst. Let me take your fair criticisms separately. I think that I have commented on an essential quality for the job: the way you stand up under fire matters quite a lot if you are to assess the competence of a soldier, and analysts certainly have been under fire and are likely to remain so—albeit in different ways—for the reasons I gave. If competence includes a relative freedom from anxiety as to whether he will be able to demonstrate success, this is certainly a requisite for an analyst. Not that he doesn't care; quite on the contrary, being in such a close relationship with a patient for a long period, one cares a great deal. But this care or concern is modified by a detachment provided by the curiosity and hypotheses which anyone engaged in research must have. Very often the courage of one's convictions is tested against what one might call the short road to success. Now, if there is one hypothesis which all analysts subscribe to, it is that symptoms are symptoms of something, i.e. they are expressions of there being a cause and origin within the individual's psychological make up and the way this interacts with his environment. Let me give you an example: many years ago I was treating a boy of nine for bedwetting. My psychotherapy proved unsuccessful and my explanation for this failure was that there was a kind of collusion going on between the boy and his mother, who was very ambitious for him (disavowed by "I only want him to be happy"), but also wanted him to remain her baby. Despite our efforts (the social worker's with the mother and mine with the boy) we got nowhere. The mother bought an apparatus which rings a bell and wakes the boy up as soon as the wetting starts. This cured the symptom and ended my treatment. But neither statement proved true or lasting. The boy came to me during adolescence and at his own request. He had developed difficulties, especially in relation to the opposite sex. On the few occasions on which he had nocturnal emissions these were preceded by dreams of passing urine in a lavatory, i.e. in a permissible place. In short, the "cure" had been effected at a considerable cost to his sexual development. This is an isolated case and does not prove the superiority of analytical methods, but it does provide food for thought. In the field of mind-healing all therapists will see their colleagues' failures. But what I wanted to show you is the specific kind of conflicts an analyst has to bear:

(1) How much suffering or mental pain can he permit the patient to bear in the hope that this will ultimately contribute to his

psychic maturity and growth?

(2) What contact can be made with the patient's illness by means of the relationship he establishes in treatment and the modifications (learning and unlearning) that this may bring in its train and henceforth be applied to life situations?

In terms of job analysis I have done little more than give you an idea of the stresses and strains one is subject to.

Questioner. You have indeed given me an inkling. But in doing so you have been careful to use words like "relationship with the patient" instead of "transference". I have also heard about patients falling in love with their analyst, and their analyses going on for much longer than five years. So, perhaps, you could enlarge upon this point and, in particular, on my doubt whether this is not a purely artificial situation and one to which the patient may become addicted. Whatever your answers, I cannot help feeling that it must have a bearing on your "job analysis" and on the way you look upon your failures.

Analyst. I should like to look at the objection to a "purely artificial situation" from Waddington's point of view; that it is only justifiable on practical grounds to isolate some part of man's whole being for particular treatment. Now, you could say that an operating theatre is an artificial situation created for such a purpose and nobody would demur, seeing only too clearly why this has to be. In our case, the distinction between an artificial and a natural situation is blurred for several reasons: the setting resembles one in which ordinary social meetings take place, the ritual of fixed time limits and regular pre-arranged meeting notwithstanding. Secondly, the implements used are not tangible and fashioned for the special occasion, but consist of the same affective responses as other human relationships would evoke. What is more, the analyst is to a lesser degree of intensity also "affected" and his affects are quite often a better source of information as to what is going on than communication by words. There are also more specific reasons, other than the one I mentioned already, why the analyst is seen by the patient as if he were the parent, good or bad. Although he recognises their origin there remain, despite all the various theoretical frames of reference, some of his own human feelings—not just scientific curiosity—which must be acknowledged. In this respect the surgeon's job is easier: before and after the operation the patient is a human

being; during the operation he is a bit of anatomy. Analysis is at all times *also* a human encounter.

This brings me to an answer about the way we look at failure. I have seen enough of general medicine to know how easy it is for doctors to love their successes and be angry with (not only about!) their failures. We are also not short of technical terms by which we can explain failure as being due to the patient's psychological structure and organisation. But I think that analysts have a conviction that encounters which are genuine and deeply felt are rarely to be written off as total failures—even if the patient remains in his state of affliction. Perhaps you can see what I mean when I say that, paradoxically, the analyst is committed to his position of uncertainty. I have not yet elaborated on how his commitment as both a technician and a human being affects him in relation to other fields of knowledge and more particularly his scientific status.

***Questioner.* In view of his knowledge being so closely intertwined with self-knowledge, one would have expected the analyst to look into his own psyche for the cause of failures. What you said last made it sound as if the analyst just could not go wrong—alternatively as if the patient just could not win!**

***Analyst.* I am familiar with this view. There is a faulty assumption in the idea that during analytical communications it is a question as to who is right, as if one were having an argument. Instead, there is always the question in the analyst's mind as to whether he is meeting the patient's thought processes on the right level. Let us take an example: if the patient comes frequently late for his sessions the analyst will—as is his job—look for an unconscious motive. Usually he has a fair idea from various other clues all pointing in the same direction—let us say that it is not likely to happen during a phase when the patient is “in love” with the analyst, as you mentioned. Now when his coming late is being referred to by the analyst together with the way he sees the connexions with the patient's negative feelings, the patient often responds as if he were being accused. For him the lateness is purely and simply due to mechanical causes: there was a traffic jam, the telephone rang, his watch must have stopped, and so on. Now what the analyst wants to say to the patient is something like this: I do not doubt your sincerity, but if we were to assume that your lateness could have a reason other than those which are so convincing and obvious to you, if we just assumed that there could be an emotional reason which links effectively your being late**

with other phenomena which we recently noted in our work, would it make sense, would it be something that could be understood as a common denominator in keeping with your present feelings about me? If an agreement can be reached to look upon the situation as a hypothesis which could help in understanding symptoms or difficulties, the question as to who was right becomes irrelevant. If no agreement can be reached and the analyst cannot let go of the hypothesis, he is wrong because he has not met the patient's need of the moment. But this is not the same as being "in the wrong". It is a defect in his appreciation of the situation which he will have to look into. Here I should mention another aspect of the job analysis: an analyst's analysis is never finished; he is bound to continue it and from time to time—say, every five years—he will go back into an advisory analysis with a colleague. So there are some good safeguards for the patient against the analyst's idiosyncracies or subjectivism and undue emotional involvement, by which I mean his responding in kind to the patient's being in love or in hate with him. Although he cannot help responding, his responses must be modified by his knowledge and the ethics of his profession, which are practically the same as for the medical profession. I say practically, but not in the sense of "almost". The reason is not fear of the legal consequences or loss of reputation, nor just the fact that he feels responsible for the patient under his care. It stems from the knowledge that under the emotional impact of such situations his intellectual grasp of what he represents in the patient's fantasy life is weakened: he is, as it were, drawn into it, the balance between involvement and detachment which he must walk like a tightrope, has become upset. His training and analysis enable him to recognise the symptoms of such occurrences which cannot be prevented, but with skill and luck (for want of a better word) such entanglements can be turned to good account.

Questioner. What you say certainly helps me to understand some of the stresses of the job, but I am not certain that in your search for unconscious motivation and with all your interest in the dynamic of thought processes, including fantasies and the way these are reflected in the analytical relationship, you analysts have not developed a cavalier disregard for the kind of mental illness you are dealing with.

Analyst. Nor am I. The question for us is very often whether, by recognising contents and meanings (encoded in symptoms), we

can with the help of our hypothetical microscope, effectively make contact with the core of the patient's psyche and illness, and thereby modify or transform both. What we cannot do is to see the illness as if it were an isolate, something that is independent of the patient's make-up and environment. Analysts are not alone when they try to distinguish and classify complaints by dint of a mixture of descriptions (e.g. "fetishism") and reactions to their particular methods of treatment (e.g. "resistances" to getting well). Psychiatrists using pharmacological methods do much the same thing*. There is no fixed point, no preordained entity in this field, and the apparently objective descriptions depend largely on the observer's point of view. Analysts, seeing fewer patients than psychiatrists, are unusually aware of their individuality, but I do not agree that this amounts to one's being oblivious of other factors causing ill health which can be put into categories and classifications: theories and typologies of personality, genetic endowments and characteristics which influence types of body-build and predispositions to one form of illness rather than another.

Questioner. With so much uncertainty and so many variables in the situation is there not a danger of your trying to solve too many diverse problems by means of the "therapeutic relationship" alone?

Analyst. I think this is so, and particularly in the kind of psychotherapy (presently in vogue) called "transactional" or "client-centred". But let us be clear about two things. It is not a matter of analysis being a "love-cure" which occurs after strong hating as well as loving feelings have been experienced in the situation. It is the context which the patient brings with him, his past and his symptoms, which matters and gives a definite framework to whatever is "transacted". Having said that let me add that without some aesthetic appreciation of the patient by the analyst nothing fundamental will happen. I am using aesthetic in a subjective Kantian sense, by which (so far as I understand him) he means in plain language talking about the patient's looks, but I am comparing philosophical and psychoanalytical views which seem to arrive at the same practical 'beauty is in the eye of the beholder'***. Obviously, I am not

* For them a "good premorbid personality" is a highly desirable thing, without which the drugs do not have a lasting beneficial effect on the "disease process". We find it hard to tell where the premorbid personality ends and the illness begins. We can find determinants, or at least contributory causes in the personality long before the "illness" becomes obvious.

** Kant, I, *Observations on the Feeling of the Beautiful and Sublime*. Translated by John T. Goldthwait. U.C.P. 1965.

talking about the patient's looks, but I am comparing philosophical and psychoanalytical views which seem to arrive at the same practical conclusion. Let me quote from the introduction by Kant's translator (p.21), "Beauty seems phenomenally to belong to the object, but actually a feeling of beauty is simply the sign of the harmonious working of certain faculties of the mind when they are attending to a particular object". Compare this with a psychoanalytical view*, which regards the ugly as the destroyed, incomplete object and the beautiful as the complete. To be able to see the dignity of human nature beneath the great diversity and ugliness of distressing symptomatology is certainly necessary for recovery, as one particularly gifted analyst working with schizophrenic patients described†. But one cannot do this without having the necessary theoretical equipment—acquired in a living-learning situation.

Questioner. May I take it then that this subjective aspect of aesthetic appreciation is amalgamated with the recognition of certain recurring patterns to which you referred earlier?

Analyst. Quite. Let me give you an example which will at the same time illustrate how we use analogues, all pointing to the same foundation, which Jung calls "archetypal". The child's togetherness with its mother, and its gradual separation from her, can be looked at from the developmental point of view, and represented in the abstract as the experience of how 2 arises out of 1. This is further helped by the child's getting to know the bilaterality of his body: two hands, eyes, etc. With the father's arrival on the child's horizon there is a further intrusion, a development which leads to an emotional appreciation of the number 3. The difficulties of this learning process are on the mythological level reflected in the oedipus myth. Jung also describes the demands of this process in his "A Psychological Approach to the Dogma of the Trinity"**. On the level of number symbolism***, one finds illustrated how once the implications of the number 3 have been grasped (Menninger shows us Egyptian hieroglyphs and Chinese ideographs) the concept of plurality has been mastered. Anthropological examples can be found of peoples

*John Rickman. *The Nature of Ugliness and the Creative Impulse*. Int. J. Psycho-Anal. 21, 3. 1940.

†H. Searles. *Collected Papers on Schizophrenia*. Ch. 9. Ed. J. Sutherland. International Psycho-analytic Library, No. 63. 1965.

**C. G. Jung, *Psychology and Religion*. C. W. 2, 2. Routledge. 1958.

***Karl Menninger, *A Cultural History of Numbers*. M.I.T. Press. 1969. p.17.

who have not yet acquired the concept of 3, yet can count beyond three with the help of $2 + 1$, $2 + 2$, $2 + 2 + 1$, etc. (It is as if we could only say the day after the day-after-tomorrow; when "tomorrow" remains the 2 concept, there is no other way of saying "3 days from now"). On the practical therapeutic level these insights matter when it comes to learning difficulties children have which may be based on an unaccepted oedipal situation. Other psychological insights are based on the symbolism of the triangle as a conciliating principle, as we saw Jung's work shows, and also that of Hubert Benoit*, recently mentioned in this journal.

Questioner. I can see what you mean by common denominators and the recognition of patterns, and that it is desirable for an analyst to be an educated man, who also keeps in touch with the world. But I would be grateful if you could give me an indication of what analysts regard as a cure or beneficial outcome, and how they judge failures, the topic on which you touched when quoting Jung. In terms of job specifications what sustains analysts when their efforts prove of no avail?

Analyst. This is a question which we must approach from two aspects. Let the first be called "selection of patients". There are, unfortunately, some patients for whom nobody can do anything: so far as one can see, all known methods have been tried and yet the patient is no better. There are patients who remain nursing problems for the time being.

Then there are those who could be cured by various methods, i.e. their complaints vanish apparently as the result of a treatment. Some of these will, however, want to know why. Their curiosity is not idle curiosity, as is shown by way of new problems which crop up—not symptoms like a phobia of spiders—but let us say marriage problems which compel the patient either to find his own solution or to seek further help by analysis, which leads to self-knowledge and can make a person happier, but not by a painless procedure in which he takes no responsibility. At any rate the analyst must learn to recognise—the sooner the better—which one of these three categories a patient belongs to. There is in fact a fourth, usually self-selected group, who want analysis apparently only out of curiosity, not because they feel there is much wrong with them. All that needs to be said here is that patients in this group may be the most rewarding, but are by no means the easiest to deal with, and can become

*Margaret J. Rioch, *The Work of Dr. Hubert Benoit*. T. to T. 4, 2, 1970.

the heaviest responsibility, *especially* if they want to become analysts as well. There are, in fact, no "easy cases" for analysts. If not literally, then at least symbolically speaking, it is a matter of life or death.

Let the second aspect be known as the analyst's attitude to success. Everybody in this field needs the occasional obvious success, but some therapists go for it all the time. I should say that an analyst whose aim is to demonstrate his curative capacity has already stopped being an analyst. While doing our work we have to remain mindful of the fact that one can be over-sophisticated, but over-enthusiasm and naivité are much more common failings in therapy. I mean naive in the sense that poverty, when it is a symptom of mental impoverishment, cannot be cured by giving a person money. (Similarly, money poured into an undeveloped country may not get to the root of the trouble.) So you must start with the realisation and development of whatever is capable of growth, and this requires tolerance of what is misshapen or infantile. Moreover, it is important for many patients to feel that recovery or mental growth is largely their own achievement, rather than that they have become a feather in the analyst's cap. The personality of therapists (whether analysts or doctors) has an important bearing here: some have to feel that they are actively and incisively intervening to be sure that they are worth their salt. Others (like myself) set more store by what Keats* called "negative capability", by which he meant "when a man is capable of being in uncertainties, mysteries, doubts without any irritable reaching after fact and reason". This is as near as I can come in answering your question briefly, except to add that both kinds of therapist or attitudes to analysis are needed.

I should also want to make you aware of the fact that even psychiatrists who are mechanistically and biologically orientated make allowance for the fact that some faith on the part of the healer is needed. Let me quote William Sargent**, who, in his lecture on the physiology of faith, concluded, "The very great importance of this whole subject is due to the fact that without a supporting faith of some sort or another few people can hope to live constructive or happy lives". Analysts and their more rewarding patients do, in my view, implicitly agree with this conclusion. But they also know that there are personalities and diseases for which self knowledge and

*Malcolm Buxton Forman (Ed.), *The Letters of John Keats*. O.U.P. p.72.

**William Sargent. *Brit. J. Psychiatry*. Vol. 115, No. 522. 1969. pp. 505-518.

its application may not be useful, and that destructiveness may be too powerful for any constructive work to come to fruition. This realisation can have an infectious effect. Hence this analyst's work on himself is never complete: he has his share of personal problems which he cannot evade by analysing patients. But he needs his patients to work with, to analyse and learn about the influences which constantly shape his life.

As regards the future, I think that analytical principles will be applied in the wider field of psychotherapy as they already are in group and family therapy, and will also be added to the social sciences. But those who want to do this work, as well as those insatiably curious ones, will need a full-blooded analysis. In this not uncommon category one finds people who cannot give up their self-created miseries or symptoms for what Freud called, "the ordinary unhappiness of life". They must achieve a vision of what it is all about, what they are here for. If this view should prove to be of heuristic value it also confirms what Sargent says about "faith" and Jung* about "the religious instinct to wholeness". You will have gathered that analysts in general and analytical psychologists in particular are concerned with mental health: the aim—on a minute scale—is to bridge the gap between the speed of man's achievements and the snail's pace at which we travel towards the application of self-knowledge.

*C. G. Jung, *Flying Saucers: A Modern Myth*. C. W. 10, p. 344.

The Importance of Simon Weil

Roger Woolger

Simone Weil enjoys in this country a small but ardent following; so small in fact that apart from the familiar paperbacks *Waiting on God* and *Gravity and Grace* and the translations of the late Sir Richard Rees, many of her major works are beginning to go out of print through lack of interest. In a sense this is understandable; **she** displayed that uncompromising form of French intellectualism of which the more empirical and sceptical Anglo-Saxon mind tends to be suspicious.

Many, having a superficial acquaintance with her writings, regard her as a kind of latter day Pascal (with a touch of Orwell) but tend to shy away from what seems to be a masochistic obsession with suffering culminating in her unnatural death by virtual self-starvation. There remain, however, those who have glimpsed in the unity of her writings and her life a religious genius both prophetic and mystical which amounted almost to that new form of sainthood which, she claimed, was needed by our age.

The only works that Simone Weil wrote for publication in her lifetime were political essays and tracts, the most famous being *The Need for Roots (L'Enracinement)*; all her religious works were published posthumously at the instigation of her friends and her family. Whilst there is no doubt from her notes that she was planning several books and major studies—notably on Greek science and metaphysics and comparative religion—all we are left with are her voluminous notebooks, a large number of letters, and several long essays on religious themes and on the Greeks. Even as they stand, they deserve to be ranked among the most original religious writings of this century, but it needs to be emphasised that, as with Pascal, we have no definite indication of the overall shape of her projected major works. This very fragmentariness, which makes reading her often far from easy, leaves her open to possible distortions in presentation. And this, unfortunately, is what has happened with *Waiting on God (Attente de Dieu)*, where the Dominican, Father J. M. Perrin, well-meaningly but unwittingly, has presented a selection of Simone Weil's essays and letters as the brilliant apologia of a

mystic hovering on the brink of the Catholic Church. In fact it is clear from her other writings (particularly *Letter to a Priest* and the *Last Notebooks*) that her standpoint, although profoundly Christian, entails a fundamental rejection of the Catholic Church which she would never have joined. What she sent to Perrin is but an unrepresentative segment, though a luminous and essential segment, of her religious thought as a whole.¹

The substance of Simone Weil's thought is, in my view, to be found *primarily* in the 1,000 odd highly condensed and broad-ranging pages of her notebooks² (some of which have only just been published) and only *secondarily* in her essays. Even of her essays, far too little attention is paid to those upon Greek thought and literature (a selection of these is known in English as *Intimations of Christianity*³) with the result that her Platonism, absolutely essential to the understanding of her thought, is largely ignored.

The notebooks themselves, over three times the length of Pascal's *Pensées* and often as epigrammatic, are in no sort of discernible order, but they contain the core of her insights upon suffering and degradation, upon prayer, contemplation and love; in addition there are long sketches for essays and commentaries upon Greek philosophy (particularly Plato), mathematics, science and art; observations on modern science; commentaries upon the Gospels, upon Hindu texts (in particular the *Bhagavad Gita* which she translates partly from the Sanskrit), Taoist, Buddhist and Zen parables and a mass of material derived from Greek, Egyptian and Norse mythology and folklore. The only anthology of these notebooks that we have in English, *Gravity and Grace (La pesanteur et la grâce)*, made by the sympathetic hand of her friend Gustave Thibon, ignores practically all of her notes and sketches on the Greeks, on science and on

¹ When the extent of Simone Weil's challenge to Catholicism in rejecting the Church became apparent in France with the widespread acclaim that followed publication of her other works, the Catholic establishment reacted strongly: Perrin mysteriously withdrew his first eulogistic Introduction to *Attente de Dieu*; several assessments and bitter attacks on her "gnosticism" (i.e. heresy) appeared in learned Catholic journals and finally there appeared, edited by Perrin, a *Réponses aux questions de Simone Weil* complete with Imprimatur and benign but firm critical dismissals by several Catholic experts headed by Jean Daniélou.

² *The Notebooks of Simone Weil* (1956—out of print) and *The First and Last Notebooks* (O.U.P., 1970).

³ 1957, also out of print. This contains selected translations from the French "pré-chrétiennes" books: *Institutions pré-chrétiennes* (1951) and *La Source grecque* (1953).

oriental religions and mythology in favour of a selection concentrating almost entirely on her spirituality; he thus succeeds in reinforcing Perrin's picture of a remarkable Catholic mystic *manqué*.

It is not difficult to sympathise with the partiality of Perrin and Thibon's selections, for without acquaintance of the whole range of her writings and the careful study of her notebooks it is difficult to appreciate the vast scale and the fundamental unity of the intellectual and spiritual enterprise she was engaged upon. She planned, among other things, to assemble an anthology entitled *Descent of God (Descente de Dieu)* which would contain texts illustrating how the incarnation of Christ is prefigured in the religions, myths and folklore of every age and culture. Her letters show that this project was no mere literary exercise; it was in fact her deep love and understanding of the spirituality of these other cultures that had both led her to Christianity and kept her outside Catholicism:

You can take my word for it too that Greece, Egypt, ancient India and ancient China, the beauty of the world, the pure and authentic reflections of this beauty in art and science, what I have seen of the inner recesses of human hearts where religious belief is unknown, all these things have done as much as the visibly Christian ones to deliver me into Christ's hands as his captive. I think I might even say more. The love of these things which are outside visible Christianity keeps me outside the Church.
(*Waiting on God*, p.58)

She wrote too, elsewhere:

The Catholic religion contains explicitly truths which other religions contain implicitly. But conversely, other religions contain explicitly truths which are only implicit in Christianity. The most well-informed Christian can still learn a great deal concerning divine matters from other religious traditions; although inward spiritual light can also cause him to apprehend everything through the medium of his own tradition.
(*Letter to a Priest*, p.33)

And again:

Let us suppose that I find myself in a room through which I can see the sun, and that there is a communicating door open between this room and another one, where there is somebody else and which has a window facing the same way. Through the door I can see a rectangle of light projected onto the wall. I might say: The poor fellow in there! Here am I, able to see the light of the sun, whereas all he sees in the way of light is a faintly lit up little surface on a wall. That is exactly the attitude of Catholics with regard to other religions.
(*The Notebooks*, p.345)

Yet Simone's insights on other religions and mythologies remain fragmentary compared with her studies of the Greeks. She felt instinctively rather like the Early Fathers of the Church, that it is the

theoria¹ of the Greek philosophers that is best suited to articulate fully the mysteries of the incarnate *logos*. Her particular genius lies in her realisation that only a philosophic and scientific outlook which is rooted in contemplation, indications of which are to be found in Plato, can provide an intellectual vision mature enough to nourish both the minds and spirits of an advanced but disenchant-ed society such as ours. Her conviction that such a vision might be possible sprang, moreover, partly from a belief that in antiquity the various Mediterranean cultures all formed one civilisation.

I believe that before the conquests of Rome the countries of the Mediterranean and the Near East formed a civilisation, which was not homogenous because it varied from one country to another, but was continuous; and I believe that one and the same thought inhabited all its best minds and was expressed in various forms in the initiatory sects of Egypt, Thrace, Greece and Persia, and that the works of Plato are the most perfect written expression we have of that thought . . . It is from this thought that Christianity issued; but only the Gnostics, Manichaeans and Cathars seem to have been really faithful to it. (Seventy Letters, p.130)

Just as the break-up of this spiritual culture was, in her opinion, due to the imperialism of Rome, the epitome of the “great beast” or social animal that Plato so abhorred, so in our time she saw the conditions for its re-establishment constantly threatened by the “great beast” of modern collectivities, Nazism, Communism and, for her, the social institution of the Catholic Church.

The extent to which Simone Weil saw in Greek thought, and in particular Plato, the seeds of a religious philosophy capable of reconciling the scientific, artistic and religious outlooks of this century and of restoring man to his true individual dignity in society is not generally appreciated by many of her readers, for reasons I have suggested earlier. I shall therefore try, with the help of quotations, to sketch the outlines of her thought on these topics.

Simply to say that Simone Weil is a Platonist would be misleading for two reasons: first of all because it implies that she can be labelled and pigeon-holed, when this is in direct opposition to her spirit of intellectual catholicity; secondly, because there is today hardly any clear conception of what exactly Platonism is.

Certainly her metaphysics are Platonic, in that she assumes a fundamental dualism of “being” and “becoming”, God and cre-

¹ See Dorothy Emmet's article, “Why Theoria?” in this journal, October, 1966.

ation, body and soul, time and eternity, and so on. Furthermore she fully accepts the reality of a "world of ideas". But whereas most commentators see Plato's dualism as no more than an abstract metaphysical scheme, for Simone Weil it is the philosophic expression of how, as creatures, we are separated from God by a distance that is the very essence of our human wretchedness:

"What a difference lies between the essence of the necessary and that of the Good" [*Republic*, VI, 493].

When we understand that, we are detached with respect to the good.

God and creation are One; God and creation are infinitely distant from each other: this fundamental contradiction is reflected in that between the necessary and the good. To feel this distance means a spiritual quartering, it means crucifixion. (*The Notebooks*, p.400)

We have to cross—and God has to do so in the first place to come to us, for it is He who comes first—the infinite thickness of time and space. Love is here, if anything, greater. It is as great as the distance that has to be crossed.

In order that it may be the greatest possible love, the distance must be the greatest possible distance. (*The Notebooks*, p.428)

Evil is nothing but the distance between God and the creature.

(*The Notebooks*, p.588)

There are all degrees of distance separating the creature from God. A distance where the love of God is impossible. Matter, plants, animals. Here evil is so complete that it is self-annulling; there is no longer any evil: mirror of divine innocence. We are at the point where love is just possible. It is a great privilege, for the love which bridges it is in proportion to the distance.

God has created a world which is not the best possible, but at every stage of good and evil. We are situated at a point where it is as bad as possible; far beyond is the stage where evil becomes innocence. Loop, circle, reversal of the opposites. (*The Notebooks*, p.616)

In a similar way Plato's "world of ideas" is not seen by Simone Weil as simply an intellectual hypothesis in the philosophical theory of knowledge, still less as a doctrine about universals of language. For her it is Plato's expression of the existence of that living but transcendent reality known and loved by the mystic; in *Waiting on God* she remarks in a letter that she came "to feel that Plato was a mystic" whilst in her American notebooks she gives a long comparison between St. John of the Cross's "dark night of the senses" and the Allegory of the Cave in Plato's *Republic*. The clearest expression of her Platonism, with full emphasis given to his doctrine of contemplation, is to be found in her very succinct "Profession of Faith", part of which is given here:

There is a reality outside the world, that is to say, outside space and time, outside man's mental universe, outside any sphere whatsoever that is accessible to human faculties.

Corresponding to this reality, at the centre of the human heart, is the longing for an absolute good, a longing which is always there and is never appeased by any object in this world.

Another terrestrial manifestation of this reality lies in the absurd and insoluble contradictions which are always the terminus of human thought when it moves exclusively in this world.

Just as the reality of this world is the sole foundation of facts, so that other reality is the sole foundation of good.

That reality is the unique source of all good that can exist in this world: that is to say all beauty, all truth, all justice, all legitimacy, all order, and all human behaviour that is mindful of obligations.

Those minds whose attention and love are turned towards that reality are the sole intermediary through which good can descend from there and come among men.

Although it is beyond the reach of any human faculties, man has the power of turning his attention and love towards it.

(*Selected Essays*, p.219)

It is worth remarking that the last paragraphs of this quotation contain what is almost a direct paraphrase of that part of the Allegory of the Cave in the *Republic* Book VII where Plato talks of the act of conversion as a movement by which the prisoner must turn his attention to the light which is eternal. This passage may well be the source of those luminous remarks of Simone Weil's on "attention" that are to be found in *Waiting on God*; certainly her notebooks seem to suggest this:

The way of ascent, in the *Republic*, is that of degrees of attention. The eye of the soul is this attention.

Absolutely pure attention—attention which is nothing but attention—is attention directed towards God; for he is only present to the extent to which such attention exists. (*The Notebooks*, p. 527)

One of the means that Plato recommends (in the *Republic* and the *Epinomis*) for developing the faculty of attention is the practice of mathematics. As Simone Weil recognised only too well from her own passion for mathematics, there are aspects of the discipline, and others based upon mathematics, that have many of the features of contemplative practice; a notable example is what she calls the "dark night" of the intellect:

Mathematics alone make us feel the limits of our intelligence. For we can always suppose in the case of an experiment it is inexplicable because we don't happen to have all the data. In mathematics we have all the data, brought together in the full light of understanding, and yet

we don't understand. We always come back to the contemplation of our human wretchedness. What force is in relation to our will, the impenetrable opacity of our mathematics is in relation to our intelligence. This forces us to direct the gaze of our intuition still further afield. The universe of signs is transparent, and yet remains infinitely hard to penetrate.

(*The Notebooks*, p.511)

To be faced with an intractable problem, whether in the sphere of the intellect, as in mathematics, or indeed in the sphere of the physical world, as when we are faced with what Simone calls "the irreducible nature of suffering", is to run up against a "contradiction". In such a situation the soul undergoes a form of purification because it has reached "the terminus of human thought"; now all it can do is wait, endlessly open to the possibility of inspiration from a higher source:

Crossing over to the transcendent takes place when human faculties—intelligence, will, human love—run up against a limit such that a human being has to rest at this threshold beyond which he cannot take a single step. This he must do without turning away, without knowing what he desires and all the time stretched out, waiting.

(*Last Notes*)

In time this unrelieved waiting may be repaid by the advent of a solution, a deeper understanding:

If what one has been waiting for comes at last, sometimes one's joy is full. As though one received from outside the energy that one has concentrated during the time of waiting.

(*The Notebooks*, p.204)

Not only mathematics but all processes of creative thought, whether artistic or scientific are considered equally assimilable to the contemplative model Simone Weil describes; here are many clues for contemporary writers on "creativity".

For Simone Weil, as for Plato, despite God's infinite separation from man, He can become manifest in ways other than the highest disciplines of contemplation and pure attention. These other manifestations are called by Simone Weil forms of *metaxu*, that is mediation or intermediaries, and this concept takes us to the very heart of both her Platonism and her understanding of Christianity. In the *Symposium* Plato writes that "Love (Eros) is an intermediary (Greek: *metaxu*) between that which is mortal and that which is immortal . . . it is a great *daimon* . . . By him the art of prophecy and that of the priests, of sacrifices, of mysteries and of incantations, are accomplished. God does not mingle with men, it is uniquely by means of Love, or the *daimon* that there is intercourse and dialogue

between the gods and men” (translated by Simone Weil in *Intimations*, p.125). In this and in a passage from the *Republic* where Plato describes the totally obedient suffering of “the perfectly just man” Simone Weil saw the most potent expressions of divine mediation. It was to this that she referred when she wrote to Perrin that she felt Plato was a mystic, and that figures like Dionysius and Osiris (she later added Prometheus, Adonis and Odin) “are in a certain sense Christ himself”.

Of course, other writers have often pointed out the similarities between the death and resurrection of Jesus and various mythical “dying gods”. What is original about Simone Weil’s concept of divine mediators is that she extends her notion of incarnation beyond purely personal forms to include the impersonal mediation of Christ as the Word or *logos*:

There are two incarnations of the second divine Person. One as the Word, the ordering principle of the world (Soul of the World), whence proceeds beauty. It demands that necessity should be docile to good—a miraculous docility. We are able to observe it, to experience it continually. The other one demands the same miracle, and not any *other* kind; it is no more astonishing. *(The Notebooks, p.384)*

Like the Early Fathers of the Church Simone Weil appears to have assimilated into her thought the idea, which derives from Heraclitus and which is developed by Plato and the Greek Stoics, of the cosmic *logos*, the divine orderer, whose laws can be apprehended most readily in contemplation of mathematics. Plato pursued the mystical significance of the *logos*, as beauty, love and mathematical proportion, the most sublime form being the contemplation of the heavenly bodies in astronomy (what in the Middle Ages was called the “harmony of the spheres”) in the *Timaeus*:

47b. Contemplation of the circular movements of intelligence in the heavens should serve as a guide for the translations of thought in ourselves which are related to them. But the heavenly movements are untroubled whilst ours are disturbed; we should be instructed by this and take part in the essential rectitude of heavenly proportions. By the imitation of God’s circular motions which are absolutely without error. *(Intimations, p.95)*

Simone Weil interprets this passage as a second form of *imitatio Christi*:

Thus the Word is a model for man to imitate. Not in this case the Word incarnate as a human being, but the Word as order of the world, so far as incarnate in the universe as a whole. Here is the source of the

idea of the microcosm and the macrocosm which so haunted the Middle Ages. Its profundity is almost impenetrable. (*Intimations*, p.95)

The true significance of Simone Weil's espousal of this idea is no sentimental hankering after medieval cosmologies or arcane doctrines, despite appearances; it lies in connecting the notion of the *logos* with the fact that the significant advances of modern science, especially physics, are based upon mathematics. The concept of *logos* in mathematics to be found in the Pythagoreans, in Plato and the Stoics is of the utmost contemporary relevance¹. Properly understood the scientific investigation of structures and regularities in nature is, according to Simone Weil, an exploration of the divine *logos* as it is manifested in the mathematical necessity which underlies the order of the world.

The reality of matter lies in necessity, but we can only conceive of necessity by laying down clearly defined conditions, that is to say, in mathematics. (*The Notebooks*, p.509)

Necessity, both pure and conditional is the true object of mathematics and of certain operations of thought which are analogous to mathematics; which are as theoretical, pure and rigorous as mathematics but which are not given a name because they are not discerned. Contrary to a quite widespread prejudice of our day, mathematics is before all a science of nature; or rather it is *the* science of nature, the only one. Every other science is simply a particular application of mathematics.

(*Intimations*, p.181)

Such a conception also helps to account for what many scientists have testified to as the aesthetic quality of certain scientific disciplines:

As for beauty in the sciences, this is nothing but the beauty of the order of the world perceived through the most rigorous necessity, that which is the material of mathematical demonstration, for Plato calls both pure and applied mathematics sciences . . . To him who lovingly contemplates the order of the world, there shall come a day when he shall suddenly contemplate another thing, a miraculous sort of beauty.

(*Intimations*, p.148)

Moreover, if the full implications of this aesthetic quality are admitted, then it becomes clear that an artistic and a scientific response to reality have everything in common with each other since they are both dedicated to the realisation of the *logos* as it is manifested as beauty and order:

¹ Cf. S. Sambursky, *The Physical World of the Greeks*, p.42: “. . . from the standpoint of modern science, the scientific method of the Pythagoreans was correct . . . the theoretical physicists of our time, who have greatly advanced the understanding of nature, likewise believe almost religiously in the power of the mathematical symbol and the validity of formulae and calculations”.

In everything that arouses a pure and genuine feeling for beauty, God is really and truly present. There is, as it were, a sort of incarnation of God in the world (*Timaeus*) of which beauty constitutes the sign. The Word as ordering principle.

Beauty is the experimental proof that the Incarnation is possible.

It follows that all art of the first order is, in essence, religious. (That is something we no longer understand today). All art of the first order testifies to the fact of the Incarnation. A Gregorian melody testifies to it just as much as the death of a martyr.

The Greeks looked upon art in this way. Greek statues. Actual presence of God in a Greek statue. The contemplation of such presence is a sacrament.

Science and art have one and the same object which is to experience the reality of the Word, the ordering principle. Science is to the Logos (or Word) what art is to the Orphic eros (or Love), and the Logos and eros are identical.

(At one time I found it difficult to believe how art and science could be reconciled. Today I find it difficult to understand how they can be distinguished.)

The object of science is the exploration of beauty a priori.

(*The Notebooks*, p.440)

Here, in this highly condensed string of aphoristic insights, is the essence of Simone Weil's programme for conceiving the reconciliation of art and science.

To return in slightly more detail to Greek mathematics, Simone Weil observed that in Plato there is a direct continuation of the Pythagorean tradition in which the harmonizing power of number has an explicitly mystical significance. According to her essay, "The Pythagorean Doctrine" (in *Intimations of Christianity*) the essence of their teaching lay in the idea that arithmetic (and later geometry—cf. the inscription above Plato's *Academy*: "Let no man who is not a geometer enter here") is concerned with ratios and proportional means that are images of the divine "mediation". This is another sense of the "mediation" or *metaxu* concept which was outlined above; for a detailed description of this idea I refer readers to her essay, but here are some of her key statements:

Proportion and harmony are synonyms. Proportion is the bond established between two number by a mean proportional: thus 3 establishes a proportion between 1 and 9, that is $1/3 = 3/9$. Harmony is defined by the Pythagoreans as the unity of contraries.

The first couple of contraries is God and the creation. The Son is the unity of these contraries, the geometrical mean which establishes a proportion between them.

(*Intimations*, p.95)

Epinomis. The assimilation between two numbers meant the discovery of a proportional mean.

(*The Notebooks*, p.385)

(Among the many Greek texts that Simone cites to support the thesis of a divine “proportional mean” are several verses from the Gospel of St. John, in which she seems to imply that the Johannine vision of the *logos* was directly influenced by the Pythagorean mystical tradition.

As far as I have been able to discover this is an entirely original interpretation which, if true, could lead to new insights into this, the most mystical of the Gospels.)

What saves Simone Weil’s interpretations of Plato and Greek thought and their contemporary relevance from being a purely academic exercise in metaphysical speculation? We know that her life was far from cloistered since she was constantly involved in French Left-wing politics and the struggles of the trade unions in the Thirties and that she spent a year working in factories as well as some time at the front in the Spanish Civil War. Where is the connection between the contemplative uses of science and the arts on the one hand and the active life of radical political engagement on the other?

Simone Weil’s answer to this may sound as surprising to today’s Left-wing activists as to the Hippie culture with its ethic of “do your own thing”; it is an answer that takes us to the heart of her Christian spirituality and reflects the *amor fati* of the early Greek Stoics: to know God and act as His intermediaries requires of us discipline, the dual discipline of love and obedience:

The true relationship to God consists in love when contemplating, blind obedience when acting. But we must not mix up the two things. We must act as a servant whilst contemplating with love; but we must not act thus for the sake of what we love. *(The Notebooks, p.361)*

Perhaps Simone Weil’s greatest insight was to show that both contemplative love and obedience in action share the selfsame object, that necessity which governs the order of the world. Necessity, on the universal scale, is the principle of order by which matter submits to the divine ordinance enacted in creation; on the individual level necessity is that coldly indifferent mechanism that can bring meaningless affliction upon an individual:

God does not send sufferings and woes as ordeals; he lets Necessity distribute them in accordance with its own proper mechanism. Otherwise He would not be withdrawn from creation, as He has to be in order that we may *be* and can thus consent not to *be* any longer. The occasional contacts resulting from inspiration between His creatures and Him are less miraculous than His everlasting absence, and constitute a less marvellous proof of His love.

God's absence is the most marvellous testimony of perfect love, and that is why necessity, the necessity which is manifestly so different from good, is so beautiful.

The abandonment, at the culminating point of the Crucifixion—what unfathomable love this shows on either side. (*The Notebooks*, p.403)

Just as the *logos* submits to necessity in creation, so too must the individual if he is to imitate Christ; we are thus given a double model for the practice of obedience to the will of God:

Christ, considered as man, was never anything but pure obedience. The obedience of Matter requires no law to illustrate it. Obedience is the supreme virtue. We have to love necessity. (*The Notebooks*)

Our simplest actions are ruled by a necessity which, when we relate it to all things, presents the idea of a world so totally different from our desires that we feel how very nearly nothing we are. By conceiving ourselves, if one may so express it, from the point of view of the world, we attain to that indifference about ourselves without which there is no deliverance from desire, hope, fear and becoming, without which there is no wisdom, without which one lives in a dream . . . The purifying effect of the contemplation and experiencing of necessity is sufficiently conveyed in some marvellous lines of Lucretius; misfortune endured in the right way is a similar purification ;and classical science, too, is a purification if it is rightly used. It tries to read behind all appearances that inexorable necessity which makes the world a place in which we do not count, a place of work, a place indifferent to desire, to aspirations, and to the good. The sun which it takes for an object of study shines indifferently upon the unjust and the just. (*Science, Necessity and the Love of God*, p.10)

There is no compromise in Simone Weil's concept of obedience, for she knew that for those who encounter necessity to the full its "blind mechanism, heedless of degrees of spiritual perfection, continually tosses men about and throws some of them at the very foot of the Cross" (*Waiting on God*, p.83). And she knew too, from her shared experience of the degradation of factory work and from living close to the brutalities of Nazism and totalitarianism in the Thirties, that although there does exist a living and knowable transcendent reality, "our country is the Cross". Both the active and the contemplative lives together or separately, lead to suffering:

He who takes up the sword shall perish by the sword, he who does not take up the sword (or lets it drop) shall perish on the Cross.
(*The Notebooks*, p.???)

But she also wrote:

Blessed are they for whom the affliction that enters their flesh is the affliction of the world itself in their time. For they have the possibility

and the function of knowing it in its truth, and of contemplating the affliction of the world in its reality. Here is the redemptive function itself. Twenty centuries ago, in the Roman Empire, the affliction of that time was slavery, of which crucifixion was the ultimate expression.

(Letter to Joë Bousquet)

Simone Weil died in 1943 at the age of 34; although her work was never completed, and its intended form is unclear, she nevertheless left behind a living record, in notebooks and letters, of her personal witness to the deepest social, political, intellectual and religious problems and divisions of our time. Yet to say that her message is “contemporary” is almost to belittle her, for although her learning of science and her first-hand engagement in politics inform her contemplative insights, she never for a moment lost the perspective of history nor forgot the spiritual wealth of other cultures. Whatever area her genius touched it seemed to illumine. Though we lack any comprehensive expression of her vision, we should be blind to ignore the brilliance of its fragments.

Prototypic Organisms II: The Amoeba

Erica Swale

In the first article in this series, on the Slime Mould (T. to T., 4 (3), pp. 32-38), the word “amoeba” was used freely and without definition, on the assumption that its meaning would be obvious to the non-biologist. This is an interesting semantic sidelight on the incorporation of the concept of an obscure micro-organism into everyday thought. It is nearly a century and a half since the generic name *Amoeba* (from the Greek *amoibē* = change) was first used by Ehrenberg in 1832 for what was then considered to be the simplest of animals. This name emphasises their most apparent feature, the constantly changing outline of the cells due to the extension and retraction of lobes of protoplasm, the *pseudopodia*. As well as being obviously “animal” in moving, amoebae show the basic characteristics of living beings—they respire, take in and digest food, reproduce, and respond to external stimuli (such as strong light and touching with a glass needle, from both of which they crawl away).

For the reader unfamiliar with biological nomenclature, it may be apposite to explain the meaning of a generic name, which represents a group of organisms, the *genus*, having a number of attributes in common. *Amoeba* is not synonymous with the colloquial “amoeba” (plural: amoebae) which refers to a loosely definable, arbitrary and artificial assemblage of creatures, more or less exemplifying the idea of “amoeboidness”. A further subdivision of the group is expressed by the addition to the generic name of the specific epithet, e.g. *Amoeba proteus*, *proteus* standing for all the individuals thought by biologists to be sufficiently distinct from others to form a *species*. The situation is analogous to that, for instance, among animals known popularly as apes, which term includes several genera and species, such as *Pongo pygmaeus*, the orang-utan, *Pan satyrus*, the chimpanzee, and *Gorilla gorilla*, the gorilla.

With all “prototypic organisms”, their election to this privileged position is largely due to historical chance, and it must not be forgotten that there is the danger of circular argument: that any feature shown by one of these organisms exemplifies a fact of general appli-

cation, just because its possessor happens to be *thought* to be typical. Indeed, many “type” species (i.e. technically the first to be described in any group of animals or plants) are far from typical, and have many characteristics peculiar to themselves alone.

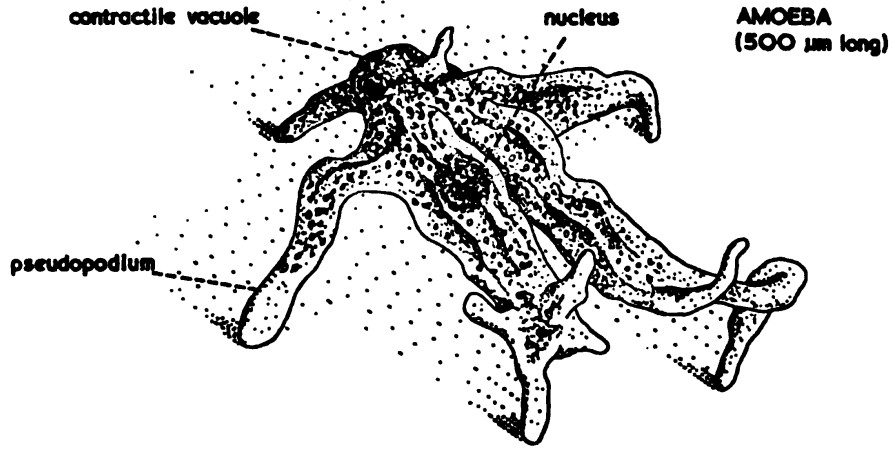
An amoeba-like creature was first described in 1755 by a miniature painter of Nuremberg, Rösel von Rosenhoff, as “der kleine Proteus” and this was later considered to be identical with *Amoeba proteus*. However, it is somewhat ironical that a careful study of von Rosenhoff’s illustrations (by Mast and Johnson, 1931) strongly indicated that the “kleine Proteus” was more likely to have been the amoeboid stage of a slime mould.

The slime moulds are without doubt amazing organisms, but although they were being studied in the middle of last century, they failed to catch the popular imagination, as did the amoeba. In that period, when evolutionary ideas were first a matter of public concern and the Origin of Life was widely discussed, it was fortuitous that there was to hand what appeared to be the perfect example of both the “primitive cell” and of “simple naked protoplasm”. T. H. Huxley was re-organising biological teaching in universities and schools, and in his method of using “type” organisms, the amoeba came to occupy an honourable position as the first animal to be examined in curricula, and as the foundation of family trees which optimistically purported to show the detailed evolution of the animal kingdom.

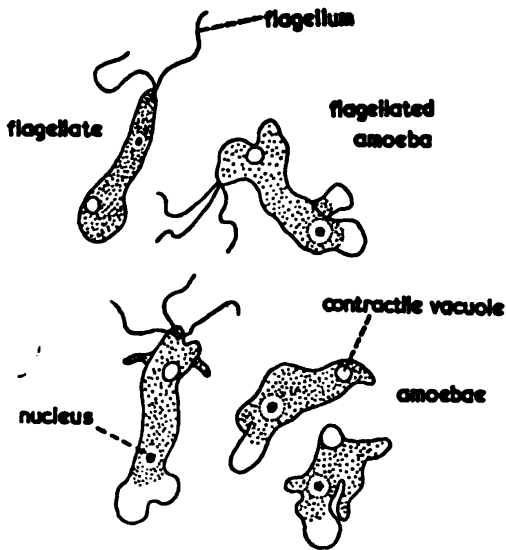
So popular was the idea of primitive protoplasmic organisms that when an oceanographic expedition collected samples of deep-sea slime, this was described (in Wyville Thompson’s “The Depths of the Sea”—1873) as the most primitive form of life. What appeared to be naked protoplasm in amoeboid movement, covering large areas of the sea floor, was named *Bathybius* by Huxley, before it was realised to be nothing more than a chemical precipitate formed by the action of the alcoholic preservative used. Not to be forgotten also, was Pooh Bah’s boasted tracing of his family back to the “ancestral primordial protoplasmal globule”, and even today a recent pop recording exists featuring “The Amoeba Song”.

Elementary biology books give the impression that the amoeba is a well-defined, unique creature, but in fact there exist large numbers both of different species of amoebae, and of even larger numbers of organisms having amoeboid stages as part of their life-cycle. Amoebae are difficult to identify at sight because their shape is of

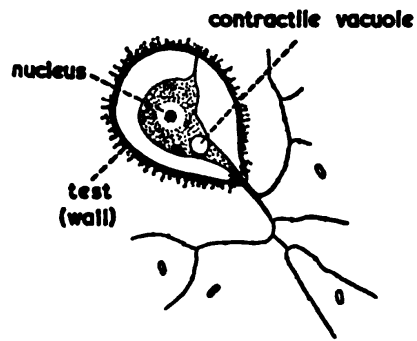
Fig. 1



NAEGLERIA
(20-25 μm long)



TESTATE (= WALLED)
AMOEBA (10 μm long)



fine pseudopodia forming "cobwebs" which catches bacteria

MASTIGAMOEBIA
(permanently flagellated)

(30 μm long overall)

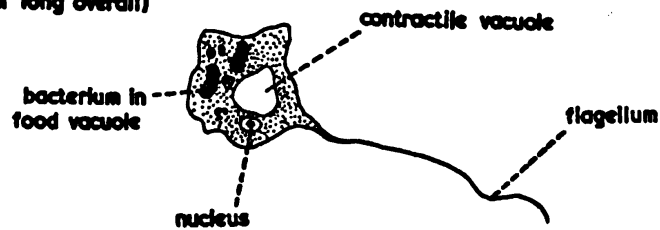


Fig. 2

PSEUDOSPORA
(c. 12 μm long)

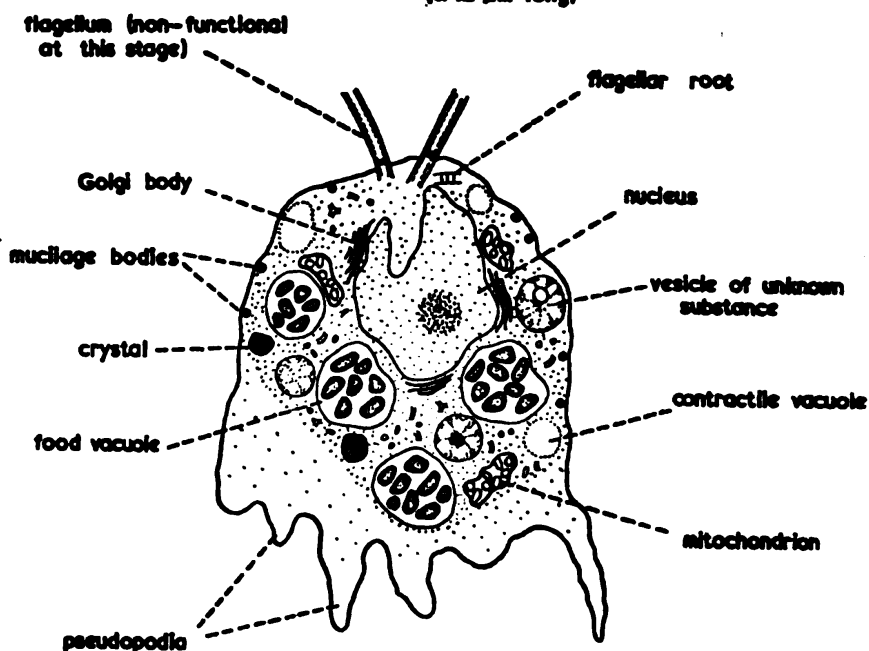


Fig. 1. Four amoeboid organisms, drawn from life, showing a range of structure. Above is an *Amoeba* belonging to the *proteus* group, a typical amoeba of school biology courses, drawn to show how it holds itself above the substratum. The nucleus and contractile vacuole are just visible, but the vacuoles in which food is digested cannot be seen, since the inner part of the cytoplasm is full of whitish granules and almost opaque. Left, *Naegleria*, a small soil organism which has a flagellated motile stage in its life history. The uppermost cell is swimming with its flagella first, the two adjacent ones have begun to crawl upon the substratum, dragging their now feebly beating flagella after them, and the other two have shed their flagella and are typical amoebae.

Below is *Mastigamoeba*, a permanently flagellated form. Here two food vacuoles can be seen, both containing bacteria. Lastly, on the right is a walled amoeba, possibly a species of *Gromia*. This is a simple freshwater representative of a large group of amoeboid organisms with chitinous or calcareous tests or shells. The pseudopodia of these species tend to be very narrow, usually thread-like. The rod-shaped bodies are bacteria.

Fig. 2. Diagram of the amoeboid-flagellate *Pseudospora*, seen in longitudinal section. At the top are two flagella, non-functional at this stage, cut short in the picture, while at the bottom are the pseudopodia, now the main organs of locomotion. Inside can be seen the nucleus, Golgi bodies, mitochondria and contractile vacuole, regular cell components which are dealt with in the text. Also present are vesicles containing an unknown substance, possibly a storage product, and small dark crystals, also of unknown nature. Many amoebae contain crystals, sometimes very large, and the size, shape and general appearance of them is often a diagnostic character helpful in determining the species. Small dark mucilage bodies are also indicated—these help to maintain a layer of mucilage over the cell surface, and are found in many protozoa.

N.B. Measurements: 1 μm = one thousandth of a millimetre.

only limited use as a definitive character. More stable features such as the size and shape of the nucleus, its behaviour on division, the formation of resting stages etc., need careful observation and an experienced eye. A specimen collected from a pond or ditch is obviously an amoeba, but to determine what sort of amoeba is often a job for a specialist. Consequently there has been much confusion over the whole group of amoebae and related forms. The difficulty is by-passed on behalf of students in that they are able to examine material grown in culture, a method of cultivation similar to horticulture, which results in large numbers of uniform animals. For amoebae, culture work was pioneered by the Sisters of Notre Dame in Glasgow, who developed methods particularly suitable for the group of species related to *A. proteus*.

Amoebae and amoeba-like forms are widespread in freshwater habitats, and are very common in soil (where, in association with bacteria, they are important producers of carbon dioxide). They also occur in the sea, and as parasites causing varying intensities of disease in many animals and in man, where in particular, amoebic dysentery is due to the activity of *Entamoeba histolytica*. This last group grades imperceptibly into the symbiotic amoebae, those which live merely inside the bodies of other animals, without causing disease.

Amoeba proteus is generally regarded as epitomising "the amoeba", although other species are more frequently found in nature. This species and its close relatives (the *proteus* group), will form the basis of the following account, but others will be referred to as well. Amoebae of this group are fairly large for Protozoa (the hierarchical assemblage, or *Phylum*, to which all unicellular animals are assigned), up to 0.5mm across. They can be seen by the unaided eye as greyish specks. Under a low power microscope the characteristic lobed, changing shape is very apparent (see Fig. 1), and the rapid extension of pseudopodia and the pouring or tumbling of the cell contents into them as they expand, is a fascinating sight. Many illustrations give the impression that these amoebae always lie flat on the solid surfaces over which they move, but as shown in the drawing here, the animals often "walk" as it were on tip-toe, and the pseudopodia emerge in all planes.

Inside the delicate bounding membrane of the cell is a clear area, the *ectoplasm*, which surrounds the central, densely granular main contents forming the *endoplasm* both these being subdivisions of the

cytoplasm or general cell contents which includes everything except the nucleus. The latter can be made out in living amoebae as a fairly large, dense, lens-shaped object. The only other readily visible constituents of living amoeba are the various *food vacuoles* (often containing identifiable small animals such as rotifers, or algae, especially diatoms), and one or more spherical cavities whose size increases and decreases rhythmically—the *contractile vacuoles*.

The importance of the nucleus as the organising centre of a cell's activity is well known, and a good deal of early information on this subject was derived from work on amoebae. In 1899, for instance, Verworn discovered that if cells were cut up, the pieces regenerated, but only those containing a nucleus lived on for more than a short period. The enucleate pieces produced pseudopodia although could not move normally; they were able to take in food particles, but not digest them; they could not reproduce, and eventually died.

A brief consideration of cell division may be introduced by a remark of Coleridge in "Biographia Literaria" (1817). "There is a sort of *minim immortal* among the animalcula infusoria which has not naturally either birth or death, absolute beginning, or absolute end; for at a certain period a small point appears on its back, which deepens and lengthens till the creature divides into two, and the same process recommences in each of the halves now become integral".

In *A. proteus*, this type of division (i.e. "simple fission") seems to be the only form of multiplication. There have been several doubtful accounts of sexual reproduction, but recently Droop (1962) has established a primitive form of sexuality in an amoeba relative, which has a flagellated stage in its life-cycle (i.e. it swims by means of hair-like structures). This raises the question of primitiveness, which will be discussed below. Factors determining when a cell shall divide are complex, but are connected with optimum size, state of nutrition, and metabolic activity, the latter closely dependent in unicellular organisms on surface area, size and diffusion gradient ratios. Cell division follows the usual overall pattern in which the chromosomes—the complex DNA molecules which bear the *genes* (sequences of nucleotides which in turn are the main transmitters of genetic pattern)—divide into halves. The two sets of halves then move apart and come to lie on opposite sides of the nucleus, prior to its separation into two new nuclei, each having the original number

of chromosomes. Cleavage, or division of the rest of the cell, follows nuclear division, so that a pair of daughter amoebae results.

The whole process of cell division can be completed in 15-20 minutes, and in healthy cultures cells may divide every 24 hours. An unusual feature in *Amoeba* is the very large number of chromosomes—of the order of 500-600, whereas man has 46, and the fruit fly, *Drosophila*, 8. Although the complement varies widely in the animal kingdom, high numbers like this are a pointer to great age in a line of organisms, and indicate polyploidy, the condition in which the original number of chromosomes becomes doubled or re-doubled, possibly several times over.

For many years there has been interest in the relative effects of nucleus and cytoplasm in heredity, with the development of rival schools of thought as to whether the chromosomal genes are, or are not, the sole transmitters of characters from one generation to the next. Much research was carried out on the transfer of nuclei in grafts and embryos, but Danielli and his co-workers extended the field to amoebae. Nuclei of two related species were interchanged and the resultant “pseudo-hybrids” were in shape intermediate between the parents, whereas the nucleus became in size more like the cytoplasmic parent. Only a very small number of these hybrids reproduced, but of these, one pure line (or clone) was kept for 6 years. At the end of this time it was found that both nucleus and cytoplasm had become to some extent changed by close juxtaposition and when these individuals were back crossed with the original parents, it was found that the alterations were permanent. In general, the cytoplasm appeared to determine most of the animal’s morphology, while the nucleus controlled the rate of reproduction. Another finding was that it was easier to make reproducing pseudo-hybrids using the “new” nuclei—a result paralleled by work on grafts in multicellular animals and plants. Other significant research using nuclear transplants in amoebae has employed labelled radioactive isotopes of phosphorus for following the transfer of R.N.A. (ribonucleic acid—the template for protein synthesis) from nucleus to cytoplasm. When labelled nuclei are placed in non-labelled cells, the isotope becomes detectable after a time in the cytoplasm. This transfer does not take place in reverse, i.e. no radioactive phosphorus moves into the nucleus from the cytoplasm.

As mentioned above, in *A. proteus*, division into two cells at a time seems to be the only form of increase. Related amoebae form

cysts or spores, in which the cell secretes a thick wall (thought to be resistant to desiccation and other unfavourable outside circumstances). Frequently the nucleus divides and re-divides inside the cyst, and when conditions again become favourable the wall ruptures to release numerous small amoebae. Sometimes there is no division inside the cyst, so that their presence does not necessarily imply this extra method of reproduction. Cyst formation is universal among truly parasitic forms, where it is essential to the organism's survival outside the animal host.

The phenomenon of *osmosis* takes place when two solutions of different concentration are separated by a selective membrane which allows the passage of some molecules of dissolved substances one way through it, but not the other. The fluid content of freshwater amoebae are separated from the less concentrated outer environment by the cell membrane, which behaves as an osmotic membrane. This means that water accumulates inside the cell, and the function of the contractile vacuoles is apparently to eliminate this excess water. (See fig. 1). It is noteworthy that marine and parasitic amoebae, whose surroundings are at a higher osmotic concentration than inside the cell, do not have contractile vacuoles. The vacuoles are composite in origin, being formed by the amalgamation of several smaller vesicles. They increase slowly or rapidly in size, then burst on to the surface and disappear, to form again in more or less the same relative position.

Most amoebae actively capture "prey" by the extension of pseudopodia as a response to stimuli received from the food organism or particle. *Amoeba proteus* is fairly catholic in its tastes and will consume a variety of small algae and protozoa. The process by which amoebae ingest food is known as *phagocytosis*, a reference to the same mechanism in the white blood cells, or phagocytes. A lobe of protoplasm is often extended with extraordinary swiftness over and around the food, which then appears to sink down into the body of the amoeba, where it remains while the process of digestion takes place. Unuseable residues are left behind as the animal moves on, in the *proteus* group, but related forms are more specialised and in these waste products accumulate in a special posterior area, the *uroid*, before finally being discharged.

Another characteristic process in *A. proteus* is *pinocytosis* or "cell-drinking". Proteins, certain dyes and inorganic salts cause starved cells to round off and produce many short pseudopodia (the

“mulberry stage” . In each lobe a narrow channel is formed, which penetrates deeply into the cytoplasm. It appears that the substances inducing this behaviour are taken down through the channels, and at their ends pieces are pinched off and released into the actual body of the cell. Pinocytosis is mentioned here because of its similarity to the method occurring in the absorptive cells in the small intestine of mammals.

The “skin” of an amoeba is known as the *plasmalemma* and has a definite structure as shown by the electron microscope. In *A. proteus* and several related amoebae, the outer surface of the plasmalemma has a coating of fine hair-like projections giving a woolly appearance. The adhesion between this coating and the substratum over which the animal crawls, raises the complex and controversial subject of amoeboid movement.

Most of the work and hypotheses relate to *A. proteus*, although here again, this species shows only one sort of behaviour, and the mechanism is known to be different in at least some others. Attention was drawn above to the clear outer ectoplasm and the inner dense endoplasm. Correlated with these, but showing no structural difference, are two colloidal states of the protoplasm, the “sol” and “gel” conditions. The essence of amoeboid movement is the reversibility of these states in different areas of the cell. Numerous theories and hypotheses have been put forward to explain the mechanism, but at present the contractile-hydraulic theory of Mast et al, and its elaboration by many later workers, seems to be the most widely held. Basically, a semi-rigid and elastic tube of ectoplasm is produced continuously by a moving amoeba. This tube, of a net-like protein complex which contracts at the rear of the animal, drives the fluid endoplasmic sol forwards. The latter spreads out and “fountains” at the advancing edge of the pseudopodium, and itself becomes converted to gel at the periphery, thus adding to the length of the firmer tube. For a detailed account of possible explanations of amoeboid movement, the reader is referred to the excellent article by Jahn and Bovee, in Chen (1967).

Electron microscopy has unfortunately not contributed to the understanding of how amoebae move. No ultrastructural differences are discernable in the sol and gel components, and although the endoplasmic reticulum (see below) is more developed in some amoebae than others, there appears to be no connexion between this and movement. Normal movement depends on the presence

of a nucleus, and this is shown neatly by experiments with enucleate cells, when the re-introduction of a nucleus leads to the immediate resumption of their usual manner of moving.

Examination of thin sections of amoebae by means of the electron microscope shows them to contain the basic structures common to all cells above the level of bacteria and blue-green algae. Fig. 2 indicates diagrammatically the main components, in an amoeboid organism, *Pseudospora*, whose fine structure has been investigated recently. Most obvious are the indented nucleus, the food vacuoles stuffed with the starch grains of cells in process of digestion, and the flagella (as this creature is one of the amoeboid-flagellates, mentioned below). The *mitochondria* are small bodies of varying size, and are present in most animal and plant cells. They are known to be the sites of oxidative phosphorylation—the energy releasing process which is the end result of respiration. It is noteworthy that mitochondria are apparently not present in parasitic amoebae, where presumably a different energy release mechanism operates in the conditions of lowered oxygen concentration. The *Golgi apparatus* or Golgi bodies, are stacks of flattened plates, whose complex functions include digestion and the “packaging” of secreted substances on their way to the outside of the cell. In this organism, the numerous mucilage bodies lying just under the plasmalemma, are also likely to be products of the Golgi apparatus. *Ribosomes*, the sites of protein synthesis, show as small dark spots, and are usually associated with an elaborate network of membranes, the *endoplasmic reticulum*. This is well-developed in *Pseudospora* and many of the smaller amoebae, but in *A. proteus* it is only represented by isolated sac-like structures.

An interesting feature of many amoebae, including the *proteus* group, is the presence in the cytoplasm of apparently symbiotic bacteria. The activity of these as protein synthesisers may be important in the overall metabolism of the host cell, but little is known of their significance.

In the above account, frequent mention has been made to amoebae and amoeboid organisms other than *A. proteus* in an attempt to show that it is unwise to lay too much stress upon the single “prototypic organism”, when, as here, it does not stand naturally apart. A few of these others will now briefly described, to give some impression of what may be termed “amoeboidness”.

Naegleria (Fig. 1) is a common soil amoeba feeding on bacteria.

In its usual state it looks like any of the smaller forms of the "limax" or slug-type of soil amoebae. These lie flat on the substratum and have only one dominant pseudopodium. Progress is surprisingly rapid, the animal seeming literally to throw itself along, and the large contractile vacuole fills and empties itself every few seconds. On the drying out of the water film surrounding the soil particles, this amoeba encysts, but when it emerges on subsequent re-flooding, it develops 2, 3 or 4 motile hair-like structures, the flagella, from the posterior end, and swims away as a flagellate (with the flagella now anterior). In *Naegleria* the flagellate stage lasts only a few hours, after which the shape of the organism gradually becomes amoeboid, the flagella being once more relegated to the rear, where they become less and less active and finally cease to beat before being retracted into the cell, or sometimes simply dropped off.

Mention has been made of a related organism showing a form of sexuality. This is *Heteramoeba*, which in contrast to *Naegleria*, spends most of its life as a flagellate in brackish tidal pools, feeding on small unicellular algae by means of a well-developed "mouth".

Amoeba to flagellate transformation is an interesting and complex phenomenon, and its causes and the factors concerned are little understood. In the case of *Naegleria*, the change seems dependent upon an alteration of ionic balance in the environment, rather than a straightforward reaction to diminishing water. Genetic mutation at a high rate has been postulated for the change in *Heteramoeba*, and this seems at least tenable on the evidence supplied.

The amoeba-flagellate *Pseudospora* is a highly specific parasite on one genus of planktonic (i.e. free-floating) freshwater algae. The major part of its life is spent as a more or less typical amoeba, creeping about among the colonies of the host cells and ingesting their contents. Actively feeding amoebae may contain up to 12 food vacuoles, each enclosing the remains of a single algal cell. Indication of a high "rate of living" is shown in the very large nucleus and the unusually large number of Golgi bodies and mitochondria. The amoebae divide freely while food material is plentiful, but when the host cells are used up (and with *Pseudospora* an infection is of epidemic proportions), the starving parasite produces flagellated swimmers. There are only short-lived, but they serve to spread the organism to other algal colonies. Each flagellate soon becomes amoeboid, but here the flagella often remain attached to the rear

of the cell, even after they have become non-functional. An interesting minor point is that the retention of flagella is a specific character in *Pseudospora*; species infecting different algal hosts being consistent as to whether they do or do not shed them.

Apart from the amoeboid-flagellates, the amoeboid habit is widespread, for instance as development stages in both the cellular slime moulds (such as *Dictyostelium*) and the true slime moulds or Myxomycetes, both these groups of organisms being now generally regarded as fungi. *Leptomyxa*, thought to be widespread in soils, is an irregular sheet of protoplasm several millimetres across containing numerous nuclei. It is of uncertain affinity and is reminiscent of the mythical "Bathybius" in miniature. Related to *Amoeba* are other unicellular organisms in which the pseudopodia are permanently long and fine and often form extensive network systems in which food particles are captured. Many of them have simple (Fig. 1) or elaborate shells, and the fossilised shells of one large marine group, the Foraminiferida, are the main components of chalk.

Although amoebae are usually thought of as animal in their nutrition, there exists among the algae a group of organisms which show parallel development to a remarkable extent. These belong to the family Chrysophyceae, and two examples are *Chrysaamoeba*, with an alternation between amoeboid states like *Naegleria*, and *Myxochrysis*, which is to all intents and purposes a typical amoeba, apart from having the additional capacity to photosynthesise by means of its typically plant-like chloroplasts. As well as these, varying degrees of "amoeboidness" are also seen in widely divergent flagellates which supplement plant-style nutrition with an animal-like ingestion of solid food.

White blood cells (or leucocytes) have a protective role in the bodies of higher animals. They are in effect small amoebae, and ingest invading bacteria in essentially the same manner as free-living ones. The cells of some of the less specialised tissues of higher animals, when grown in isolation from the body in tissue culture, are capable of amoeboid movement. This indicates the persistence of an innate character through a vast passage of evolutionary time.

Amoebae of the *proteus* group were the first to be noted, and it was thus natural to consider them as primitively simple organisms. With increasing knowledge, however, and in particular with the advent of the electron microscope, this simple image has had to be discarded and it is now generally thought that amoebae have develop-

ed from flagellates and that those still retaining flagellate stages are in fact closer to the ancestral protozoan organism. Present day amoebae are certainly polyphyletic in origin (i.e. they have arisen as independent lines from various ancestors). It is likely that from the mass of primitive amoeboid-flagellates which must have existed long before the Cambrian epoch, two main lines became differentiated:— those in which the amoeboid phase gradually became suppressed, leading to the “true flagellates”; and those in which the flagellate was suppressed, forming the “true amoebae”. It would seem that in the evolution of amoebae, because they are very little specialised for this role, and some species can live freely outside the host for considerable periods. In a few cases, free-living forms (notably forms parasitism of higher animals may be a relatively recent breakthrough of *Naegleria*, and another soil amoeba, *Hartmanella*), which have been grown in culture for many years, have recently become suspected of being potentially pathogenic, and there have been well-authenticated cases of human illness and even deaths, attributed to infections by these organisms.

Bleibtreu's discussion of the slime moulds introduced ideas of differentiation and organisation in those anomalous creatures. Individual amoebae in the body of *Dictyostelium* become specialised in their roles, especially in the case of the “founder cells”, and thus lose their independence as self-contained and self-determining entities. Among the Protozoa, e.g. *Amoeba*, all specialisation is directed towards “going it alone”, and at this point the old query arises as to whether a single cell carrying out all the functions of living organisms can be compared to a whole higher animal, or to only one of its multifarious cells. This question, which has sustained numerous writers on either side for sixty years, is perhaps really a non-question due to an over-Aristotelian view-point, for why cannot a single celled organism be comparable both with the whole *and* the part? Removed as they are from the inescapable complexities of interaction with other cells of the multiple body, amoebae exemplify the unspecialised whole cell, and the fact of their being so successful in the business of survival shows again the advantage of non-specialisation, together with its unavoidable concomitant conservatism.

The complex internal arrangement of an amoeba cell indicate a high level of differentiation of function, and there comes to mind the analogy of a modern tiny transistor radio, with its elaborate

organisation of transistors and printed circuits, compared with a large old-fashioned battery valve set. The latter, with its many separable components, may be taken to represent the body of a higher animal.

It would seem that the amoeba in its small compass shows an efficient way of adjustment to the necessities of living, but no one can claim that the problems it faces, or the means which have evolved to enable it to deal with them, are simple. The amoebae are complicated and highly organised "blobs of protoplasm", as remarkable in themselves as any animal with greater endowments for self-expression and communication with mankind.

FURTHER READING

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- Vickerman, K., & Cox, F. E. G., 1967. *The Protozoa*, 58 pp. John Murray, London. (For a clearly expressed introduction to these organisms).

The Future of Waste *Tim Eiloart*

A large number of people feel that the world is drowning in a sea of its own detritus. They see large rubbish piles in various parts of the country and feel with a little more population these piles will probably envelop the world. This fear is largely unfounded. It is possible for ten times as many people as now live in the whole world to occupy a single city about the size of America and to deal with their own rubbish by various known techniques without ever again putting any rubbish on any other land mass or in the sea. This is not an unreasonably large number of people for the world. In fact the population density in this city the size of America would be 10,000 per square mile and if we assumed they jacked themselves up on a mounting layer of rubbish they would have to jack themselves up about 1 cm per year (assuming 4 cubic yards of waste per head per year, all of which is buried and none of which is to be re-circulated—4 cu yards being 4 tons of rubbish after reasonable compaction).

Of course in this nightmare-city, life would not be much fun and might not even be supportable. It has about half the population density of London. But if we imagine this city distributed in small pieces all over the world we see there is no great problem—that is no great problem of waste disposal. There may be a problem that we cannot feed these people and they will all die of hunger; but that is not the question.

Incidentally it has been worked out that the limiting factor on how many people the world could support is the heat dissipation of a human being. If we surround the globe with a single building several hundred stories thick and then put 25 people per square yard of the original surface, the outer crust will glow white hot in order to dissipate their body heat. I am certainly the last to advocate this particular horrific vision, but it does represent what might be called the first real population barrier for human beings as they are now, using materials and heat dissipation techniques we now know of.

So what is being achieved in solving the problem of waste? The only ultimate answer is of course the re-use or recycling of the materials. Progress is fairly slow. But every year there is a rise in the cost of extracting raw materials compared with recovering them

from waste products, so more such recovery processes become economic; such as the recovery of precious metals from domestic waste (very small amounts can justify the cost), the recovery of silver from photographic processes, the waste-paper industry, the scrap-metal industry and the waste-rag industry.

It isn't economic at present to recycle much of the world's waste. But the slow conversion of domestic rubbish to earth can now be accelerated by composting techniques: animal faeces from chicken droppings to cow dung have been used for fertilizers for many years—like the farmer's re-use for centuries of nearly all his waste products on the land; much non-toxic liquid waste if returned to the sea can become animal food, and human scraps can become pig swill. There is now a fascinating automatic process for sorting out all the components of the carcasses of slaughtered animals—relying on the somewhat unusual property of their *bounciness*. Chemical plants are making increasing efforts to re-use their effluent and refine their chemical sludge, and even use one chemical sludge to detoxify another, rendering both harmless. Thus cyanides can be neutralised very effectively by chromates.

Related waste problems, in a broader sense re-cycling, are the better use of our resources of energy and land. At the cost of some pollution of the air, many waste products can be burnt to provide heat, and the heat rejected from power stations can be used for the fast breeding of fish and fish farms or for hot-house flowers. And more efficient rice grains are being developed to make better use of the energy from the sun. Examples of better use of land are the conversion of derelict coal tips into recreational areas and building land, and the use of abandoned coal mines etc, to store poisons and radio-active waste.

There are some encouraging features to show the problems of waste and pollution are being overcome. Every year there are more fish in the Thames and more fishable rivers in this country; clean air zones are increased in area and smog conditions become rarer. The latest aeroplanes are quieter than those before and our understanding of sound insulation increases, so even the problem of noise should be soluble. The State of California has even banned exhaust-pollution from cars (starting in five years' time) and one hopes this will be followed by other States in America and other countries.

One can say that in the social as much as the material sphere, waste has become an anathema to most people. Efficiency is the

key-word, whether in business, industry, or in the running of charities. Or in the use of human lives, where there are clear examples of lives formerly wasted that now are not: the unmarried daughter caring for her aged parents till she was too old to marry, which was such a feature of the pre-war scene; wasted marriages allowed to rot intact for years; a childhood wasted due to a horror of school from the year it started till the year it ended, and of course useless deaths due to inadequate medical knowledge or welfare. However, the purpose of this article is not to dilate on avoidance of social waste, but on the avoidance of piles of material rubbish.

Before the Second War the collection of wet and dry waste in this country was largely the province of gypsies, tinkers and other vigorous but ill-respected people. There were at that time very few laws against tipping and the main sanction was only the fear of a fight with an angry land-owner or possibly a lover of the country. Nonetheless, the city corporations worked out their tipping arrangements in considerable detail in order to cause the minimum offence and to prevent the spread of plague and other unpleasant diseases from rats and other vermin. The ecology was little understood, but it didn't have to be since the problem was still relatively small.

But since then the problem has quadrupled due to a number of factors, some avoidable and some not: the huge increase in the amount of packaging used by householders and industry, the increasing market for disposable as opposed to permanent or semi-permanent articles of all sorts, the increasing use of paper to print on, increasing literacy, the need to use less rich sources of raw materials, and the philosophy of built-in obsolescence. As well as tackling the output, we must also reduce the amount of waste we produce, and, for example, refuse to have everything we buy in shops double-wrapped.

As an example of progress in waste disposal it is interesting to consider the growth of this country's largest company in this field, Purle Brothers.

This is a group which has a score of depots up and down the country running several hundred vehicles and dealing with wet and dry industrial wastes. The group employs a scientific staff to advise in how noxious materials may be rendered harmless. At twice yearly seminars Purle managers work very hard learning about subjects such as compaction ratios of various types of rubbish, marketing strategy, optimum routing strategies for lorries picking up and dump-

ing several loads a day, negotiations with Unions, and tip management. This management approach is a far cry from the rough and ready arrangements that were so common just a decade ago.

For directness, humanity and enterprise this company has become outstanding by any standard. They appear to be the first company in the world to break through the "muck barrier" in terms of recruiting high-grade personnel, as opposed to people with little self-respect. Moreover, now that the threat of pollution is so much more keenly realised by every intelligent person, the image of the man that combats pollution in all its forms (air, water, ground, and noise) is increasingly that of one of the heroes of our time. Purle Brothers is the world's largest waste disposal company and is growing rapidly in foreign markets, already having established places in South Africa, Australia, on the Continent and in America; it illustrates the best of British management in dealing with waste problems.

What can the individual do to make his own positive contribution towards solving this problem? Firstly, some branches of the Society for Social Responsibility in Science have now become expert in difficult jobs such as analysing the degree of pollution in a river where it is suspected a local industry may be culpable. Your local organiser should be able to show you how to prove your point scientifically rather than emotionally. Having got scientific proof, you will still need emotional support. Happily it is becoming increasingly easy; company directors are more prepared to listen, and are often very sensitive, to appeals not to pollute the environment in any way and not to cause local nuisance. Large companies such as I.C.I. are now insisting not only that their rubbish is cleared away, but that it is cleared away by a responsible operator who is prepared to name his destination; they have too much to lose if they are found to have been employing a fly-by-night tipper.

Some absurd cases have been put forward for the necessity to pollute if we are to remain competitive in world markets. One might as well maintain that it is necessary to shoot the old who would die naturally in poorer countries, or less socialistic countries without a health service, in order to remain competitive in world markets. A country can spend its wealth as it wishes, and for an extra 2/6 a head per day almost all the pollution problems of this country could be solved with ease. Are families willing to spend £2 a week less on other things and £2 a week more on clean air, clean water,

clean sea, beautiful fields, fine cities and quiet? Happily it seems we are at least as prepared to do this as any other country in the world.

Notes on E.S.P. and Dowsing

(These notes were made by some members of the editorial board; in formulating the questions on dowsing they were helped by discussion with Marian Clegg and Derek Corcoran.)

1. *Introductory*

“E.S.P. is when something happens that you can’t explain and prefer it that way.”

Nobody to our knowledge actually said this. We invented it (slightly reminiscent of “faith is believing what you know isn’t true”) as a parody or deliberate extrapolation of one approach to E.S.P. Needless to say we are “agin” it.

It is reasonable to react strongly against explanations of phenomena which evidently have not the depth that those phenomena are going to demand for their explanation, and natural to reject them summarily so as to save time, but there is a danger that such treatment may provide an excuse for a sort of obscurantism. There is a world of difference between taking a delight in the existence of mystery as evidence of the scope of creation and making an excuse of that mystery to provide a world that has corners that are safe from thinking. This last tendency may be little different in its effects from the tendency sometimes found in scientists to deny stoutly the very existence of phenomena which are obstinately mysterious.

The study of E.S.P. is a field in which the sort of explanatory obscurantism to which we have just drawn attention, easily sets in. Consider bird migration. When we are at a loss to find any explanation for the way birds navigate we may say that they evidently “reach their goal by E.S.P.” This looks like a positive assertion, but is it really? Is it any more than explaining one unknown by drawing attention to the existence of another?

Of course it may be worthwhile to do just that if the two unknowns have features in common, but then one has to be pretty explicit what these features are. We might try to put more content into our first description of E.S.P. by saying “E.S.P. is when there is a transfer of information that you can’t explain”, in order to make some limitation on the field to which the term applies, and thereby give it, at least some, positive content. However, this doesn’t help with the

birds. It is not at all clear that anything resembling a transfer of information takes place in the case of bird migration, unless one is prepared to force that idea onto the situation and say "the birds 'knew' where to go and therefore at some point they must have had this knowledge imparted to them by something".

The policy we have followed in this journal has been to promote effective thinking about those phenomena that we intuitively link when we speak of E.S.P., by stressing any continuities we can find with subjects which are better understood. The emphasis here is on *continuity* as contrasted with *analogy*. Thus it never has helped anyone much to stress the analogy between wireless telepathy and E.S.P. because when you try to establish a chain of intermediate cases you find you can't, and the impossibility hits you worse the harder you try. So we take the other tack of looking for continuities, and this leads us into deep waters.

The following notes give examples of explanatory places where we might achieve this continuity.

2. *The present status of E.S.P. studies in America and England*

The study of E.S.P. (by whatever name you wish to call it) has developed along very different lines in America and in England. In this issue, a letter from Robert Thouless draws attention to the status of E.S.P. in America, where it is now established as a serious science. Peter Hurkos, the well-known Dutch-born American sensitive, in his book *Psychic*, distinguishes three phases in the history of E.S.P. exploration. The first stage was the compilation and checking of cases involving outstanding sensitives (or mediums, as they were then called). This was the main work of the English Society for Psychical Research, founded in 1882. The second stage began with the founding of Duke University Parapsychology Laboratory, which investigates small psychic effects in ordinary people. The third stage is just beginning. There is no longer any need, he says, to be defensive about the existence of E.S.P. What is necessary is for scientists and sensitives together to discover how it works. He wrote this in 1963 and the rest of the decade has produced an abundance of projects in America at all levels, ranging from the American S.P.R. to Dr. Charles Tart's department in the University of California. Small research projects are sponsored all over the world by the late Mrs. Garrett's Parapsychology Foundation, which also holds annual international research conferences in France. Hurkos himself, who runs a research foundation in Milwaukee, has often tested his

predictions in laboratory trials. But his activities are not limited to the laboratory. He has spent twenty years assisting the police in criminal investigations. He has been called in by the police in Belgium, Holland, U.S., France and England and helped to find bodies and weapons, and to convict murderers and drug peddlers. We include an extract (A) in which he describes his investigation of the disappearance of the Stone of Scone. He offered to help Scotland Yard in their search, and he and his wife flew to England. He was able to give some account of the circumstances of the theft; but the tracing was finally done by the police looking into who had been taking books on the Stone and on Westminster Abbey out of Scottish libraries. We have included this extract as an example of the functioning of E.S.P. without instruments, tracing the path an object has taken. Herkos hit the headlines earlier this year when by mapdowsing and psychometry he helped to locate a crashed aeroplane in high mountain country within hours, after a fruitless search which had lasted something like a fortnight. America's main difficulty in keeping E.S.P. research respectable in orthodox scientific circles is its overpowering popularity with students and the general public. In the University of California, Los Angeles, a ten-week course in parapsychology enrolled 450 students and had to close its over-subscribed registration a month before the opening date.*

How does this compare with the English scene, where E.S.P. studies were pioneered so long ago? John Cutten, Hon. Sec. of the S.P.R., told his American counterparts when he was visiting the U.S. this year, that the trouble in England was that there were practically no full-time workers and no monetary rewards.** Now, however, two universities in Britain have agreed in principle to offer facilities for post-graduate work in parapsychology for a doctor's degree.

The approach to E.S.P. research and experiment in this country is typically British. Though it is still largely ignored academically there are a host of amateurs who plod on doggedly with greater or less success, and some are trusted and used by the public.

In a sense this is what T. C. Lethbridge has been doing in a whole series of books from 1961 to 1969, in which he describes how a natural Cornish faculty for seeing ghosts has led him on from one paranormal experience to another, through dowsing with a twig or

* *Parapsychology Review* Vol. I, iii, 1970.

** *Ibid.*

pendulum for plain indisputable finds of objects underground, to psychometry, to diagnosis and healing, and on to considering the possibility of E.S.P. faculties in insects and animals. As he proceeds, he tosses out hypotheses, and since these do not all stand up well to scientific criticism, his work infuriates academic scientists; but this he means to do, since all he is trying for is to goad them into taking up the research themselves. "As we go on I hope to show how the subject could be tackled by more able persons than I. . . . I cannot hope to prove things, for it would take much hard work by many people to do so. But I can throw stones into the pool of complacency and get a few people here and there to think matters out for themselves. This is not a case for specialized knowledge along one narrow line, but of general knowledge, observation, and reasoning from facts." (*The Monkey's Tail*, 1969.)

We are giving three extracts (B, C, D) from Lethbridge's books which illustrate these interests. We are also giving an extract (E) in which Evelyn Penrose describes one of her dowsing experiences. She has made her living by detecting oil and minerals, as well as water, by such methods, and has been paid by governments, oil magnates and diamond mine owners for results.

3. *Dowsing*

There is of course a large body of reports on dowsing, describing its techniques. (See for instance the account by Colonel K. W. Merrylees in the *Journal of the British Society of Dowsers*, Vol. XVIII, No. 125, September 1964, "Dowsing for Water".) This is a field which we hope to investigate further. There is a wealth of practical experience described anecdotally: techniques and apparatus are continually being improved, but much more clarification is needed on the theoretical side.

It is important to keep the way open to finding a natural explanation of dowsing while keeping open the possibility that that explanation may not turn out to be *physical*. The distinction is important, though the metaphysic underlying this terminology may not be everyone's taste (in which case new terminology can be invented). By "physical" explanation is meant one which uses known physical fields – notably electromagnetism and gravitation (since the strong nuclear forces are not likely to be appealed to in the near future) and effects like chemical properties that are derivative from these. Natural explanations might be much wider. For them, we need only specify that a continuity should be established, in the sense we

used in the introduction to these present notes, between the explanation offered and some explanation that already exists in science. A natural explanation would, in particular, have to exhibit explanatory continuity with phenomena whose explanations were physical.

We can learn a surprising amount from what dowzers *tell* us colloquially, especially if we include in that category things that they significantly fail to tell us. Roughly, the evidence of this sort, such as it is, goes strongly against a physical explanation in the sense of that term we have introduced. If a physical explanation were sufficient, it would be very surprising if dowzers did not get some very strong effects, artificially created, of the same sort as they have to work with, or that climatic conditions do not alter them much more than they seem to do.

Indeed, we can see the case for a remark in a letter we got (September 12th) from the Society of Dowzers that “ ‘scientific’ examination of dowsing has been going on for a number of years and it is now considered to be in the nature of E.S.P.” In the light of our introductory comments this remark is very unsatisfactory, and we should wish to head the hunt off in the direction of natural explanations (in our sense). Again we can ask if the reports of dowzers give us any lead in this direction, and this is a large question we shall be investigating in future issues.

4. *Some analogues from instruments**

Is dowsing an “active” or “passive” process? Is it in some manner analogous to the “sonar” systems used by bats and many marine animals in which high frequency sounds are transmitted and then echoes received, or does the substance itself emit energy which is picked up by the dowser? If the emission is “sonic” there is the objection that it would have to pass through rock and earth, and not only water, and this seems to cut this out. So it is more plausible to think that the dowser is a receptor and not a transmitter getting back an echo.

As we were collecting these notes, a report appeared in the *New Scientist* (September 24th) headed “A highflying low-frequency look at buried resources”. This describes the operation of a helicopter-borne survey system which can detect a variety of deposits as well

* In this section, we were helped by discussion with Dr. Peter Fenning of Barringer Research Ltd., a Canada-based firm which has just started British operations of the survey system described.

as underground water supplies 300–500 feet beneath the surface. The instrument, which they refer to as the “bird”, is trailed beneath a helicopter, and picks up distortions in long electromagnetic waves, which are flowing over the surface of the ground, from low-frequency radiotransmitters. The distortions are due to variations in the conductivity of the ground, produced where there are underground deposits of exceptionally high conductivity. Another instrument carried by the helicopter is a “mercury sniffer”. The Finns use dogs to sniff for minerals, for instance in boulders containing oxide or sulphide. The “mercury sniffer” draws air through a container, and can show the presence of small quantities of mercury on a spectrometer.

So far the article in the *New Scientist*. Could the methods of operation of such instruments be relevant to a study of dowsing?

(1) Reports from dowsers could be correlated with reports recorded by these techniques, if dowsers could go over the terrain to be surveyed. It would also be instructive to know whether incorrect locations produced by such instruments correlate with incorrect locations produced by dowsers.

(2) The “bird” instrument, working as it does by picking up distortions in waves transmitted by very low frequency, suggests questions which would be relevant to considering whether dowsing may be an electro-magnetic phenomenon. These particular very long electromagnetic waves have only been flowing over the ground since radio transmission began – and dowsing is far older than that. Could there be electro-magnetic disturbances produced by other means – e.g. by lightning in some part of the world (such disturbances so produced might be propagated a long way). But if dowsing is done by receptiveness of the human organism *plus* rod to electro-magnetic waves, one would expect the dowser to get very much stronger reactions in the neighbourhood of large installations of electrical machinery, which must produce every variety of wave occasionally if not regularly. Dowsers do not complain of such interference (or do they? Is there evidence of this?) A. Puharich (see *Beyond Telepathy*, Appendix A) made experiments in telepathy with a Faraday cage (a lead cage which cuts out electromagnetic signals). Has anyone tried to do field dowsing in a Faraday cage, and with what results?

5. *Internal Evidence from Descriptions of Dowsing*

The influence, whatever it may be, from the buried substance appears to work not directly on the instrument but on the body and

nervous system of the dowser holding the rod. If the organism of the dowser is a receptor, certain questions can be asked about his physiological condition; his blood pressure, E.G. rates, perspiration, temperature rates, muscular tensions, psycho-galvanic responses. Also what kind of shoes do dowsers wear? Are they stopped by conditions?

Do atmospheric conditions affect their efficiency? For instance, is calm, clear weather more favourable than thundery weather or fog? Is their performance affected by vapour pressure, or rising air conditions?

It would be instructive to know which, if any, of these dowsers do *not* complain of as interferences, just as it would be instructive to know whether or not they complain of electrical disturbance. Questions about the state of mind of the dowser may also be important. It seems he must be thinking of the object he wants to find; concentrating in a non-tense state.

In any case, there are questions about the rating of the evidence, e.g. what is the ratio of successes to failures? Are the success rates of certain dowsers consistently high – or high at certain times? This would not be shown by simply giving overall rates of successes against failures.

Dowsing is a subject which raises fundamental questions about unusual receptiveness on the part of certain psycho-physical organisms which form a single system with their environment. This may link with other phenomena on the frontiers of physics, or para-normal phenomena, or both. These notes are a preliminary indication of some of the questions we think ought to be pursued.

6. *Some extracts*

A. The episode began when we arrived in England by plane. The next day I went to Westminster Abbey to begin my psychic investigation. There were no clues for me to work on, except the plaque and the door through which the thieves had gained entrance. The door had been broken by an iron. After I left the Abbey, I was taken to the Tufton street site, where the plaque was found. It was apparent to me that the plaque had been thrown from a passing automobile and that the stone had merely passed the street site en route to another destination. I located the steel iron that had been used to break the door of the Abbey in a shop on Lower Thames street. I described the five people who had been involved

in the theft, and I told the police the stone was in Glasgow, where it had been taken by car.

That same day I drew a map of the route the car had taken through the streets of London – first up the south bank of the Round Pond in Kensington Gardens, through Knightsbridge, Constitution Hill and Birdcage Walk, to Westminster Abbey. After they had spirited away the stone, the thieves crossed Westminster Bridge, drove through Southwark over London Bridge, through Lower Thames street (where they threw away the iron), then over Tower Bridge to Rotherhithe. The thieves kept the stone in the Highbury area of North London for several days, and then took it off to Glasgow. I also told Scotland Yard that the stone had been stolen as a prank by students, and that it would be back in Westminster Abbey within four weeks.

Since that was all I could tell the police, I left England and returned to Holland.

Hurkos, *Psychic*, pp. 81–82.

B. At the very end of this series of researches an incident happened, which seems likely to bring the whole study into the realm of exact measurement. It may well hasten the end of the “Occult”! From 22 to 26 August, 1956, a team of eight men from the B.B.C. was making a television film here at Hole, and this included several of the experiments which we have been discussing. I was fitted with a microphone beneath my tie, which was attached by a long length of flex to a sound recorder in another room. Over this sound-recorder presided Mr. John Woodiwiss, who has had years of experience with instruments of this kind both in England and overseas. He sat watching a dial on which the range of the human voice only occupied a comparatively small sector. There were graduations for sound inaudible to human ears on either end of the scale.

I was asked to demonstrate the action of an ordinary divining-rod, a hazel fork which I had cut from a hedge that morning. The plan was for me to walk slowly, holding the rod, towards my wife. When its apex met her personal field of force the rod would turn over.

I picked up the rod and the camera began its work. Hunched over the sound recorder, however, there was complete amazement on the part of Mr. Woodiwiss for, as I picked up the rod and settled it into position, the needle on the dial leapt up, far beyond the limits of human hearing and stuck there. This had happened to Mr.

Woodiwiss once before, years ago, when recording near a tomb in Egypt. Never again.

T. C. Lethbridge, *A Step in the Dark*, pp. 153–4.

C. A divining rod is hardly an instrument of precision. Although it would demonstrate and give a rough idea of the shape of a field around an object, it is impossible to tell within inches where the point of the fork is when it begins to rotate. I therefore exchanged the rod for that other stand-by of the diviner, the pendulum. Divining is now widely known as dowsing. . . .

When I decided to practise divination, I simply cut a 1 inch sphere off the top of an old walking stick; pegged two yards of thread into it with a match and fastened the other end to a short cylindrical rod, which could be rolled around between one's finger and thumb and so raise or lower the ball on the thread. This was the pendulum which I have used ever since.

Many dowers use a pendulum for various purposes, but few do so in the same manner as we do. I got the idea many years ago from a pamphlet by some French brigadier whose name I have forgotten. He claimed to have been able to find enemy mines in the sea by swinging a pendulum with the correct length of thread on it, and pointing with his other index finger. He obtained the correct length of thread by tuning in over a sample object on the floor and lengthening the pendulum cord until it gyrated. Presumably he found the mines by tuning in over a piece of iron to obtain what is known as the "rate" for iron. I shall use the term "rate" a great deal and it is as well to be sure what this means. A pendulum rate is the length of cord between the top of the "bob", the ball, and the bottom of the rod used as a windlass. In practice it can be shown that everything, whether concrete or abstract, has one or more rates. Colours, metals, trees, insects, points of the compass, life, light, and so on have their rates. It is no more difficult to find the rate of, shall we say, anger, than it is to find that of copper. You simply have to think of something which makes you feel angry, swing the pendulum back and forth, and lower the ball down until it gyrates. When it does you have the rate for anger. It will always be the same.

T. C. Lethbridge, *The Monkey's Tail*, pp. 64–5.

D. Now, as I have tried to explain in other books (*Ghost and Divining Rod* and *ESP*), one can tune in a pendulum to some field

of force around a given object. When the correct length of cord, the rate, is obtained for the pendulum, you can search for and find things hidden beneath the soil. You can search an area at a distance by holding a light rod in the left hand and the pendulum correctly rated in the right. The pendulum swings backwards and forwards, oscillates. As you use the rod as a pointer to sweep slowly over the area you are investigating, it may happen that the point comes in line with an object of the kind that you want to find. At this juncture the movement of the pendulum changes from an oscillation to a circular swing, gyration. You have found a line from you to the object and can mark it out. I have done this so often and found so many things hidden in the earth that it has become commonplace. Having marked out your line, you move to another spot more or less at right angles to the first line and repeat the process. When the pendulum gyrates again you have found a second line. Where the two lines cross will be the hidden object. With a little practice you can go to the spot where the lines cross and ring it round with other tests. In the middle of a small circle the object can be pinpointed within two or three inches, although it may have been a hundred yards away when you began to search. This was the method I decided to try to look for *Bolboceras*' truffles. But did truffles have a rate on the pendulum? The only thing was to experiment with some bits of known truffles. [*B.* is a truffle-hunting beetle.]

Having found the pendulum rate for truffles, my wife and I went through the gate and standing outside it, started surveying the wood with the pendulum and a pointing rod. . . . We found our central point and began to move the old beech leaves with a trowel. We took them away and began to scrape off the earth beneath. Perhaps three inches from the original surface there was a small spherical object. It was about the size of a large green pea, and the colour of old dried blood. We thought that it must be some kind of truffle. It was obviously a fungus; but we had never seen anything like it before. It was harder than a puff-ball.

Next day I sent our find to the South Kensington Museum and asked if it were the kind of thing on which our *Bolboceras* might feed. A fortnight later I got an answer back from Mr. Pope. They had had to send the specimen to a Dr. Hawker of Bristol for identification. It was certainly of the right family and was known as *Sclerogaster compactus*.

T. C. Lethbridge, *A Step in the Dark*, pp. 8–11.

E. I found myself engaged as the official Water-Diviner to the Government of British Columbia. I also became the centre of a fierce argument in the leading newspapers on the subject of divining. Those against maintained that no one in their senses would employ a diviner – especially a woman – to tackle the drought situation, whilst my supporters warmly urged the Government to engage my services.

When I obtained the appointment, the Agricultural Department to which I was attached was nearly snowed under with letters and applications. When I had originally suggested the plan to the Minister of Finance, I had no idea what I was letting myself in for. The drought was far-reaching and farmers and ranch owners, as well as orchardists, were in desperate straits. Everyone considered his need greater than his neighbour's, so the amount of work that loomed up before me was overwhelming.

British Columbia covers some 366,000 square miles (four times the size of Great Britain) and vast stretches of it were at that time unexplored. Many of the so-called roads were terribly rough. The whole of the province is divided into "Agricultural Districts" and in each district I was put in charge of the principal agriculturist (or horticulturist) who was given a list of the people who had applied for my services.

One of the first orchardists whom I visited was a young man with one of the best orchards in the Okanagan Valley. His house was charming and the whole place had an air of affluence and well-being. It was therefore a great shock to walk with him down a lane to see his orchard, covering the side of a large hill, wilting and dying and to hear him say, quite simply, that he was facing disaster. We stopped and looked up the hill and he was telling me something when, suddenly, I was nearly thrown off my feet. I grabbed his arm to steady myself. "Water!" I gasped. "Water! Lots and lots of water." I can never stand over underground water without being swung about and the greater the amount of water the greater the reaction.

He looked at me in amazement, obviously thinking that it was impossible that there could be any water in a spot that he knew so well, and over which he walked every day of his life.

I followed this powerful underground stream with my divining rod to a little wood by the side of the lane. Here I found the intersection of two streams which made the reaction stronger than ever. Then I set to work. One of the most surprising things about this find was that the water was almost unbelievably shallow. At six feet it was

necessary to pump water out and at twelve the owner had to get the largest pump obtainable. He wrote to me afterwards, saying: "I get 108,000 gallons per day, but I am sure that I could get two or three times the quantity with a bigger pump. I shall now have the best orchard in the Valley, thanks to the '*Wonder Well*'."

This gave me the name of the "Divine Lady" in the valley which, although very flattering, greatly increased the demand for my services, something I could willingly have done without.

After this sensational success with my first water-well, I had to settle down to really hard work as official Water-Diviner to the Government. I had a tremendous lot to learn, not only about water but also about men. It was the first time in my life that I had ever done any professional water-work on a large scale and I had to learn the folly of expending too much energy one day and having insufficient for the next. But my only thought was of finding the water which was so badly needed.

I also had to learn how different men can be in their natures, even when engaged in the same sort of work. Some of the officials into whose charge I was put in the various districts did everything they could to save me fatigue and would not allow me to look for more than one supply of water on each property, no matter what the owner wanted. Others treated me as if I were a machine and grew very annoyed if I refused to be rushed to four or five properties in a day – something which would have killed the strongest man in a few weeks.

The head agriculturist of a very large district who had charge of me for a considerable time went to Victoria and was heard pouring out his woes regarding me to my old acquaintance, the Minister of Finance. "It's the worst job I ever had in my life," he said. "She is like a terrier after a rat when she's after water. She never looks where she is going, nor has any idea where she is. She feels or, in some peculiar way, 'senses' the water and off she goes, straight into the forest like a shot from a gun. If I take my eyes off her for a minute, she is gone. There are plenty of bears about there, too. I'd like to tie a cow-bell round her bloody neck. But, for all that, I've got to admit that she does bring home the goods and the people in the valley are crazy about the whole set-up. They can think and talk of nothing else." Then he added thoughtfully: "It's an extraordinary business and she is an extraordinary woman. I never know whether I want to hug her or hit her."

To which the wise little minister replied: "I should do neither, if I were you."

E. Penrose, *Adventure Unlimited*, pp. 57–59.

(Acknowledgement is made to Arthur Barker Ltd., for permission to use the extract from Hurkos' *Psychic*; to Routledge and Kegan Paul Ltd., for those from T. C. Lethbridge's *The Monkey's Tail* and *A Step in the Dark*; and to Neville Spearman Ltd., for that from E. Penrose's *Adventure Unlimited*.)

* * * * *

Postscript: If the extracts from Lethbridge's works interest you and you would like to do some experiments, before you read his books make your own table of pendulum rates; get someone to countersign that you have done it independently and let us have your results. It would also be interesting to know if you get no results, or only some. (Children are often very good at using the pendulum.)

If there is enough response we can publish a breakdown of the tables, comparing them with each other and with Lethbridge's.

The rates for the following substances could be tabulated, but add others if you wish: Milk, lead, diamond, gold, orange, apple, potato, aspirin, silica, tin. You could also try to get the rates for male, female, anger, death, which are all included in Lethbridge's tables.

Poems: Questions to the Editor

Ivor Popham

Dear Editor,

CRUX

Out of the dark
the sun arose;
You struck the spark,
so the story goes.

Eternity
was crucified;
to set us free
in time, You died.

Yet undecided
still we stand
with roads divided
on either hand.

PRAYER

Eternity,
with the best intentions,
is hard to see
in earth's dimensions,

yet, in saying our prayers
without understanding,
we climb all the stairs
to get lost on the landing.

Of what use are conventional
formulae there
on a multi-dimensional
spiral stair?

EVERYMAN

Till you abandon
the sight of the sun,
resting the hand on
the work undone;

till you go travelling
leaving behind
that all-unravelling
spinster, the mind,

cherish your only
part to be taken
into the lonely
from the forsaken.

Ivor Popham

Review: The Cosmic Clocks

by Michael Gauquelin

Christopher Clarke

The theme of this book is timely and courageous. In the first part M. Gauquelin traces the course of astrology from its primitive beginnings to the modern belief in horoscopes, holding that "The falsity of such a belief must certainly be exposed." But he also holds that there is an intuition of truth in the origins of astrology, and sets out in the second part to describe the groundwork for a possible scientific development of it.

In its first fifty pages Part I carries us from the second millennium B.C. to the present, and then briefly looks at the sky in its role of "the Rorschach test of mankind in its infancy", in a phrase quoted from Gaston Bachelard. Inevitably this survey is rather impressionistic; it does not attempt any radically new ideas, but shows how astronomical observations, initially made to assist religious practices or agriculture, gradually acquired magical and divinatory ingredients, based on a supposed connection between man and the cosmos. At times I wished that a more positive emphasis could have been placed on the symbolic aspects of astrology, such as fascinated C. G. Jung. Considered in its entirety as an abstract symbol of the microcosm, the astrological system probably has much to reveal about the history of man's thought, which is not entered into in this book.

But Michael Gauquelin's main concern is with astrology as it is now; and today the "stars and you" sections of the press are avidly read, not for psychological symbolism, but for reliable predictions. On the face of it, it is hard to see what basis these can have. How can a system based on a model of the universe which we know to be false give true conclusions? What possible mechanism can link the planets to man in the way the astrologers claim? Here I feel that the astrologers themselves present a very weak case. If the system were to be justified, some development of Jung's theory of "synchronicity" (non-chronological symmetric causation) would be needed, and we are far from being in a position to formulate such an integrated view of the universe. Gauquelin does not wish to argue the astrolo-

gers' case for them, but proceeds to ask "Does it work?" Astrology makes definite predictions in correlating personality types with the horoscope, and these predictions can easily be tested. It is shown that all large-scale tests conducted with scientific accuracy have consistently given a negative result: there is no truth, even in the simplest astrological assertion.

The basic idea of astrology was that there was a link between the planets and man. Although the particular system used gives wrong answers, might this idea be in essence correct? And could science get the right answers where astrology had failed? Gauquelin draws an affirmative answer from F. A. Brown's work on natural rhythms, the patterns of alternative sleeping and waking, activity and passivity which are manifested in some form or other in most higher organisms, plants as well as animals. These rhythms persist, Brown claims, even in an artificial laboratory environment made as uniform as possible, and, moreover, they are always linked to the astronomical conditions prevailing outside the laboratory. More surprisingly, the position of the moon in the sky turns out to be even more important than that of the sun, and aquatic organisms, that have adapted to tidal rhythms, are sensitive to the phase of the moon.

Claims such as these need much more stringent testing than most before they can be accepted widely in the scientific community. All scientists are only too aware of the dangers in trying to detect effects that the experimenter ardently hopes exist, so that even more repetitions by independent groups will be needed before such a radical suggestion is fully accepted. However, the evidence so far is quite strong, so let us for the time being allow that the effect probably exists, and look for a possible mechanism.

Gauquelin places most emphasis on the earth's magnetic field. This is produced mainly by currents flowing in the core of the earth, but also by currents in the ionized regions above the main part of the earth's atmosphere. The first component, though not entirely understood, seems independent of direct outside influence. The second component, however, depends crucially on prevailing astronomical conditions, and in particular is linked to the stream of charged particles from the sun called the "Solar wind". Experiments with the aquatic animals *Nassarius*, *Planaria* and *Volvox* suggest that their behaviour can be influenced by magnetic fields of the strength of the earth's.

It would seem most likely that the moon's influence through

these means is indirect. Normally the magnetic field has fluctuations on a short time-scale of up to about 1%, and superimposed on this is a daily variation of 0.1% and a lunar-monthly variation of only 0.01%. But Gauquelin quotes experiments in which the direction in which Planarian worms emerge from a vessel varies according to the moon's phase through as much as 20°, and invites the reader to infer a direct link with the magnetic variation.

The sudden 1% variations, called magnetic storms, result from the impact on the earth of "gusts" in the Solar wind, caused by flares on the sun, and the force of their impact is to some extent modified by the position of the moon. If magnetism is the link with the moon, it seems likely that it operates in this indirect way, with the organism sensing the time-variation of the magnetic field (even though it may independantly be aware of its direction).

Subsequently, Gauquelin finds a correlation between the positions of various planets in the sky at the time of birth and a person's career, though not the correlation predicted by astrology. If this is to have a scientific explanation, it would probably be in terms of the planets' influencing the production of solar flares, rather than of their directly influencing the solar wind, since the magnetic fields of Mars and Venus, at least, are very weak: the picture that Gauquelin presents of all the planets trailing magnetic "tails" of the same size as that associated with the earth is a little misleading here. Because of this, more work is needed in correlating the birth-time/career effect of Gauquelin directly with the incidence of solar flares. He stresses that the causation of this effect, whatever its mechanism, is the reverse of that attributed to it by astrology: the cosmos does not determine personality when the child is born; rather, the genetic "personality" of the foetus interacts with cosmic conditions in determining the birth date.

Here again (p.203) Gauquelin stresses the magnetic influence. But the impact of a solar wind "gust" causes not only a magnetic storm, but also an increase in the number of cosmic ray particles reaching the earth. And, while there is no conceivable biological mechanism for detecting a magnetic storm, the passage of cosmic rays produces a trail of ionisation with clear biological effects. The energy involved is in principle quite sufficient for detection: the human eye, for instance, in each second intercepts several hundred times more energy from cosmic rays, on the average, than the threshold energy for visible light. Thus there is no reason why

a biological cosmic ray detector should not have evolved in some organisms.

This cosmic ray mechanism seems quite sufficient to account for another effect discussed, explored by G. Piccardi, who found that the speed of hydrolysis of bismuth trichloride in water depends on astronomical conditions. The passage of cosmic rays through water produces highly reactive free radicals, a state which was once enigmatically termed "activated water". These radicals would be expected to catalyse or accelerate any hydrolysis reaction, and seem to provide a more plausible explanation than the subtle magnetic alteration of the pseudo-crystalline structure of water, which Gauquelin suggests on rather tenuous grounds.

Clearly, much more experimental work is called for. While the intriguing correlations described must continue to be investigated, a truly scientific picture can only come from a detailed study of mechanism. Can artificial ionising radiation mimic these effects? Can they be produced by magnetic variations in the absence of radiation? Is the magnetic sense, if it exists, limited to the sensitivity needed to detect the earth's field, or (an almost incredible suggestion) is its delicacy greater by the many orders of magnitude needed to detect buried underground objects? These are only a few of the questions raised by M. Gauquelin's most interesting book.

Comment

A Western anthropologist's experience under one form of Yogic initiation

As you have published articles on the Sant Mat and contributions from people interested in other forms of non-Christian spirituality, I thought that you and the readers of *T to T* would be interested in a short account of my own admittedly limited experiences in India.

About three months ago I learnt of a Swami Muktānanda Paramahansa, who has an *āsrāma* in the village of Ganeshpuri, about 50 miles from Bombay. I had heard that he possessed the unusual ability of awakening in a disciple who is prepared to surrender himself as completely as possible that power known to Yoga as *kundalinī*. This is done through *saktipāta dīksā*, "initiation through the descent of power". This initiation is not formal, and is performed by the Guru, if the disciple is prepared, in one of four ways, by touch, word, look, or thought. In my case, I am not sure how it happened, but I feel it was when I was working in the *āsrāma* garden and Swamiji passed by and grinned at me.

According to the sacred texts the *kundalinī* may be awakened by three ways: firstly, by the practice of the yogic disciplines of *āsana* (postures), *prānāyāma* (breath control), *mudra* (other postures), *bandha* (bodily contractions) by the worship of *cakras* (psychic centres), *yantras* (mystical diagrams, *mandalas*), or of images, or by extreme devotion and the recitation of a *mantra*; secondly, by the grace of a *Siddha Guru* (Perfect Master); and thirdly, it awakens suddenly as a result of an incompleting *sādhana* (spiritual practice) during one's previous lifetime. It is the second method I am describing here.

The *kundalinī*, symbolised as a snake (*kundalinī* literally means "the coiled one", feminine gender), is thought of as that aspect of *Sakti*, the creative and dynamic side of *Siva* or God, that is latent in every human being. *Sakti* is a goddess, also known as *Kālī*, *Pārvaṭī*, etc. The awakened *kundalinī* travels up the spine piercing and awakening eight *cakras* until it reaches the last at the top of the head, when it is united with *Siva*, and the final beatific state, *nirvikalpa samādhi*, is attained. But before it can move up the spine, it is

necessary that the body and mind be purified, so the awakened *kundalinī* sets to work on this task spontaneously. This results in many phenomena known as *kriyās*—one's body shakes violently, adopts various *Hatha Yoga* postures, performs *prāṇayāma* automatically, dances or moves gracefully, falls asleep, chants *mantras*, etc.—each person is differently affected according to his need, his *karma*. In my case I have been shaking violently, doing some yogic *bandhas* and intense *prāṇayāma*, experiencing great upsurges of devotion and have an almost constant pressure just above my eyebrows when I meditate, all without any effort or control on my part. If I visit a temple or the tomb of a saint (Hindu or Muslim) my body reacts vigorously, sometimes to the point of dancing, from the spiritual power or *sakti* around the building. Likewise I also react to the presence of other people in whom the *Kundalinī sakti* has been awakened. The effect on my mind and emotions has been truly remarkable. I daydream much less, I have a great desire to meditate and be devout and pure. I am only a beginner and the effects are mainly physical, but I am told that as one progresses, by regular meditation and remembrance of the Guru, the physical symptoms die down, as the necessary nervous purification is completed, and the *kundalinī sakti* works more directly on the mind, leading one to deeper concentration, to seeing visions, hearing sounds, etc., developing clairaudience and clairvoyance and other spiritual phenomena usually known to mystics. Again, the time taken varies from person to person. I am simply speaking from three months' experience, but I have seen enough at the *āśrama* to convince me—a hitherto agnostic social anthropologist of the type described by Dorothy Emmet in *T to T*, 4 III—that something divine is operating in me.

However, this path is not completely easy. It does require the co-operation of my will, it is possible to lose this grace, and it requires faith, in the Guru and in the *sakti*. A notable feature of it is devotion to, and service of, the Master (*gurubhakti* and *gurusevā*), and in this it resembles Sant Mat, though there is perhaps less emphasis on the Living Guru (*vaqt guru*). Surprisingly enough, this element attracts several monistic *Vedāntins* to the *āśrama*. From a philosophical point of view, Swamiji's teaching is derived from the writings of the great *Marāthī* saints, Dnyāneshvar, Eknāth, Nāmdeo and Tukārām, and also from Kashmir Shaivism, so he does not, as do the *Advaita Vedāntins*, regard the world as *māyā*, illusion.

but as, in his words, the sport or play of Divine Consciousness. This is the title of his latest book (in Hindi), *Cit-sakti Vilās*, the English translation of which is now completed and is looking for a publisher.

There is virtually nothing on the subject of *saktipāta dīksā* available in English outside of India, and very little in India, probably because such *Siddha Gurus* are so rare. The best source will be Swamiji's own book. The only other book I know that it resembles is the *Tibetan Book of the Dead*, read backwards, as it were.

Ian Duncan

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E.S.P. or Q.S.C.?

(Robert Thouless has sent us this letter about an article in *The New Scientist*. The report as given there could be misleading as it suggests that the work has established new areas for possible research in the face of considerable resistance and criticism. He shows that the areas are not so new and the resistance perhaps not so considerable now as it has been in the past. Ed.)

An article in the *New Scientist* of August 20th gives news of an experiment by a research group at the University of Hawaii led by W. N. McBain. This experiment seems to confirm earlier findings as to the possibility of communication without the use of the ordinary sensory channels. Such communication was at one time called "telepathy", afterwards "E.S.P." or "psi-communication". The McBain group suggest a new name "quasi-sensory communication" (shortened to Q.S.C.) This may be a better name than any of the earlier ones although it does not seem obvious that its advantages are such as to outweigh the disadvantage of further terminological multiplicity. Under this new name, the idea of communication without use of the senses will, no doubt, smell as repellent to its critics as it does under any other name.

There seems to be an element of irrationality in the common rejection or ignoring of the experimental evidence for E.S.P. (or Q.S.C.) This rejection is not, in fact, as widespread amongst scientists as seems to be supposed by the writer of this article. Some of them have (like McBain and his colleagues) themselves experimented and obtained positive results. That the attitude of the scientific world towards E.S.P. is not wholly negative is also shown by the fact that, at the end of last year, the American Association for the Advancement of Science approved the application of the Parapsychological Association for affiliation by a majority of about five to one. This implies that the members of the A.A.A.S. regard the investigation of E.S.P. as a live research problem whatever they may expect to be the outcome of that research.

The reported final claim of the McBain group that they have "established Q.S.C. as a speculative, but potentially important area of investigation" is perhaps not so modest as it appears. Did not Rhine establish this thirty-five years ago? Even so, he was not then claiming to be establishing a new possibility but to be confirming the speculative but potentially important findings of the psychical

researchers who had investigated telepathy half a century earlier.

The importance of the work of the McBain group is that this is a further confirmation of the reality of non-sensory communication. There have been many other confirmations since Rhine published his results: by Pratt, Tyrrell, Soal, Vasiliev, Ryzl, Schmidt, etc. This new confirmation is of interest but of limited importance. What would be important would be that the McBain research group found out something new about the nature of Q.S.C. Let us hope that that will be the subject of their next experimental report.

Robert H. Thouless

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Sentences

From "The Princess and Curdie" by George MacDonald.

[Curdie, a miner's boy, climbs a tower and finds an old woman spinning in a garret at the top. She is a princess, also the Mother of Light, Mistress of the Silver Moon—the God-Being of the story. He learns from her how all creatures, whether human or animal, are either advancing or degenerating, and, after he has dared to hold his own hands in a fire of roses, he gains the gift of telling which is happening by the feel of their hands or paws. The Princess sends him on a quest to the court of a neighbouring king, and gives him as companion a dog-like creature called Lina: "She had a very short body, and very long legs made like an elephant's, so that in lying down she kneeled with both pairs. Her tail, which dragged on the floor behind her, was twice as long and quite as thick as her body. Her head was something between that of a polar bear and a snake. Her eyes were dark green, with a yellow light in them. Her under teeth came up like a fringe of icicles, only very white, outside of her upper lip. Her throat looked as if the hair had been plucked off. It showed a skin white and smooth.

'Give Curdie a paw, Lina,' said the princess.

The creature rose, and, lifting a long fore-leg, he held up a great dog-like paw to Curdie. He took it gently. But what a shudder, as of terrified delight, ran through him, when instead of the paw of a dog, such as it seemed to his eyes, he clasped in his great mining fist the soft, neat little hand of a child! He took it in both of his, and held it as if he could not let it go. The green eyes stared at him with their yellow light, and the mouth was turned up towards him with its constant half-grin; but here *was* the child's hand! If he could but pull the child out of the beast?"

Together with a band of forty-nine "extravagantly abnormal animals", (the band are called the Avengers), he rescues the king, who is being kept drugged and decrepit by his courtiers and servants. One of the beasts is the leg-serpent, which is "like a boa-constrictor walking on four little stumpy legs near its tail. About the same distance from its head were two little wings, which it was for ever fluttering as if trying to fly with them. Curdie thought it fancied it

did fly with them, when it was merely plodding on busily with its four little stumps. How it managed to keep up he could not think, till once when he missed it from the group; the same moment he caught sight of something at a distance plunging at an awful serpentine rate through the trees, and presently, from behind a huge ash, this same creature fell again into the group, quietly waddling along on its four stumps. Watching it after this, he saw that, when it was not able to keep up any longer, and they had all got a little space ahead, it shot into the wood away from the route, and made a great round, serpentine along in huge billows of motion, devouring the ground, undulating awfully, galloping as if it were all legs together, and its four stumps nowhere. In this mad fashion it shot ahead, and, a few minutes after, toddled in again amongst the rest, walking peacefully and somewhat painfully on its few fours”.

When the king has been rescued, the courtiers and servants are turned out.

“It was not for some little time generally understood that the highest officers of the crown as well as the lowest menials of the palace had been dismissed in disgrace; for who was to recognise a lord chancellor in his night shirt? and what lord chancellor would, so attired in the street, proclaim his rank and office aloud? Before it was day most of the courtiers crept down to the river, hired boats, and betook themselves to their homes or friends in the country. It was assumed in the city that the domestics had been discharged upon a sudden discovery of general and unpardonable speculation; for, almost everybody being guilty of it himself, petty dishonesty was the crime most easily credited and least easily passed over in Gwyntystorm.”]

Now that same day was Religion day, and not a few of the clergy, always glad to seize on any passing event to give interest to the dull and monotonous grind of their intellectual machines, made this remarkable one the ground of discourse to their congregations. More especially than the rest, the first priest of the great temple where was the Royal pew, judged himself, from his relation to the palace, called upon to “improve the occasion”,—for they talked ever about improvement at Gwyntystorm, all the time they were going down hill with a rush.

The book which had, of late years, come to be considered the most sacred, was called The Book of Nations, and consisted of proverbs, and history traced through custom: from it the first priest

chose his text; and his text was, Honesty is the best Policy. He was considered a very eloquent man, but I can offer only a few of the larger bones of his sermon. The main proof of the verity of their religion, he said, was, that things always went well with those who professed it; and its first fundamental principle, grounded in inborn invariable instinct, was that every One should take care of that One. This was the first duty of Man. If everyone would but obey this law, number one, then would everyone be perfectly cared for—one being always equal to one. But the faculty of care was in excess of need, and all that overflowed, and would otherwise run to waste, ought to be gently turned in the direction of one's neighbour, seeing that this also wrought for the fulfilling of the law, inasmuch as the reaction of excess so directed was upon the director of the same, to the comfort, that is, and well being of the original self. To be just and friendly was to build the warmest and safest of all nests, and to be kind and loving was to line it with the softest of all furs and feathers, for the one precious, comfort-loving self there to lie, revelling in downiest bliss. One of the laws therefore most binding upon men because of its relation to the first and greatest of all duties, was embodied in the Proverb he had just read; and what stronger proof of its wisdom and truth could they desire than the sudden and complete vengeance which had fallen upon those worse than ordinary sinners who had offended against the king's majesty by forgetting that Honesty is the best Policy?

At this point of the discourse the head of the legserpent rose from the floor of the temple, towering above the pulpit, above the priest, then curving downwards, with open mouth slowly descended upon him. Horror froze the sermon-pump. He stared upwards aghast. The great teeth of the animal closed upon a mouthful of the sacred vestments, and slowly he lifted the preacher from the pulpit, like a handful of linen from a washtub, and, on his four solemn stumps, bore him out of the temple, dangling aloft from his jaws. At the back of it he dropped him into the dusthole amongst the remnants of a library whose age had destroyed its value in the eyes of the chapter. They found him burrowing in it, a lunatic henceforth—whose madness presented the peculiar feature, that in its paroxysms he jabbered sense.

NOTES ON CONTRIBUTORS

Nick Morse, who also designed the cover, is 24, interested in making mobiles, painting and music.

Tom Robinson is 20, interested in writing songs with Ray, and in music generally.

Ray Doyle is 17, interested in literature, people, modern music, and himself.

Lee Marwood is 18, interested in pottery, poetry and people.
These four are all members of the Finchden Manor Community, at Tenterden, Kent.

Alfred B. J. Plaut began his medical studies at the University of Bonn and emigrated to South Africa where he graduated at Witwatersrand. Came to England after the war to specialise in psychiatry and was in charge of the Child Guidance Clinic at the Middlesex Hospital. Author of numerous technical papers, he is a training analyst of the Society of Analytical Psychology, London, and an Associate of the British Psychological Society.

Roger Woolger read Philosophy and Psychology at Oxford, and after spending some time in Ghana as a British Council Officer, went to King's College, London, to do research in the Philosophy of Religion. He has just completed a short dissertation on Simone Weil and is shortly starting training as a psychotherapist in Zurich.

Erica Swale studied at Manchester and London Universities and is now on the staff of the Culture Centre of Algae and Protozoa, Cambridge. Although primarily working with planktonic algae, she has interests in organisms lying between the animal and plant kingdoms.

Tim Eiloart is chairman of Cambridge Consultants Ltd. which he founded in 1960. He now spends much of his time acting as a technology broker and launching new science-based companies. He wrote "The Small World: Raw Stress", published in *Theoria to Theory* Vol. I, iii, iv.

Ivor Popham is a professional social worker, Westcountryman, conservationist, and local historian. He contributed to *New Poems 1954*, (P.E.N.).

Christopher Clarke read mathematics at Christ's College, Cambridge, and is now a research fellow of Jesus College. His main interest is Topological Relativity.

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